
The Town of Sandisfield Energy Reduction Plan



**In fulfillment of the
Massachusetts Green Communities Grant
Program Criterion 3**

October 2018

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I. PURPOSE AND ACKNOWLEDGEMENTS

a. Town and School District Support

The Sandisfield Board of Selectmen, acting as the CEO of the Town of Sandisfield, adopted this *Energy Reduction Plan (ERP) for the Town of Sandisfield*. Their letter of adoption is included in Appendix A.

b. List of Contributors

The key town staff who provided information and guidance throughout the development of this plan are as follows:

- Anina Carr, Green Communities Team
- Larry Dwyer, Green Communities Team
- Mark Newman, Select Board Chairman, Interim Highway Superintendent, Green Team
- George Riley, Select Board, Green Communities Team
- Fred Ventresco, Town Administrator

Staff from Energy Resources in Thomaston, CT conducted energy audits of the Town's buildings in the autumn of 2018. The results of these audits provided the information that allowed Town staff to develop a five-year energy reduction plan. Lauren Gaherty of the Berkshire Regional Planning Commission provided technical assistance to the Town, gathered fuel data, creating accounts in the MassEnergyInsight (MEI) platform, and aided the Town in drafting this report.

II. EXECUTIVE SUMMARY

a. Narrative Summary of the Town¹

The Town of Sandisfield is a rural community located in southern Berkshire County, Massachusetts. Sandisfield is a hidden gem of the southern Berkshire region, known for its impressive natural and cultural resources and community of both year-round residents and second homeowners who enjoy the quiet and solitude life the Town provides. The year-round population of the Town is approximately 900, which is the fourth least densely developed town in Berkshire County. Sandisfield is approximately 53 square miles in size. Approximately 98% of the Town is undeveloped, with forest covering 90% of the total land cover. Other undeveloped land uses include open water, wetlands and fields.

Two major regional roadways serve Sandisfield: Route 57 and Route 8. Route 8 runs north/south through the Town while Route 57 is the major east-west route. Route 57, while a numbered state route, is the maintenance responsibility of the town. The Town owns and maintains 81 miles of roadway, including Route 57, while MassDOT owns and maintains approximately 11 miles of roads, including Route 8.

Sandisfield residents have recently voiced their desire to promote and utilize clean energy technologies across the Town. During the development of the Town's Master Plan in 2016, 83% respondents to a town-side survey were in favor of potential energy efficiency upgrades to Town buildings. Additionally, one of the Goals that emerged from Sandisfield Master Plan was to Develop Alternative Sources of

¹ Adapted from *Master Plan Town of Sandisfield, Massachusetts* (Sandisfield Master Plan Steering Committee & BRPC, 2016).

Energy in Sandisfield, including the two objectives of 1) amending town bylaws to promote alternative energy development and 2) promoting energy efficiency and small-scale energy production by residents. The pursuit of Green Communities designation and the implementation of energy reduction measures in Town buildings follows through on these voiced desires.

b. Summary of Municipal Energy Uses

The Town of Sandisfield currently owns six facilities: the Old Town Hall, Town Hall Annex, Highway Garage, Library, Transfer Station and Yanner Park. The Highway Garage was destroyed by fire in December 2017, where damages included the total loss of the building, four plow trucks and other equipment. The reconstruction of the garage was under construction in October 2018 when this plan was drafted, and is expected to be completed and occupied in January/February 2019. The current vehicle fleet maintained by the DPW is a mix of equipment donated by other communities and new vehicles purchased by the Town after the fire.

The Town Annex serves as the Administrative Offices building for the Town, housing all administrative staff. It is a 5,400-square-foot brick building, constructed in 1950 to serve as the Town's school. The building is occupied approximately 40 or more hours per week. The interior has not been altered significantly since its use as a school. The main floor houses the administrative offices occupy the main floor and the basement is used for social gatherings, used primarily by the Council on Aging for lunches.

The Old Town Hall, built in 1945, serves as the public meeting place for municipal board meetings. It is a wooden building approximately 2,240 square feet in size. It is typically used 12-15 hours per week. The building also houses the police station office.

The new Highway Garage is being built on the same footprint as the old garage, next to the Old Town Hall and on the same parcel of land. The new building is being constructed to a building code that requires a higher energy efficiency standard than the old one, and is expected to use significantly less energy due to building insulation, more efficient heating and lighting systems, and insulated garage doors. The photo to the right shows the insulation being installed in the building.

Town Hall Annex on Sandisfield Road



Old Town Hall on Silverbrook Road



Library on Sandisfield Road



Highway Garage on Silverbrook Road



The Sandisfield Library is a 1,740-square-foot wood building, constructed in 1977. It is heated with oil. It is open for public use approximately 13-15 hours per week.

The Sandisfield transfer station uses electricity for the compactor and for a space heater to heat a comfort station for the attendant. Yanner Park uses electricity for a streetlight at the site. There are a few streetlights in the Town.

The Sandisfield Fire Department that serves the Town does not own the two firehouse buildings used by the Department; these buildings are privately owned and rented through yearly lease agreements. The Town of Sandisfield pays for the utilities that serve the buildings. Because the Town does not own or have complete control of the buildings, the two firehouses are not included in the Town's baseline inventory of fuel use.

There are no public water or sewer services provided in Sandisfield, with all water served by individual wells and all sewer served via private septic systems. The Town does not own or maintain any school buildings; the Town is a member of the Farmington River School District, with the school buildings located outside Sandisfield.

The Department of Public Works maintains majority of the Town's vehicle fleet, with eight vehicles and five large pieces of equipment that burn gasoline and diesel. The Police Department maintains a fleet of two vehicles (one SUV and one pickup truck), both of which use gasoline. All except one town-owned vehicles are exempt, as defined by the Green Communities Criterion #4, either because they are heavier than the 8,500 gross vehicle weight or because they are used as first responder vehicles. The Fire Chief's vehicle is the only vehicles that the Town considers administrative in nature. The Town does not own any school buses or vans in its fleet.

Table 1. Summary of Municipal Energy Users

Facility	Location	Fuel Use	MMBtu FY 2017
Town Hall Annex	66 Sandisfield Road	Electricity, Oil	401
Old Town Hall	3 Silverbrook Road	Electricity, Oil	290
Transfer Station	Sandisfield Road	Electricity	5
Highway Garage	3 Silverbrook Road	Electricity, Oil	283
Library	23 Sandisfield Road	Electricity, Oil	92
Streetlights	Various locations	Electricity	26
Yanner Park	Townhill Road	Electricity	1
Vehicle Fleet	3 Silverbrook Road	Diesel, Gasoline	1,653
Total			2,751

Source: MEI, 10-12-18

c. Summary of Energy Use Baseline and Plans for Reductions

The Town of Sandisfield has chosen its municipal fiscal year (FY) 2017 as its energy use baseline.

Table 2. Summary of Sandisfield Energy Use Baseline FY2017

Baseline Year FY2017	MMBtu Used in Baseline Year	Percent Total MMBtu Baseline Energy Consumption	Projected Planned MMBtu Savings	Savings as Percent of Total MMBtu Baseline Energy Consumption
Buildings	1,071	39%	513	19%
Vehicles	1,653	60%	0	0%
Streetlights	26	1%	0	0%
Transfer Station	5	-	0	0%
Park	1	-	0	0%
Total	2,751	100%	513	19%

Source: MEI, 10-12-18

III. ENERGY USE BASELINE INVENTORY

a. Inventory Tool Used

The town is utilizing MassEnergyInsight as its energy inventory tool.

b. Baseline Year and Energy Reductions Timeline

We have chosen to use the fiscal year 2017 (FY2017), July 1, 2016, to June 30, 2017, as the baseline for this report. The five-year timeline for the town to meet its 20% energy use reduction is FY2018-FY2022.

c. Municipal Energy Consumption for the Baseline Year

Table 3. Sandisfield Energy Use Baseline FY2017

Facility	Electricity		Distillate Fuel Oil		Gasoline		Diesel		Total MMBtu*
	kWh	MMBtu	Gallons	MMBtu	Gallons	MMBtu	Gallons	MMBtu	
Town Hall Annex	16,983	58	2,466	343	-	-	-	-	401
Old Town Hall	9,951	34	1,845	256	-	-	-	-	290
Transfer Station	1,353	5	-	-	-	-	-	-	5
Highway Garage	11,237	38	1,760	245	-	-	-	-	283
Library	5,100	17	537	75	-	-	-	-	92
Building Subtotal	44,624	152	6,608	919	-	-	-	-	1,071
Streetlights	7,625	26	-	-	-	-	-	-	26
Yanner Park	351	1	-	-	-	-	-	-	1
Vehicle Fleet		-	-	-	1,076	133	10,929	1,519	1,653
Total Energy Use*	52,600	179	6,608	919	1,076	133	10,929	1,519	2,751

Source: MEI, 10-12-18

*Figures may not add up exactly due to rounding

IV. ENERGY REDUCTION PLAN

a. Narrative Summary

The Town's vehicle fleet is the largest source of greenhouse gas emissions (as calculated by carbon dioxide emission levels), accounting for 60% emissions. Emissions from diesel fuel is by far the greater source of CO₂, being used in both vehicles and heavy equipment.

Buildings account for 39% of emissions, with emissions the Town Hall Annex, Old Town Hall and Highway Garage being within a similar range of each other. As data from MassEnergyInsight shows, the Town Hall Annex overall uses the most energy, emits the most greenhouse gases and has the highest fuel costs of all town-owned buildings (refer to Table 3 and Figure 1). This is because it is occupied the most hours per week, housing administrative staff on the main floor and the Council on Aging on the bottom floor. Energy data also indicates that the Old Town Hall used a substantial amount of energy given the number of hours that it is used per week.

b. Achieving Our Energy Reduction Goal

In the autumn of 2018, the Town of Sandisfield retained the services of Energy Resources to conduct ASHRAE Level 2 building audits of all Town-owned municipal facilities. The purpose of the audits was to aid the Town in meeting Criterion #3, Energy Use Reduction, of the Green Communities Program to develop a strategy to aid the Town in achieving the 20% energy use reduction within a five-year timeline. This firm also provided a proposal for installing solar PV panels on the Town Hall Annex building. Additionally the Town received information from BETNR, the firm overseeing the construction of the new highway garage. BETNR provided information on the level of greater energy efficiency that the new highway garage will have over the old garage, given that the new building has more efficient lighting, insulated walls and insulated/draft free garage doors. The energy reduction plan is largely based on the results of the audits by Energy Resources, energy information provided by BETNR, and the strategy developed by the Sandisfield Green Team, a Select Board-appointed town committee. Reports provided by Energy Resources and BETNR are found in (Appendix B).

The Town's overall strategy will be to reduce heating oil use, given the fuel's cost and greenhouse gas emissions. Energy conservation measures such as sealing air leaks, weatherizing, insulating pipes and installing programmable thermostats in the Town Hall Annex, Old Town Hall and Library will be done as a first step. The Town will maximize the incentives from the MassSave and other applicable energy efficiency programs and rebates. After energy conservation measures have been addressed, the Town will consider cleaner, more efficient heating systems and solar PV panels to further reduce fossil fuel use.

The Town Hall Annex is the Town's most heavily used building and targeted reductions here will reap substantial rewards. The Town would like to investigate either converting heat fuel from oil to propane, or supplementing the system with air source heat pumps to reduce overall greenhouse gas emissions. The energy efficiency auditors did not analyze the Town Hall Annex for fuel conversion or clean energy technologies, so there are no real calculations that have been developed at this time. The Town has received a \$12,500 META 7 grant for ASHRAE Level 2 audits, but perhaps the scope of work for that grant can be amended to develop an analysis and cost estimate of converting the heating system and installing solar PV panels at the Town Hall Annex. The Town has received a proposal for installing solar PV panels on the building which is south-facing, and perhaps more detailed design and cost estimates

can be done as part of the META 7 grant. If possible, design specifications would also be part of the META 7 grant so that Green Communities funds could be targeted for construction.

The Town would like to investigate a second possible heat pump / solar PV panel system for the Old Town Hall, although this would be a lesser priority than the Annex building. The south/southwest-facing roof is approximately 750 square feet for consideration of solar PV. However, due to the limited hours that this building is utilized, the Old Town Hall may benefit from less complex projects, such as a combination of sealing up the envelope of the building, creating separate zones for the meeting space and the police station office, and installing programmable in each zone.

Energy efficiency benefits from the construction of the new Highway Garage will be realized when it is completed and brought on line in January/February 2019. BETNR is the firm overseeing the construction of the highway garage. Whereas the old garage was an uninsulated cement brick building with leaky garage doors, inefficient forced hot air heat and inefficient florescent lighting, the new garage is being built to meet or exceed energy efficiency building standards. The new building has radiant floor heating with a high efficiency propane boiler, heavily insulated walls and garage doors, and LED lighting. BETNR staff have written down the specifications of the new garage, and have stated that overall, it would be a very conservative estimate to say that the new garage will reduce heating fuel and electricity energy use by at least half. For the purposes of this plan, the Town is using the conservative figure of 50% savings as part of its five-year energy reduction plan.

Reducing vehicle fuel use will continue to be a challenge given that all but one vehicle is used for public works operations or for fire or police response. In autumn 2018 the Town purchased two heavy duty diesel trucks that replaced older 1999 models. The Interim Highway Superintendent estimates that the new models will get at least three more miles per gallon of fuel than the old trucks. The Town will continue to pursue greater vehicle efficiencies in future years.

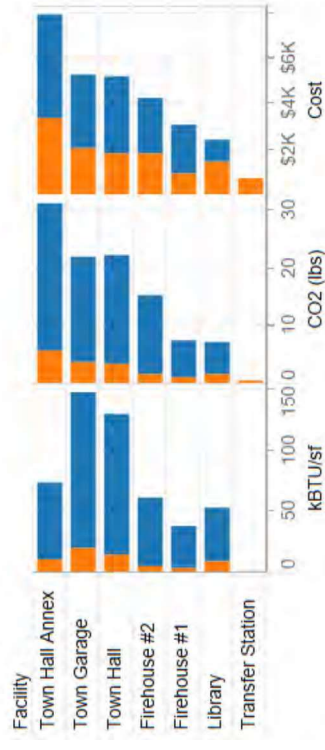
Table 4, Energy Conservation and Renewable Energy Measures, found on the following page, summarizes the projects planned by the Town to meet it's goal of reducing greenhouse gas emissions by 16% in five years. All the projects listed in Table 4 are building improvements and have verifiable calculations provided by energy conservation specialists, documenting a 16% energy reduction. The Town is confident that the additional 4% savings will be realized through sealing of leaks in all buildings and better fuel efficiency in new highway vehicles. It should be noted that installation of solar PV on the Town Annex is not included in the plan.

Fig. 1. Buildings to Target for Efficiency Measures (MEI dated 10-12-18)

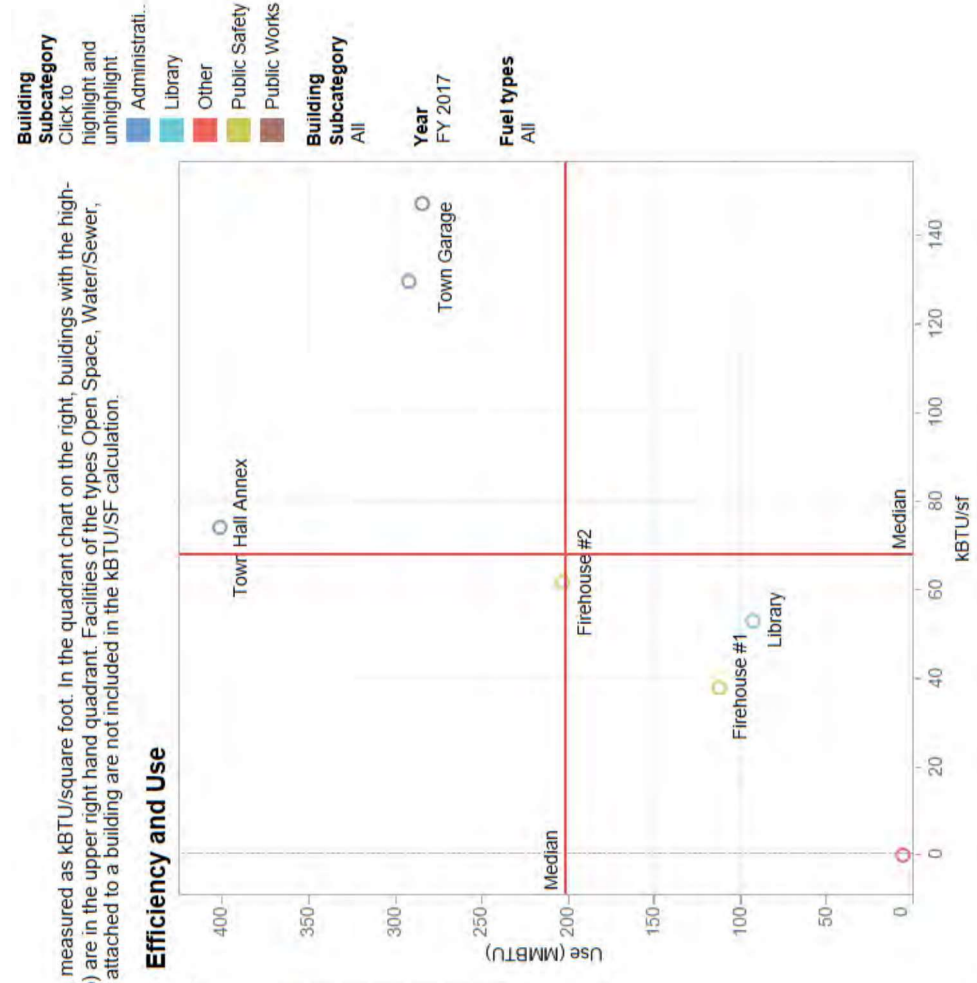
Buildings to Target

This dashboard compares buildings to one other on an energy use per area metric, measured as kBTU/square foot. In the quadrant chart on the right, buildings with the highest energy use and worst efficiency (as compared to other buildings in your portfolio) are in the upper right hand quadrant. Facilities of the types Open Space, Water/Sewer, Street/Traffic Lights, and Vehicles are not displayed. Diesel and Gasoline records attached to a building are not included in the kBTU/SF calculation.

Building Efficiency, Emissions and Cost ■ Heating ■ Electric
Emissions factors updated 1/4/2012 using Massachusetts-specific greenhouse gas emissions factors.



Select a building name above to see how efficient it is compared to your other buildings. Lower numbers indicate greater efficiency.



Source: MEI, 10-12-18

Criterion 3 Step 4: Complete Table 4 - ECMs

[Click here to view a sample version of this table](#)

Table 4 Energy Conservation Measures Data																
ECMs			Status		Energy Data				Financial Data				Reference Data			
Category (Select one from drop-down)	Building/Site Name	Energy Conservation Measure Name	ECM Type (select one from drop-down)	Status (select one from drop-down)	Status Date (Completed with monthly/year or planned month/year)	Projected Annual Electricity Savings (kWh)	Projected Annual Oil Savings (gallons)	Projected Annual Gasoline Savings (gallons)	Projected Annual Diesel Savings (gallons)	Projected Annual Cost Savings (\$)	Total Installed Cost (\$)	Green Community Grant (\$)	Utility Incentives (\$)	Net Cost (\$)	Funding Source(s) for Net Costs	Source for Projected Savings
Buildings	Town Hall Annex	design heat system upgrade & solar protect	Comprehensive	Planned	1/19/2018					NA	\$12,500	\$0	NA	\$12,500	META 7	To be determined
Buildings	Town Hall Annex	Heat pump or fuel conversion	Comprehensive	Planned	12/31/2021		986			unknown	unknown	unknown	unknown	unknown	unknown	traps/rasini-air.com/heat-pump-vs-furnace-pros-cons/
Buildings	Town Hall Annex	Attic insulation	Weatherization	Planned	12/31/2020		332			\$676	\$9,004	\$9,004	\$0	\$9,004	None	Energy Resources Spreadsheet
Buildings	Town Hall Annex	Pipe insulation	Hot Water	Planned	12/31/2021		514			\$1,049	\$12,820	\$12,820	\$0	\$12,820	None	Energy Resources Spreadsheet
Buildings	Town Hall Annex	LED upgrade	Interior lighting	Planned	12/31/2020	5,900				\$1,345	\$4,680	\$4,680	\$1,770	\$2,910	None	Energy Resources Spreadsheet
Buildings	Old Town Hall	LED upgrade	Interior lighting	Planned	12/31/2020	3,474				\$643	\$2,633	\$2,633	\$1,042	\$1,591	None	Energy Resources Spreadsheet
Buildings	Library	LED upgrade	Interior lighting	Planned	12/31/2020	1,225				\$388	\$2,589	\$2,589	\$368	\$2,221	None	Energy Resources Spreadsheet
Buildings	Library	Attic insulation	Weatherization	Planned	12/31/2020		74			\$151	\$3,456	\$3,456		\$0	None	Energy Resources Spreadsheet
Buildings	Highway Garage	Full bldg. improvements	Comprehensive	Active	2/28/2019		880					\$0	\$0	unknown	Insurance Co.	BETNR
Buildings	Highway Garage	Lighting upgrade	Interior Lighting	Active	2/28/2019	5,619						\$0	unknown	unknown	Insurance Co.	BETNR
Buildings	Old TH, Annex, Library	programmable thermo's	Building Control	Planned	12/31/2020		44				unknown	unknown	unknown	unknown	Gr Communities	6.5% savings: http://www.norbord.com/na/blog/programmable-thermostats-do-they-really-save-money/
To insert additional rows, select this row, right-click, and select "Insert."	To insert additional rows, select this row, right-click, and select "Insert."															
				TOTAL Projected Savings		16,218	2,830	0	0	4,252	47,682	35,182	3,180	41,046		
				TOTAL MMBtu SAVINGS		449		393	0							

16% RUNNING TOTAL OF SAVINGS

V. RENEWABLE ENERGY PROJECTS

Sandisfield town officials and Green Team would like to investigate clean energy opportunities, possibly with the financial support from the Green Communities program. Both the Town Hall Annex and Old Town Hall have roofs that are south-facing and unobstructed by trees. The Town would like to consider installing solar PV panels on these buildings, particularly if analyses indicate that air source heat pumps, combined with solar PVs, could substantially reduce or eliminate fossil fuel and electricity use in those buildings. The Solar Energy Resources report (Appendix B) describes the size and cost of a solar PV array that would reduce the Town Hall Annex's current electricity use by 11,718 kWh, or 69%. Installation of PV solar panels on the Annex would reduce the overall greenhouse gas emissions of the Town by approximately 2%.

Additionally, the Town of Sandisfield has adopted zoning bylaws for the siting of Large-Scale Ground-Mounted Solar PV Installations. The Town allows large solar PV projects by-right within the Solar PV Overlay District, which consist of all land owned by the Town of Sandisfield, with the exception of Yanner Park, which is deed restricted for recreation. Four of the town-owned parcels are large enough to site a solar PV array of 250 kW or larger, after removing property boundary setbacks and wetland resource areas. Outside of the Overlay District large solar projects are allowed by Special Permit.

VI. REFERENCES

Mass. Dept. of Energy Resources (DOER), 2016. *Energy Reduction Plan (ERP) Guidance and Outline*, Boston, MA.

Sandisfield Master Plan Steering Committee & BRPC, 2016. *Master Plan Town of Sandisfield, Massachusetts*, Sandisfield, MA.

MMBtu Conversion Chart

(adapted from Energy Reduction Plan Guidance and Outline, dated 7-28-16)

BTU Content of Common Energy Units – (1 million Btu equals 1 MMBtu)

- 1 kilowatt hour of electricity = 0.003412 MMBtu
- 1 gall. heating oil = 0.139 MMBtu
- 1 gal. propane = 0.091 MMBtu
- 1 gal. diesel fuel = 0.139 MMBtu
- 1 gal. gasoline = 0.124 MMBtu (*based on U.S. consumption, 2007*)

VII. APPENDICES

- A. Adoption Letter from Sandisfield Board of Selectmen
- B. Energy Reports by Energy Resources and BETNR

A. Adoption Letter from Sandisfield Board of Selectmen

TOWN OF SANDISFIELD
Office of the Board of Selectmen and Town Administrator
66 Sandisfield Road
P.O. Box 90
Sandisfield, Massachusetts 01255
(413) 258-4711(voice); (413) 258-4225 (fax)

October 22, 2018

To Whom It May Concern:

Please be advised that on October 22, 2018, the Sandisfield Board of Selectmen met at a duly noticed and regularly scheduled meeting and voted to adopt the *Draft Sandisfield Energy Reduction Plan* for Criterion 3 of the Green Communities Application for Designation. The Board was given copies of the draft plan for review prior to the meeting.

The Board of Selectmen also voted to authorize Sandisfield Green Team to finalize the plan and submit it to the Massachusetts Department of Energy Resources as part of the Town's application for Green Communities designation on or before October 26, 2018.

The Board of Selectmen expect to review and formally adopt the *Final Sandisfield Energy Reduction Plan* at a Selectmen's meeting on November 5, 2018. If the final plan is revised significantly from that submitted for Criterion 3 of the Green Communities Application, the Town will submit the final revised plan to the DOER for its files.

Sincerely,

A handwritten signature in black ink, appearing to read 'Mark Newman', with a long horizontal flourish extending to the right.

Mark Newman, Chairman
Sandisfield Board of Selectmen

B. Energy Reports by Energy Resources and BETNR

Sandisfield - Annex

66 Sandisfield Road, Sandisfield, MA



Nov 23, 2018

Efficiency Measures - Executive Summary



Executive Summary By:

Robert C. Boissonneault
JK Energy Solutions LLC
ENERGY RESOURCES LLC
(860) 391-7154

rboissonneault@energyresourcesusa.net

A. **EXISTING CONDITIONS**

The building has older technology lighting and is lacking for insulation around hot water piping as well as building envelope.

B. **High Efficiency Plan**

1. Install a new high efficiency lighting.
2. Install pipe insulation on exposed hot water pipes.
3. Install attic insulation.

Specifically:

1) High Performance LED Lighting Upgrade

Please see detailed lighting proposal attached.

The current interior lighting system consists of T12 fixtures as well as incandescent lamps. We will upgrade these fixtures with energy efficient LED retrofit kits and LED PAR lamps. This retrofit will result in reduced energy consumption as well as reduced maintenance costs due to the longer lamp life of LED vs T12's. Lighting savings are expected to be 5900 kwh/year.

2) Straight Pipe Insulation

There are many sections of hot water (180 degrees F) piping that are un-insulated. Please see pictures attached as well as the list below. We will insulate with 1" thick pre-molded fiberglass pipe insulation with jacket and PVC fittings. Oil savings is expected to be 514 gallons per year

1" pipe - 9'

1" 90 Elbows - (QTY: 5)

1-1/4" pipe - 567'

1-1/4" 90 Elbows - (QTY: 100)

2-1/2" pipe - 18'

2-1/2" 90 Elbow - (QTY: 3)

3) Attic and Crawlspace Insulation

There is an opportunity to increase insulation levels from R8 to R-49 by installing cellulose insulation to the attic floor. There is a total of 2210 square feet in this area. We will also add fiberglass batts in the crawlspace to increase from R2 to R30. There is a total of 928 square feet in this area. Adding insulation to these areas will decrease drafty areas in the building. This will lead to reduced energy consumption and increased comfort in the building along with consistent temperatures throughout your building during the summer and winter.


Oil savings from these measures is expected to be 332 gallon per year.

Installation

- Complete mechanical and electrical installation, including necessary materials and labor for each item described above.

C. NOT INCLUDED –

* Anything not specifically noted above, is not included.

								
BUILDING NAME	ECM	Project Annual Electricity Savings (kWh)	Project Annual Oil Savings (gallons)	Project Annual Savings (\$)	Total Project Cost (\$)	Utility Incentive (\$)	Net Project Cost (\$)	Simple Payback (years)
Annex	Attic Insulation		331.57	\$ 676.40	\$ 9,004.00	\$ -	\$ 9,004.00	13.31
	Straight Pipe Insulation on HW Supply - 1", 1-1/4", 2-1/2"		514	\$ 1,048.56	\$ 12,820.00	\$ -	\$ 12,820.00	12.23
	LED Lighting Upgrade	5,900		\$ 1,345.20	\$ 4,679.50	\$ 1,769.93	\$ 2,909.57	2.16
	TOTAL	5,900	845.57	\$ 3,070.16	\$ 26,503.50	\$ 1,769.93	\$ 24,733.57	8.06

CUSTOMER ACKNOWLEDGEMENT

I have read and understand the outlined scope of work provided above, and agree that the focus of the project is energy savings. I understand that any savings stated above or within any Utility documents are estimated based upon a comparison of the baseline system to the high efficiency system, and using customer provided inputs for operating parameters.

Signature: _____

Name: _____

Title: _____

Date: _____

Initials: _____ Date: _____

ADDENDUM: PICTURES OF UN-INSULATED PIPING (SANDISFIELD ANNEX)





Initials: _____ Date _____



Comprehensive Energy Efficient Facility Upgrade

Developed by  for:

Sandisfield - Annex

66 Sandisfield Road, Sandisfield

Fred Ventresco

603-361-8448



JK Energy Consultant:

Darek Chomiak

413-376-8575

dchomiak@jkenergysolutions.net

Issued on: October 9, 2018

Expires on: November 8, 2018

*JK Energy Solutions is an approved contractor for the
Eversource MA Small Business DI Program*

Project Savings Overview

INPUT FACTORS:

kWh Rate	\$0.228 / kWh
Therms Rate	
Hours of Operation	Varies by Location
Existing Measure Count	80 measures
Proposed Measure Count	80 measures

ENERGY and FINANCIAL SAVINGS:

Annual kWh Saved	5,900 kWh
Total Therms Saved	
Total Annual Savings (\$)	\$1,343.38

FACILITY INVESTMENT:

Turnkey Project Cost	\$4,679.50
Utility Incentive	\$1,769.93
MA Sales Tax*	\$0.00
Net Total Investment	\$2,909.57

FINANCIAL ANALYSIS:

Simple Payback (years)	2.17
Project ROI	46.17%
Number of Months**	24 months
Monthly Payment \$121.23 / Monthly Savings	\$111.95

Initials _____

Date _____

**Tax is calculated as 6.25% of retail materials cost only. **Interest-free financing will be provided off bill through Eversource MA. Customer has 30 days to act on this proposal.*

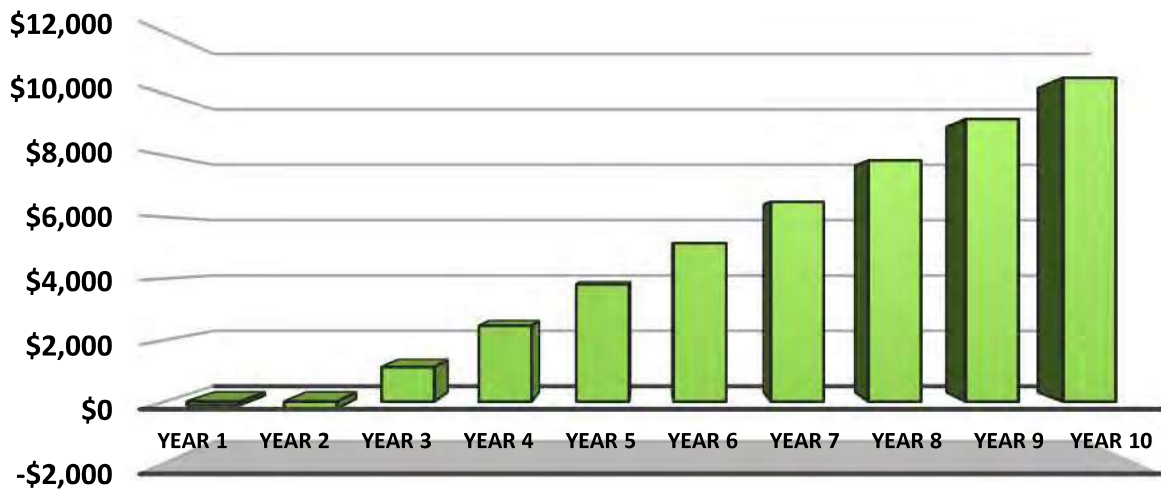
Detailed Energy Analysis

ECM	Location	Existing System	Qty	Fixture Watts	Annual HRS	Replacement System	Qty	Fixture Watts	Annual HRS	Watts Saved	kWh Saved	Annual \$ Savings
1	Main Hallway by Back Entrance	1 x 4 1L T12 34W	2	40	2,000	Instafit 4' 1L Type C w/ External Driver	2	16	2,000	48.0	96.0	\$ 21.86
2	Main Hallway by Back Entrance	100W Incandescent Screw-in	1	40	8,760	LED Exit w/ Batt. Backup	1	2	8,760	38.0	332.9	\$ 75.80
3	Outside Parking Lot	60W Incandescent Screw-in	6	100	1,500	12W PAR 38 LED	6	12	1,500	528.0	792.0	\$ 180.34
4	Outside above the Front Door	100W Incandescent Screw-in	1	60	1,500	9.5W A19 LED	1	9.5	1,500	50.5	75.8	\$ 17.25
5	Outside Back	#REF!	2	100	1,500	12W PAR 38 LED	2	12	1,500	176.0	264.0	\$ 60.11
6	Outside Left Side in VT Fixture	60W Incandescent Screw-in	2	60	1,250	9.5W A19 LED	2	9.5	1,250	101.0	126.3	\$ 28.75
7	Fred's Office	1 x 4 2L T12 34W	2	72	2,000	Instafit 4' 2L Type C w/ External Driver	2	32	2,000	80.0	160.0	\$ 36.43
8	Hallway Storage	60W Incandescent Screw-in	2	60	250	9.5W A19 LED	2	9.5	250	101.0	25.3	\$ 5.75
9	Men's Room	15W Compact Fluorescent	1	15	350	9.5W A19 LED	1	9.5	350	5.5	1.9	\$ 0.44
10	Men's Room	1 x 4 1L T12 34W	1	40	350	Instafit 4' 1L Type C w/ External Driver	1	16	350	24.0	8.4	\$ 1.91
11	Women's Room	1 x 4 2L T12 34W	2	72	400	Instafit 4' 2L Type C w/ External Driver	2	32	400	80.0	32.0	\$ 7.29
12	Server Room	60W Incandescent Screw-in	1	60	500	9.5W A19 LED	1	9.5	500	50.5	25.3	\$ 5.75
13	Town Clerk's Office	1 x 4 2L T12 34W	12	72	2,000	Instafit 4' 2L Type C w/ External Driver	12	32	2,000	480.0	960.0	\$ 218.59
14	Assessor's & Tax Collectors Office	1 x 4 2L T12 34W	12	72	2,000	Instafit 4' 2L Type C w/ External Driver	12	32	2,000	480.0	960.0	\$ 218.59
15	Inside by Front Entrance	1 x 4 2L T12 34W	1	72	2,000	Instafit 4' 2L Type C w/ External Driver	1	32	2,000	40.0	80.0	\$ 18.22
16	Inside by Front Entrance	Standard Exit Sign	1	40	8,760	LED Exit w/ Batt. Backup	1	2	8,760	38.0	332.9	\$ 75.80
17	Basement Stairway	1 x 4 2L T12 34W	1	72	2,000	Instafit 4' 2L Type C w/ External Driver	1	32	2,000	40.0	80.0	\$ 18.22
18	Basement Stairway	1 x 4 1L T12 34W	1	40	2,000	Instafit 4' 1L Type C w/ External Driver	1	16	2,000	24.0	48.0	\$ 10.93
19	Basement	1 x 4 2L T12 34W	20	72	750	Instafit 4' 2L Type C w/ External Driver	20	32	750	800.0	600.0	\$ 136.62
20	Basement	Standard Exit Sign	1	20	8,760	LED Exit w/ Batt. Backup	1	2	8,760	18.0	157.7	\$ 35.90
21	Basement	Standard Exit Sign	2	40	8,760	LED Exit w/ Batt. Backup	2	2	8,760	76.0	665.8	\$ 151.59
22	Basement Restroom	60W Incandescent Screw-in	4	60	250	9.5W A19 LED	4	9.5	250	202.0	50.5	\$ 11.50
23	Boiler Room	60W Incandescent Screw-in	2	60	250	9.5W A19 LED	2	9.5	250	101.0	25.3	\$ 5.75
		Total	80				80			3,581.5	5,899.8	\$ 1,343.38

10 Year Cash Flow Analysis

YEAR	YEARLY SAVINGS	YEARLY COST	CUMULATIVE CASH FLOW
Year 1	\$1,343.38	\$1,454.79	-\$111.41
Year 2	\$1,343.38	\$1,454.79	-\$222.81
Year 3	\$1,343.38	\$0.00	\$1,120.57
Year 4	\$1,343.38	\$0.00	\$2,463.95
Year 5	\$1,343.38	\$0.00	\$3,807.32
Year 6	\$1,343.38	\$0.00	\$5,150.70
Year 7	\$1,343.38	\$0.00	\$6,494.08
Year 8	\$1,343.38	\$0.00	\$7,837.46
Year 9	\$1,343.38	\$0.00	\$9,180.84
Year 10	\$1,343.38	\$0.00	\$10,524.22
Totals	\$13,433.79	\$2,909.57	\$10,524.22

CUMULATIVE \$\$ Savings



Project Benefits Summary

Reduce Energy Consumption	65%
Reduce Annual Utility Cost	\$1,343.38
10 Year Positive Cash Flow	\$10,524.22
Reduce Annual Maintenance Costs	
Instant on / Instant off Lighting	
Longer Life Lighting System	
Improved Color Rendering	
Disposal/Recycling of higher mercury lamps	

Printed Name _____

Signature _____

Company Title _____

Date _____

Warranty and Notes

The JK Energy Solutions turnkey solution includes the recycling of your existing technology and the disposal of non-hazardous waste. Materials and workmanship of your newly upgraded measures are fully warranted as follows:

- Workmanship – JK Energy Solutions 2 Year Warranty
- Products - Manufacturer's Material Warranty

Your utility incentivized energy efficiency upgrade will result in **a large reduction in operating costs** for your facility. In addition, the new equipment will improve the quality of the overall working environment.

Customer signature of the proposal is authorization for JK Energy Solutions to proceed with construction. Customer agrees to promptly execute any documents required by Eversource to effect payment to JK Energy Solutions.

Project savings analysis is based on current burnt out lights being relamped prior to project installation.

This proposal is only guaranteed for 30 days from date of initial presentation.



An **ENERGY**resources Company

Prepared for:

Town of Sandisfield

66 Sandisfield Rd
Sandisfield, MA 01255



Impact Summary

Below is an outline of the financial and environmental impacts of installing a solar array. Included is a comparison of paths to ownership, and how they correspond to Town of Sandisfield.

Purchase Price and Net Cost

<i>Capital Cost</i>	\$35,381.36
<i>Savings-to-Investment Ratio</i>	3.1
Savings / Cost. This ratio describes the number of dollars returned for each dollar invested.	
<i>Cashflow Payback</i>	4.1 years
The amount of time until the system cashflow exceeds the system cost.	
<i>Internal Rate of Return</i>	31.4%
IRR compares the annual return of the investment to the cost. It is used for a comparison of % yield to other investments.	
<i>Net Present Value</i>	\$45,586.92
NPV indicates future system worth, adjusting returns against the inflation-weighted value of the dollar in the year they are realized.	

Clean Energy Financing

A common path to purchasing a solar array is using clean energy specific low-interest financing or leases. These leverage the savings, incentives and tax benefits to create positive cashflow situations for businesses.

<i>Financial model:</i>	Loan
<i>Monthly Payment:</i>	\$293.50
<i>Cashflow during Repayment</i>	\$406.23
<i>Savings during Repayment</i>	\$112.73
<i>Repayment Term:</i>	20 Years
<i>Interest Rate:</i>	6.35% APR
<i>25-Year Net Cashflow</i>	\$45,339.85

Environmental Impact

This system's annual energy production of 15300 kWh reduces CO2 emissions by 24098 lbs per year



10.2

Acres of US Forest
growth in a year

This is the equivalent of:



2.3

Passenger vehicles taken
off the road

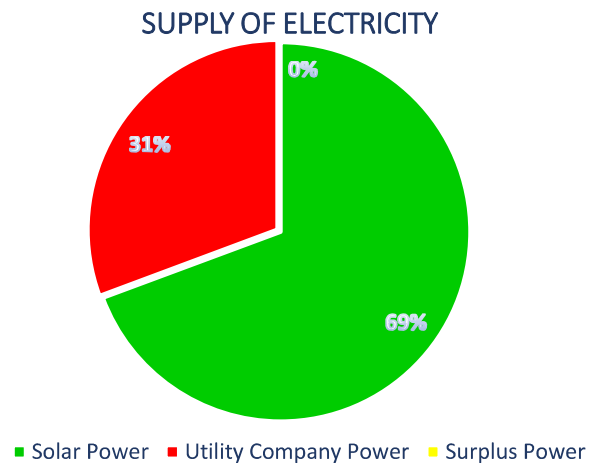
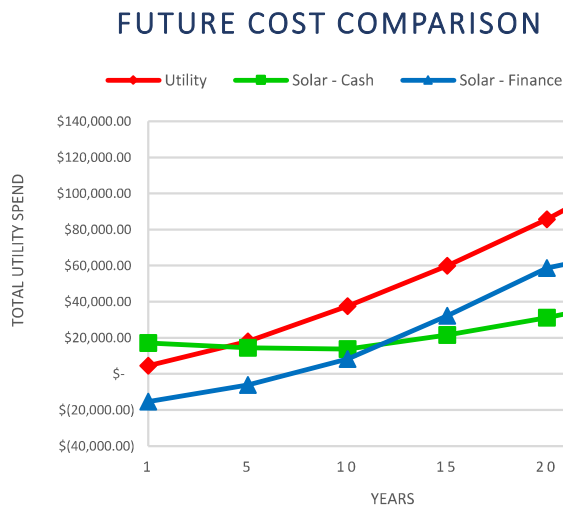


1209.9

Gallons of gasoline
consumed in a year

PROJECT SUMMARY

Solar Energy Resources proposes to install 11.9 kW of photovoltaic solar panels at Town of Sandisfield. This system will produce 69% of the site's current kWh use, lowering their utility bills. Additional state and federal incentives provide payments for energy produced (SMART) and a tax credit, accelerating the system's return to just 4.1 years. Optionally, the system can be financed for immediate savings and cashflow.



HOW YOUR ELECTRIC BILL WILL CHANGE

Cash Option (Full price paid year one)

Project purchased outright or through personal bank

Current Monthly Bill*	\$370.01
- Energy Savings	\$181.33
= New Utility Bill	\$188.67
- SMART Payments	\$214.88
New Monthly Cost	-\$26.20

Monthly Difference from Old Bill **\$396.21**

Financed Option (No out of pocket expense)

Project financed through clean energy financing program

Current Monthly Bill*	\$370.01
- Energy Savings	\$181.33
= New Utility Bill	\$188.67
- SMART Payments	\$214.88
+ Finance Payment	\$293.50
New Monthly Cost	\$267.30

Monthly Difference from Old Bill **\$102.71**

*Current Monthly Bill amount reflects an average of utility costs. Actual bill and savings will vary on a monthly basis.

STATE AND FEDERAL INCENTIVES

Solar projects installed in MA may be eligible to participate in the state SMART program, allowing them to earn money for the power they produce in addition to the savings on utility bills. An Investment Tax Credit of 30% allows sites to reduce their tax liability, instead turning dollars which would ordinarily be paid in tax into an investment in the solar array.

State Incentive - MA SMART Program

How it works:

Sites enrolled in the MA SMART Program receive payments for power they produced in addition to the cost of energy being eliminated from their bill, providing a two-pronged benefit.



<i>Years of Income</i>	10 Years
<i>Est. Annual Payment Amount</i>	\$2,578.51
<i>Est. Lifetime Payments Value</i>	\$22,238.65

Federal Incentive - Tax Credit and Accelerated Depreciation

How it works:

Organizations which purchase and own a Solar Array can claim a Tax Credit against their Federal Income Taxes. Additionally, solar is depreciated over the 5-year MACRS schedule, or as a single year 179 Capital Expense. This means businesses can turn some or all of their annual taxes into an investment reducing their operating costs and/or providing long term income. A tax rate of 26.99% is assumed below:



<i>Investment Tax Credit</i>	\$10,614.41
<i>Additional First Year Tax Savings</i>	\$8,117.01
<i>Remaining Tax Savings</i>	\$0.00
<i>Total Tax Benefit:</i>	\$18,731.42

Warranty and Maintenance

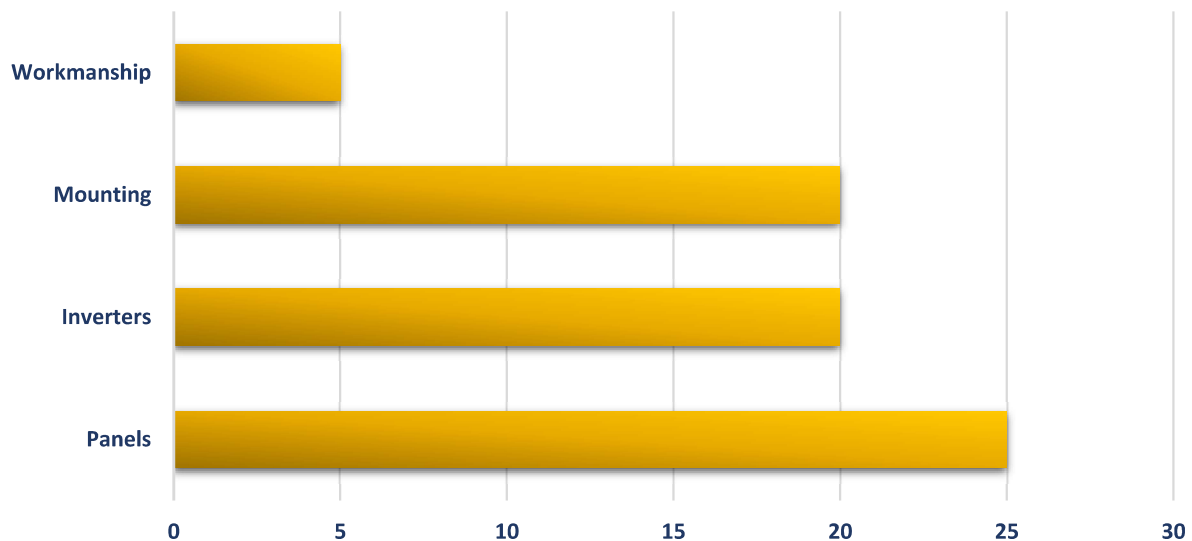
Solar arrays are a largely passive investment, having very few moving components and requiring very little maintenance or upkeep. The array here includes a solar monitoring system which tracks production against estimates, and can be configured to share alerts with multiple parties in the event of any damage or equipment failures. Additionally, systems come with long warranties intended to protect the investment over the long lifetime of operation.

System Summary

System Size (DC)	11.9 kW
kWh Production	15,300 kWh
Current Consumption	22,068 kWh
Panels	39x Q Cells 305W
Inverters	1x SolarEdge SE10000H-US
Mounting	Roof-Mounted Array
Notes	<ul style="list-style-type: none">o Includes PV Monitoring Systemo Complete turnkey installation, orientation and start-upo Includes permitting and interconnection applications



Warranty Timeframe





76 Watertown Rd
Thomaston, CT 06787
(860) 880-8300

LETTER OF INTENT

This Letter of Intent (LOI), issued as of 10/25/2018, is by and between Solar Energy Resources (Contractor) and Town of Sandisfield of Sandisfield, MA (Customer).

DESCRIPTION

SOLAR ENERGY RESOURCES (Contractor) will supply all labor, tools, equipment and material to professionally install a photovoltaic system per the schedule in the attached proposal dated 10/25/2018, which is attached hereto and made a part hereof.

FEES AND PAYMENTS

Please denote the preferred payment method by initialing and dating where indicated

Initial _____ **Finance Purchase** - Proceeding with installation contingent upon approval by
Date _____ suggested finance option from proposal or equivalent service

-or-

Initial _____	Cash Purchase - Total Project Cost	\$	35,381.36
Date _____	Down Payment	\$	3,538.14
	Installment Payment (due upon material delivery)	\$	14,152.54
	Final Payment (due upon installation)	\$	17,690.68

CONTRACTORS INCLUSIONS

- a) System Design and Engineering
- b) All Standard Installation Components
- c) All Permitting Applications, Costs, and Permit Service Fees
- d) Permit Inspection Oversight and Scheduling
- e) Utility Company Interconnection Application, Oversight, and Meter Scheduling
- f) Assistance with Renewable Energy Credit Applications and Processing
- g) Remote Monitoring Commissioning, Set Up, and Training if selected
- h) Operations and Maintenance Training and Orientation

TERM OF LETTER OF INTENT

Customer agrees to the payment schedule initialed above. If the Cash Purchase option is selected and any payment remains outstanding for more than thirty (30) days, Contractor has a right to terminate this agreement and declare amounts for all work completed due and payable. In the event of the sale or closing of the business the Customer will be required to pay any unpaid balance of this Agreement within thirty (30) days.

The Contractor shall be entitled to collect from the Customer, reasonable costs of collection pursuant to any default, including but not limited to, attorney fees, court costs, marshal fees and service fees.

The Contractor shall also have the right to assert any UCC-1 liens on the equipment installed at Customer's premises. In the event that Contractor decides to assert UCC-1 lien, it shall notify the Customer and provide Customer with a timely notice of satisfaction when this agreement is complete.

CHANGES IN SERVICES

Changes in the Services to be performed may be accomplished by a Change Order without invalidating this Agreement. Contractor will provide a Change Order to be signed by both Customer and Contractor stating their agreement with respect to change in the scope of Services.

CONTRACTOR'S EXCLUSIONS

Contractor shall not be responsible or liable for the condition, maintenance or repair of any electrical wiring located in or on Customer's premises. Nor shall Contractor be liable or responsible for repairs or replacements of electrical equipment damaged or destroyed by acts or negligence of persons not under the direct supervision of the Contractor.

SITE CONDITIONS

Final Construction Design by the Contractor will commence upon receipt of the down payment by the Customer. If during final design development, it is determined by the Contractor that the site conditions do not allow for an effective installation, Contractor and Customer shall have the option to terminate or modify this agreement. In the result of termination, the Contractor will refund the Customer the previously paid down payment.

UTILITY INTERCONNECT AND RECS

Utility interaction by the Contractor will commence upon receipt of the down payment by the Customer. Upon completion of the request for RECs, should the request be denied, Customer and Contractor have the option to modify or terminate this agreement. Upon completion of the request for interconnect, should the Contractor determine that the cost of connection is excessive, both the Customer and Contractor have the option to terminate or modify this agreement. In the result of termination, the Contractor will refund the Customer the previously paid down payment.

ENTIRE CONTRACT

This Letter of Intent constitutes the entire agreement between the parties. This Agreement is intended as the final expression and as a complete and exclusive statement of the terms of the parties' agreement. This Letter of Intent is not valid until countersigned by Solar Energy Resources management.

NOTICES

For purposes of notice, the Contractor's address is 76 Watertown Road, Thomaston, CT 06787, and the Customer's address is:

ACCEPTANCE AND APPROVAL

This price is good for 60 days from the date of issue. By signing below, the parties hereto have executed this Letter of Intent and certify that they have read, understood and agree to the terms of this agreement this _____ day of _____, 2018.

Energy Resources

Town of Sandisfield

By: _____

By: _____

(Print Name)

(Print Name)

Date: _____

Date: _____



An **ENERGY**resources Company

Prepared for:

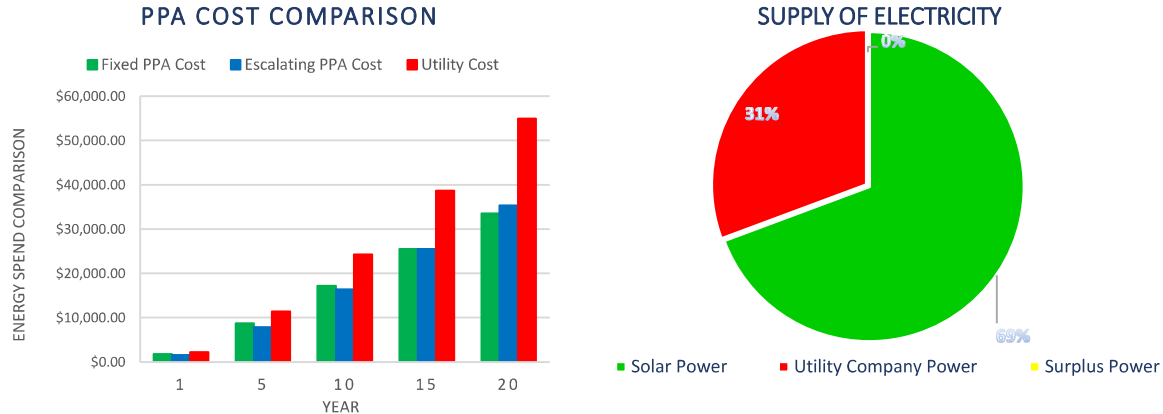
Town of Sandisfield

66 Sandisfield Rd
Sandisfield, MA 01255



PROJECT SUMMARY

Solar Energy Resources proposes to install 11.9 kW of photovoltaic solar panels at Town of Sandisfield. This system will produce 69% of the site's current energy needs and lower their utility bills. By acquiring it through a Power Purchase Agreement, Town of Sandisfield incurs no out of pocket expense and instead only purchases what the solar system produces at a lowered cost of power. This can be at a low, flat rate which is fixed for 20 years, or a variable rate which starts lower and climbs by 2% each year, tracking the average utility inflation rate and providing consistent savings.



HOW YOUR ELECTRIC BILL WILL CHANGE

The proposed solar array will annually produce 15300 kWh. Below is an outline of how continuing to purchase it from the utility company would compare to getting it through a solar PPA.

Current Cost of Power

\$0.1422 per kWh

First Year Cost:

\$2,175.97

Twenty-Year Cost:

\$54,948.11

Fixed Rate PPA

\$0.1150 per kWh

20-Year Stable Cost of Power

\$1,759.50

Savings

\$416.47

\$33,567.57

Savings

\$21,380.54

Variable Rate PPA

\$0.1000 per kWh

20-Year Escalating Cost of Power

\$1,530.00

Savings

\$645.97

\$35,344.40

Savings

\$19,603.72

System Impact

Solar arrays are a largely passive investment, having very few moving components and requiring very little maintenance or upkeep. The array here includes a solar monitoring system which tracks production against estimates, and can be configured to share alerts with multiple parties in the event of any damage or equipment failures.

System Summary

System Size (DC)	11.9 kW
kWh Production	15,300 kWh
Current Consumption	22,068 kWh
Panels	39x Q Cells 305W
Inverters	1x SolarEdge SE10000H-US
Mounting	Roof-Mounted Array
Notes	<ul style="list-style-type: none">o Includes PV Monitoring Systemo Complete turnkey installation, orientation and start-up commissioningo Includes permitting and interconnection applications



Environmental Impact

*This system's annual energy production of 15300 kWh
reduces CO2 emissions by 24098 lbs per year*



10.2

Acres of US Forest
growth in a year

This is the equivalent of:



2.3

Passenger vehicles taken
off the road



1209.9

Gallons of gasoline
consumed in a year

Commercial Purchase Analysis for Town of Sandisfield											
Year	Solar Production and Rate Options				Annual Cost Comparison of Produced Power				Cash Impact of Solar		
	Solar kWh Produced	\$/kWh Utility Rate	\$/kWh Fixed Rate PPA	\$/kWh Escalating Rate PPA	Utility Rate	- or -	Fixed Rate PPA	- or -	Variable Rate PPA	Fixed Rate PPA Savings	Variable Rate PPA Savings
1	15,300	\$ 0.1422	\$ 0.1150	\$ 0.1000	\$ 2,175.97		\$ 1,759.50		\$ 1,530.00	\$ 416.47	\$ 645.97
2	15,224	\$ 0.1463	\$ 0.1150	\$ 0.1020	\$ 2,227.87		\$ 1,750.70		\$ 1,552.80	\$ 477.17	\$ 675.08
3	15,147	\$ 0.1506	\$ 0.1150	\$ 0.1040	\$ 2,281.02		\$ 1,741.95		\$ 1,575.93	\$ 539.07	\$ 705.09
4	15,072	\$ 0.1550	\$ 0.1150	\$ 0.1061	\$ 2,335.43		\$ 1,733.24		\$ 1,599.42	\$ 602.19	\$ 736.02
5	14,996	\$ 0.1594	\$ 0.1150	\$ 0.1082	\$ 2,391.15		\$ 1,724.57		\$ 1,623.25	\$ 666.57	\$ 767.90
6	14,921	\$ 0.1641	\$ 0.1150	\$ 0.1104	\$ 2,448.19		\$ 1,715.95		\$ 1,647.43	\$ 732.24	\$ 800.75
7	14,847	\$ 0.1688	\$ 0.1150	\$ 0.1126	\$ 2,506.59		\$ 1,707.37		\$ 1,671.98	\$ 799.22	\$ 834.61
8	14,772	\$ 0.1737	\$ 0.1150	\$ 0.1149	\$ 2,566.38		\$ 1,698.83		\$ 1,696.89	\$ 867.55	\$ 869.49
9	14,699	\$ 0.1788	\$ 0.1150	\$ 0.1172	\$ 2,627.60		\$ 1,690.34		\$ 1,722.18	\$ 937.26	\$ 905.43
10	14,625	\$ 0.1839	\$ 0.1150	\$ 0.1195	\$ 2,690.28		\$ 1,681.89		\$ 1,747.84	\$ 1,008.40	\$ 942.45
11	14,552	\$ 0.1893	\$ 0.1150	\$ 0.1219	\$ 2,754.46		\$ 1,673.48		\$ 1,773.88	\$ 1,080.98	\$ 980.58
12	14,479	\$ 0.1948	\$ 0.1150	\$ 0.1243	\$ 2,820.17		\$ 1,665.11		\$ 1,800.31	\$ 1,155.06	\$ 1,019.86
13	14,407	\$ 0.2004	\$ 0.1150	\$ 0.1268	\$ 2,887.44		\$ 1,656.79		\$ 1,827.13	\$ 1,230.66	\$ 1,060.31
14	14,335	\$ 0.2062	\$ 0.1150	\$ 0.1294	\$ 2,956.32		\$ 1,648.50		\$ 1,854.36	\$ 1,307.82	\$ 1,101.97
15	14,263	\$ 0.2122	\$ 0.1150	\$ 0.1319	\$ 3,026.85		\$ 1,640.26		\$ 1,881.99	\$ 1,386.59	\$ 1,144.86
16	14,192	\$ 0.2184	\$ 0.1150	\$ 0.1346	\$ 3,099.05		\$ 1,632.06		\$ 1,910.03	\$ 1,466.99	\$ 1,189.02
17	14,121	\$ 0.2247	\$ 0.1150	\$ 0.1373	\$ 3,172.98		\$ 1,623.90		\$ 1,938.49	\$ 1,549.08	\$ 1,234.49
18	14,050	\$ 0.2312	\$ 0.1150	\$ 0.1400	\$ 3,248.67		\$ 1,615.78		\$ 1,967.37	\$ 1,632.89	\$ 1,281.30
19	13,980	\$ 0.2379	\$ 0.1150	\$ 0.1428	\$ 3,326.17		\$ 1,607.70		\$ 1,996.69	\$ 1,718.47	\$ 1,329.48
20	13,910	\$ 0.2448	\$ 0.1150	\$ 0.1457	\$ 3,405.51		\$ 1,599.66		\$ 2,026.44	\$ 1,805.85	\$ 1,379.08
Total	291,892 kWh				\$ 54,948.11	- vs -	\$ 33,567.57	- vs -	\$ 35,344.40	\$ 21,380.54	- vs - \$ 19,603.72

Key Assumptions:

Fixed PPA kWh Cost	\$ 0.1150	Utility Rate:	\$ 0.1422
Variable PPA Initial kWh cost	\$ 0.1000	Electric Inflation	2.9%
Escalation Rate	2.00%	Panel Loss	0.5%

Solar Energy Resources provides this analysis in order to show possible financial implications of a solar PPA and installation. Organizations are advised to seek their own tax and financial experts, and the information contained in this model is not to be relied on for tax or financial purposes.

*Energy Savings projects the estimated dollar value of kWh saved at the projected yearly rate

Sandisfield – Old Town Hall

3 Silverbrook Road, Sandisfield, MA



Nov 23, 2018

Efficiency Measures - Executive Summary



Executive Summary By:

Robert C. Boissonneault
JK Energy Solutions LLC
ENERGY RESOURCES LLC
(860) 391-7154

rboissonneault@energyresourcesusa.net

A. **EXISTING CONDITIONS**

The building has older technology lighting and is lacking for insulation in the attic.

B. **High Efficiency Plan**

1. Install a new high efficiency lighting.
2. Install attic insulation.

Specifically:

1) High Performance LED Lighting Upgrade

The current interior lighting system consists of T12 fixtures as well as CFL and incandescent lamps. We will upgrade these fixtures with energy efficient LED retrofit kits and LED PAR lamps. This retrofit will result in reduced energy consumption as well as reduced maintenance costs due to the longer lamp life of LED vs T12's. Lighting savings are expected to be 3474 kwh/year.

2) Attic Insulation

There is an opportunity to increase insulation levels from R-28 to R-49 by installing cellulose insulation to the attic floor. There is a total of 1650 square feet in this area. Adding insulation to these areas will decrease drafty areas in the building. This will lead to reduced energy consumption and increased comfort in the building along with consistent temperatures throughout your building during the summer and winter.

Oil savings from these measures is expected to be 25 gallon per year.

Installation

- Complete mechanical and electrical installation, including necessary materials and labor for each item described above.

C. **NOT INCLUDED –**

* Anything not specifically noted above, is not included.



BUILDING NAME	ECM	Project Annual Electricity Savings (kWh)	Project Annual Oil Savings (gallons)	Project Annual Savings (\$)	Total Project Cost (\$)	Utility Incentive (\$)	Net Project Cost (\$)	Simple Payback (years)
Old Town Hall	Attic Insulation		24.63	\$ 50.00	\$ 3,905.00	\$ -	\$ 3,905.00	78.10
	LED Lighting Upgrade	3,474		\$ 642.69	\$ 2,632.60	\$ 1,042.16	\$ 1,590.44	2.47
	TOTAL	3,474	24.63	\$ 692.69	\$ 6,537.60	\$ 1,042.16	\$ 5,495.44	7.93

CUSTOMER ACKNOWLEDGEMENT

I have read and understand the outlined scope of work provided above, and agree that the focus of the project is energy savings. I understand that any savings stated above or within any Utility documents are estimated based upon a comparison of the baseline system to the high efficiency system, and using customer provided inputs for operating parameters.

Signature: _____

Name: _____

Title: _____

Date: _____

ADDENDUM: PICTURES FOR ATTIC INSULATION (SANDISFIELD Old Town Hall)



Ceiling above the ceiling



Initials: _____ Date _____

Comprehensive Energy Efficient Facility Upgrade

Developed by  for:

Old Town Hall

3 Silverbrook Road, Sandisfield

Fred Ventresco

603-361-8448



JK Energy Consultant:

Darek Chomiak

413-376-8575

dchomiak@jkenergysolutions.net

Issued on: October 9, 2018

Expires on: November 8, 2018

*JK Energy Solutions is an approved contractor for the
Eversource MA Small Business DI Program*

Project Savings Overview

INPUT FACTORS:

kWh Rate	\$0.185 / kWh
Therms Rate	
Hours of Operation	Varies by Location
Existing Measure Count	33 measures
Proposed Measure Count	33 measures

ENERGY and FINANCIAL SAVINGS:

Annual kWh Saved	3,474 kWh
Total Therms Saved	
Total Annual Savings (\$)	\$642.66

FACILITY INVESTMENT:

Turnkey Project Cost	\$2,632.60
Utility Incentive	\$1,042.16
MA Sales Tax*	\$0.00
Net Total Investment	\$1,590.44

FINANCIAL ANALYSIS:

Simple Payback (years)	2.47
Project ROI	40.41%
Number of Months**	24 months
Monthly Payment \$66.27 / Monthly Savings	\$53.56

Initials _____

Date _____

**Tax is calculated as 6.25% of retail materials cost only. **Interest-free financing will be provided off bill through Eversource MA. Customer has 30 days to act on this proposal.*

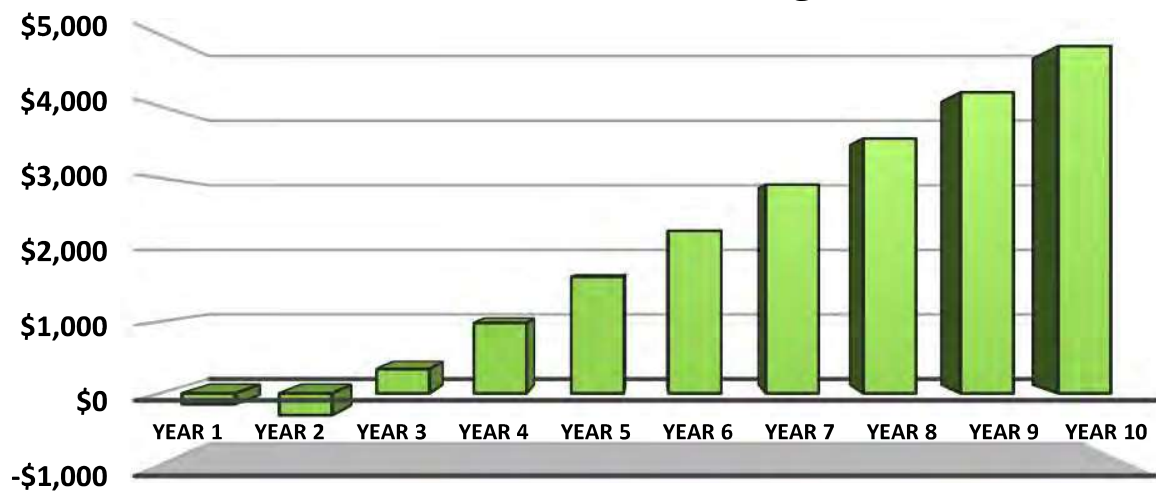
Detailed Energy Analysis

ECM	Location	Existing System	Qty	Fixture Watts	Annual HRS	Replacement System	Qty	Fixture Watts	Annual HRS	Watts Saved	kWh Saved	Annual \$ Savings
1	Main Entrance	2 x 4 4L T12 34W	15	140	2,000	Instafit 4' 4L Type C w/ External Driver	15	60	2,000	1,200.0	2,400.0	\$ 444.00
2	Back Left Side Storage	1 x 4 2L T12 34W	2	70	500	Instafit 4' 2L Type C w/ External Driver	2	32	500	76.0	38.0	\$ 7.03
2.1	Back Left Side Storage	Add New	1	64	500	Wall Sensor	1	64	500	0.0	0.0	\$ -
3	Back Hallway	60W Incandescent Screw-in	2	60	2,000	9.5W A19 LED	2	9.5	2,000	101.0	202.0	\$ 37.37
4	Restroom	60W Incandescent Screw-in	2	60	300	9.5W A19 LED	2	9.5	300	101.0	30.3	\$ 5.61
5	Back Bathroom	60W Incandescent Screw-in	2	60	300	9.5W A19 LED	2	9.5	300	101.0	30.3	\$ 5.61
6	Outside Front	100W Incandescent Screw-in	2	100	1,500	12W PAR 38 LED	2	12	1,500	176.0	264.0	\$ 48.84
7	Outside Front	23W Compact Fluorescent	2	23	1,500	12W PAR 38 LED	2	12	1,500	22.0	33.0	\$ 6.11
8	Police Station	1 x 4 2L T12 34W	2	70	1,500	Instafit 4' 2L Type C w/ External Driver	2	32	1,500	76.0	114.0	\$ 21.09
9	Outside Front of Police Station	125W Incandescent Screw-in	1	125	1,500	RAB FFLED18	1	22	1,500	103.0	154.5	\$ 28.58
10	Outside Left Side	60W Incandescent Screw-in	1	60	1,500	9.5W A19 LED	1	9.5	1,500	50.5	75.8	\$ 14.01
11	Outside Back	100W Incandescent Screw-in	1	100	1,500	12W PAR 38 LED	1	12	1,500	88.0	132.0	\$ 24.42
		Total	33				33			2,094.5	3,473.9	\$ 642.66

10 Year Cash Flow Analysis

YEAR	YEARLY SAVINGS	YEARLY COST	CUMULATIVE CASH FLOW
Year 1	\$642.66	\$795.22	-\$152.56
Year 2	\$642.66	\$795.22	-\$305.12
Year 3	\$642.66	\$0.00	\$337.55
Year 4	\$642.66	\$0.00	\$980.21
Year 5	\$642.66	\$0.00	\$1,622.87
Year 6	\$642.66	\$0.00	\$2,265.53
Year 7	\$642.66	\$0.00	\$2,908.20
Year 8	\$642.66	\$0.00	\$3,550.86
Year 9	\$642.66	\$0.00	\$4,193.52
Year 10	\$642.66	\$0.00	\$4,836.18
Totals	\$6,426.62	\$1,590.44	\$4,836.18

CUMULATIVE \$\$ Savings



Project Benefits Summary

Reduce Energy Consumption	63%
Reduce Annual Utility Cost	\$642.66
10 Year Positive Cash Flow	\$4,836.18
Reduce Annual Maintenance Costs	
Instant on / Instant off Lighting	
Longer Life Lighting System	
Improved Color Rendering	
Disposal/Recycling of higher mercury lamps	

Printed Name _____

Signature _____

Company Title _____

Date _____

Warranty and Notes

The JK Energy Solutions turnkey solution includes the recycling of your existing technology and the disposal of non-hazardous waste. Materials and workmanship of your newly upgraded measures are fully warranted as follows:

- Workmanship – JK Energy Solutions 2 Year Warranty
- Products - Manufacturer's Material Warranty

Your utility incentivized energy efficiency upgrade will result in **a large reduction in operating costs** for your facility. In addition, the new equipment will improve the quality of the overall working environment.

Customer signature of the proposal is authorization for JK Energy Solutions to proceed with construction. Customer agrees to promptly execute any documents required by Eversource to effect payment to JK Energy Solutions.

Project savings analysis is based on current burnt out lights being relamped prior to project installation.

This proposal is only guaranteed for 30 days from date of initial presentation.

Sandisfield – Library

23 Sandisfield Road, Sandisfield, MA



Nov 23, 2018

Efficiency Measures - Executive Summary



Executive Summary By:

Robert C. Boissonneault
JK Energy Solutions LLC
ENERGY RESOURCES LLC
(860) 391-7154

rboissonneault@energyresourcesusa.net

A. **EXISTING CONDITIONS**

The building has older technology lighting and is lacking for insulation in the attic.

B. **High Efficiency Plan**

1. Install a new high efficiency lighting.
2. Install attic insulation.

Specifically:

1) High Performance LED Lighting Upgrade

The current interior lighting system consists of T12 fixtures as well as incandescent lamps. The exterior lighting is metal halide. We will upgrade these fixtures with energy efficient LED retrofit kits and LED PAR lamps. Exterior lighting will be new fixtures. This retrofit will result in reduced energy consumption as well as reduced maintenance costs due to the longer lamp life of LED vs the older technology. Lighting savings are expected to be 1225 kwh/year.

2) Attic Insulation

There is an opportunity to increase insulation levels from R-11 to R-49 by installing cellulose insulation to the attic floor. There is a total of 950 square feet in this area. Adding insulation to these areas will decrease drafty areas in the building. This will lead to reduced energy consumption and increased comfort in the building along with consistent temperatures throughout your building during the summer and winter.

Oil savings from these measures is expected to be 74 gallon per year.

Installation

- Complete mechanical and electrical installation, including necessary materials and labor for each item described above.

C. **NOT INCLUDED –**

* Anything not specifically noted above, is not included.



BUILDING NAME	ECM	Project Annual Electricity Savings (kWh)	Project Annual Oil Savings (gallons)	Project Annual Savings (\$)	Total Project Cost (\$)	Utility Incentive (\$)	Net Project Cost (\$)	Simple Payback (years)
Library	Attic Insulation		74.19	\$ 150.61	\$ 3,456.00	\$ -	\$ 3,456.00	22.95
	LED Lighting Upgrade	1,225		\$ 388.33	\$ 2,588.72	\$ 367.59	\$ 2,221.13	5.72
	TOTAL	1,225	74.19	\$ 538.93	\$ 6,044.72	\$ 367.59	\$ 5,677.13	10.53

CUSTOMER ACKNOWLEDGEMENT

I have read and understand the outlined scope of work provided above, and agree that the focus of the project is energy savings. I understand that any savings stated above or within any Utility documents are estimated based upon a comparison of the baseline system to the high efficiency system, and using customer provided inputs for operating parameters.

Signature: _____

Name: _____

Title: _____

Date: _____

ADDENDUM: PICTURES FOR ATTIC INSULATION (SANDISFIELD - Library)



Comprehensive Energy Efficient Facility Upgrade

Developed by  for:

Sandisfield Library

23 Sandisfield Road, Sandisfield

Fred Ventresco

603-361-8448



JK Energy Consultant:

Darek Chomiak

413-376-8575

dchomiak@jkenergysolutions.net

Issued on: October 9, 2018

Expires on: November 8, 2018

*JK Energy Solutions is an approved contractor for the
Eversource MA Small Business DI Program*

Project Savings Overview

INPUT FACTORS:

kWh Rate	\$0.317 / kWh
Therms Rate	
Hours of Operation	Varies by Location
Existing Measure Count	37 measures
Proposed Measure Count	37 measures

ENERGY and FINANCIAL SAVINGS:

Annual kWh Saved	1,225 kWh
Total Therms Saved	
Total Annual Savings (\$)	\$388.42

FACILITY INVESTMENT:

Turnkey Project Cost	\$2,588.72
Utility Incentive	\$367.59
MA Sales Tax*	\$0.00
Net Total Investment	\$2,221.13

FINANCIAL ANALYSIS:

Simple Payback (years)	5.72
Project ROI	17.49%
Number of Months**	24 months
Monthly Payment \$92.55 / Monthly Savings	\$32.37

Initials _____

Date _____

**Tax is calculated as 6.25% of retail materials cost only. **Interest-free financing will be provided off bill through Eversource MA. Customer has 30 days to act on this proposal.*

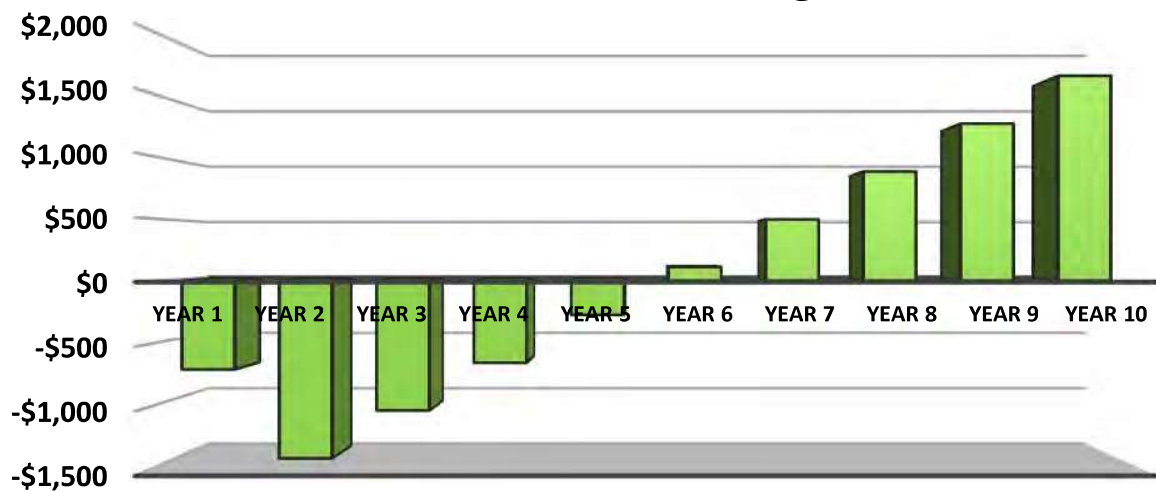
Detailed Energy Analysis

ECM	Location	Existing System	Qty	Fixture Watts	Annual HRS	Replacement System	Qty	Fixture Watts	Annual HRS	Watts Saved	kWh Saved	Annual \$ Savings
1	Main Library	60W Incandescent Screw-in	15	60	800	14w ETI 12" Round Flush Mount LED	15	14	800	690.0	552.0	\$ 174.98
2	Main Library	Standard Exit Sign	1	15	8,760	LED Exit w/ Batt. Backup	1	2	8,760	13.0	113.9	\$ 36.10
3	Closet	60W Incandescent Screw-in	1	60	75	14w ETI 12" Round Flush Mount LED	1	14	75	46.0	3.5	\$ 1.09
4	Basement	1 x 4 2L T12 34W	10	70	500	Instafit 4' 2L Type C w/ External Driver	10	32	500	380.0	190.0	\$ 60.23
5	By Water Heater	60W Incandescent Screw-in	1	60	50	9.5W A19 LED	1	9.5	50	50.5	2.5	\$ 0.80
6	Men's Room	60W Incandescent Screw-in	1	60	75	9.5W A19 LED	1	9.5	75	50.5	3.8	\$ 1.20
7	Women's Room	60W Incandescent Screw-in	1	60	75	9.5W A19 LED	1	9.5	75	50.5	3.8	\$ 1.20
8	Basement	Standard Exit Sign	1	15	8,760	LED Exit w/ Batt. Backup	1	2	8,760	13.0	113.9	\$ 36.10
9	Basement	60W Incandescent Screw-in	1	60	500	14w ETI 12" Round Flush Mount LED	1	14	500	46.0	23.0	\$ 7.29
10	Outside Back	150W MH Wallpack	1	190	500	Maxlite 29W Wallmax	1	29	500	161.0	80.5	\$ 25.52
11	Outside Parking Side	100W Incandescent Screw-in	2	100	500	12W PAR 38 LED	2	12	500	176.0	88.0	\$ 27.90
12	Outside Above Front Door	60W Incandescent Screw-in	2	60	500	9.5W A19 LED	2	9.5	500	101.0	50.5	\$ 16.01
		Total	37				37			1,777.5	1,225.3	\$ 388.42

10 Year Cash Flow Analysis

YEAR	YEARLY SAVINGS	YEARLY COST	CUMULATIVE CASH FLOW
Year 1	\$388.42	\$1,110.57	-\$722.14
Year 2	\$388.42	\$1,110.57	-\$1,444.28
Year 3	\$388.42	\$0.00	-\$1,055.86
Year 4	\$388.42	\$0.00	-\$667.44
Year 5	\$388.42	\$0.00	-\$279.01
Year 6	\$388.42	\$0.00	\$109.41
Year 7	\$388.42	\$0.00	\$497.83
Year 8	\$388.42	\$0.00	\$886.26
Year 9	\$388.42	\$0.00	\$1,274.68
Year 10	\$388.42	\$0.00	\$1,663.10
Totals	\$3,884.23	\$2,221.13	\$1,663.10

CUMULATIVE \$\$ Savings



Project Benefits Summary

Reduce Energy Consumption	73%
Reduce Annual Utility Cost	\$388.42
10 Year Positive Cash Flow	\$1,663.10
Reduce Annual Maintenance Costs	
Instant on / Instant off Lighting	
Longer Life Lighting System	
Improved Color Rendering	
Disposal/Recycling of higher mercury lamps	

Printed Name _____

Signature _____

Company Title _____

Date _____

Warranty and Notes

The JK Energy Solutions turnkey solution includes the recycling of your existing technology and the disposal of non-hazardous waste. Materials and workmanship of your newly upgraded measures are fully warranted as follows:

- Workmanship – JK Energy Solutions 2 Year Warranty
- Products - Manufacturer's Material Warranty

Your utility incentivized energy efficiency upgrade will result in **a large reduction in operating costs** for your facility. In addition, the new equipment will improve the quality of the overall working environment.

Customer signature of the proposal is authorization for JK Energy Solutions to proceed with construction. Customer agrees to promptly execute any documents required by Eversource to effect payment to JK Energy Solutions.

Project savings analysis is based on current burnt out lights being relamped prior to project installation.

This proposal is only guaranteed for 30 days from date of initial presentation.

Sandisfield - Firehouse

Sandisfield, MA



Nov 23, 2018

Efficiency Measures - Executive Summary



Executive Summary By:

Robert C. Boissonneault
JK Energy Solutions LLC
ENERGY RESOURCES LLC
(860) 391-7154

rboissonneault@energyresourcesusa.net

A. **EXISTING CONDITIONS**

The building is lacking for insulation around hot water piping as well as building envelope.

B. **High Efficiency Plan**

1. Install pipe insulation on exposed hot water pipes.
2. Install attic insulation.

Specifically:

1) Straight Pipe Insulation

There are many sections of hot water (180 degrees F) piping that are un-insulated. Please see list below. We will insulate with 1" thick pre-molded fiberglass pipe insulation with jacket and PVC fittings. Oil savings is expected to be 315 gallons per year

1-1/4" pipe - 500'

1-1/4" 90 Elbows - 60

2) Attic and Crawlspace Insulation

There is an opportunity to increase insulation levels from R18 to R-49 by adding cellulose insulation to the attic floor. There is a total of 836 square feet in this area. Adding insulation to these areas will decrease drafty areas in the building. This will lead to reduced energy consumption and increased comfort in the building along with consistent temperatures throughout your building during the summer and winter. Oil savings from these measures is expected to be 30 gallon per year.

Installation

- Complete mechanical installation, including necessary materials and labor for each item described above.

C. **NOT INCLUDED –**

* Anything not specifically noted above, is not included.



	BUILDING NAME	ECM	Project Annual Electricity Savings (kWh)	Project Annual Oil Savings (gallons)	Project Annual Savings (\$)	Total Project Cost (\$)	Utility Incentive (\$)	Net Project Cost (\$)	Simple Payback (years)
	Fire House	Attic Insulation		29.97	\$ 61.14	\$ 3,215.00	\$ -	\$ 3,215.00	52.59
		Straight Pipe Insulation on HW Supply - 1/4"		315.32	\$ 643.25	\$ 10,133.00	\$ -	\$ 10,133.00	15.75
		TOTAL	-	345.29	\$ 704.39	\$ 13,348.00	\$ -	\$ 13,348.00	18.95

CUSTOMER ACKNOWLEDGEMENT

I have read and understand the outlined scope of work provided above, and agree that the focus of the project is energy savings. I understand that any savings stated above or within any Utility documents are estimated based upon a comparison of the baseline system to the high efficiency system, and using customer provided inputs for operating parameters.

Signature: _____

Name: _____

Title: _____

Date: _____

ADDENDUM: PICTURES OF UN-INSULATED PIPING (SANDISFIELD FIREHOUSE)



Initials: _____ Date _____



Initials: _____ Date _____

BUILDING NAME	ECM	Project Annual Electricity Savings (kWh)	Project Annual Oil Savings (gallons)	Project Annual Savings (\$)	Total Project Cost (\$)	Utility Incentive (\$)	Net Project Cost (\$)	Simple Payback (years)	MMBtu
Annex	Attic Insulation		331.57	\$ 676.40	\$ 9,004.00	\$ -	\$ 9,004.00	13.31	46.1
	Straight Pipe Insulation on HW Supply - 1", 1-1/4", 2-1/2"		514	\$ 1,048.56	\$ 12,820.00	\$ -	\$ 12,820.00	12.23	71.4
	LED Lighting Upgrade	5,900		\$ 1,345.20	\$ 4,679.50	\$ 1,769.93	\$ 2,909.57	2.16	20.1
TOTAL		5,900	845.57	\$ 3,070.16	\$ 26,503.50	\$ 1,769.93	\$ 24,733.57	8.06	

BUILDING NAME	ECM	Project Annual Electricity Savings (kWh)	Project Annual Oil Savings (gallons)	Project Annual Savings (\$)	Total Project Cost (\$)	Utility Incentive (\$)	Net Project Cost (\$)	Simple Payback (years)	MMBtu
Old Town Hall	Attic Insulation		24.63	\$ 50.00	\$ 3,905.00	\$ -	\$ 3,905.00	78.10	
	LED Lighting Upgrade	3,474		\$ 642.69	\$ 2,632.60	\$ 1,042.16	\$ 1,590.44	2.47	11.9
TOTAL		3,474	24.63	\$ 692.69	\$ 6,537.60	\$ 1,042.16	\$ 5,495.44	7.93	

BUILDING NAME	ECM	Project Annual Electricity Savings (kWh)	Project Annual Oil Savings (gallons)	Project Annual Savings (\$)	Total Project Cost (\$)	Utility Incentive (\$)	Net Project Cost (\$)	Simple Payback (years)	MMBtu
Library	Attic Insulation		74.19	\$ 150.61	\$ 3,456.00	\$ -	\$ 3,456.00	22.95	
	LED Lighting Upgrade	1,225		\$ 388.33	\$ 2,588.72	\$ 367.59	\$ 2,221.13	5.72	4.2
TOTAL		1,225	74.19	\$ 538.93	\$ 6,044.72	\$ 367.59	\$ 5,677.13	10.53	

E=
Oil=
Propane=

0.003412 MMBtu
0.139 MMBtu
0.091 MMBtu

TOTAL MMBTUs 153.7

Lauren Gaherty

From: Rob Boissonneault <rboissonneault@energyresourcesusa.net>
Sent: Sunday, October 21, 2018 4:15 PM
To: Lauren Gaherty
Cc: Charlie Oneill; Darek Chomiak; Ventresco, Fred; lpdwyer@aol.com; newmanmark57@yahoo.com; GRiley@sandisfieldma.gov
Subject: Re: Sandisfield

We did not design and price every imaginable scenario. We only put together practical solutions to the obvious need that we saw and discussed during our walk-through audits. I will try to answer each of your questions in order:

1.) The sub-contractor that we brought in for weatherization addressed insulation and air air sealing in the areas that made sense. My team will have the details on what they included on each building. They did not get to the level of detail for including door sweeps and window caulking. Each building had a different practical need, and I am sure that attic insulation was included.

2.) If the furnace and/or boiler has more than 2 years of life left in it, we do not recommend replacing it. In many cases the payback period is about the same as the life expectancy. Nobody would replace a 30 year boiler, if it has a 30 year payback... unless you had no choice. Once a customer tells us that the boiler is at end of life and needs to be replaced within 12 - 24 months, that's when we will recommend a high efficiency replacement.

3.) There are soooooo many different types of scenarios for heating, cooling, ventilating and providing energy to a building. Combining renewable energy like Solar PV, Wind etc... is always an option coupled with high efficiency electric equipment (geothermal heat pumps, air source heat pumps, electric boilers, high efficiency chillers...etc...) and/or utilizing combined heat and power options (Fuel Cells, Engine driven generators with waste heat recapture, steam boilers with absorption chillers...). The Combinations are exhausting. As a contractor, we are only going to look at practical one-for-one direct changeouts that fit the Utility Program we are working in. We just don't have the staff or time to evaluate all the endless possibilities.

4.) Yes.. We do indoor and outdoor LED light conversions every day of the week. This is part of our everyday business. I would have to defer back to our lighting division to wee exactly what they proposed on each of the buildings that were audited.

5.) Yes. We have performed thousands and thousands of pole light conversions on private property, and I know we have been involved in designs and proposals for entire town street light changes. Again - I would defer back to our lighting division to see if we have installed any complete town street lights... or if we have just designed/priced.

I hope this helps for a quick response.

Rob

Rob Boissonneault

President - Mechanical Contracting
Energy Resources (parent company to BTU Solutions LLC & JK Energy Solutions LLC)
76 Watertown Road, Suite 2A
Thomaston, CT 06787

On Sun, Oct 21, 2018 at 3:41 PM Lauren Gaherty <Lgaherty@berkshireplanning.org> wrote:

Hello Rob –

Thank you so much for forwarding the information to us. I have a couple of questions:

1. Did your staff look at air leaks – windows, doors, attic, etc? Does your company do this? If so, what energy savings might the town anticipate from that work?
2. I see no recommendations for upgrades to heating systems. Were the furnaces or boilers already energy efficient?
3. What about new ground or air source heat pumps? The state seems to be pushing them. Especially if they're bundled with solar installations to offset the possible electricity increases from the running of the pumps.
4. Does the LED lighting include outside lights?
5. Does your company help towns swap out the streetlights to LEDs?

I'd welcome your thoughts as we try to help the town draft a strategy to reduce energy use by 20%.

Thanks,

Lauren Gaherty, Senior Planner

Berkshire Regional Planning Commission

1 Fenn Street, Suite 201

Pittsfield, MA 01201

Mon. – Thurs. 8:00 – 5:30

(P) 413-442-1521, ext. 35

(F) 413-442-1523

The Secretary of the Commonwealth has determined that most e-mails to and from public offices are public records. Consequently, confidentiality should not be expected.

From: Rob Boissonneault <rboissonneault@energyresourcesusa.net>
Sent: Friday, October 19, 2018 4:15 PM
To: Lauren Gaherty <lgaherty@berkshireplanning.org>
Cc: Charlie Oneill <coneill@energyresourcesusa.net>; Darek Chomiak <dchomiak@energyresourcesusa.net>; Ventresco, Fred <TownAdmin@sandisfieldma.gov>
Subject: Sandisfield

Lauren and Fred:

In an effort to meet some quick deadlines, we have attached the SUMMARY spreadsheet for Sandisfield.

thanks,

Rob

Rob Boissonneault

President - Mechanical Contracting

Energy Resources (parent company to BTU Solutions LLC & JK Energy Solutions LLC)

76 Watertown Road, Suite 2A

Thomaston, CT 06787

HVAC License #397605-S1

(860) 391-7154 cell

Lauren,
Please see below and see attached.

Darek Chomiak

Director of Sales
JK Energy Solutions

Authorized Eversource, UI and NGRID CDO Contractor
dchomiak@energyresourcesusa.net
www.energyresourcesusa.net

(c) [203-617-9622](tel:203-617-9622)

(c) [413-376-8575](tel:413-376-8575)

(f) [860-880-8304](tel:860-880-8304)



Sent from my iPhone

Begin forwarded message:

From: Morgan Kennedy <mkennedy@energyresourcesusa.net>
Date: October 25, 2018 at 5:16:49 PM EDT
To: Darek Chomiak <dchomiak@energyresourcesusa.net>, Keith Sleeper
<ksleeper@energyresourcesusa.net>, Kyle Keindl <kkeindl@energyresourcesusa.net>
Subject: Solar - Town of Sandisfield

All,

Attached is a solar proposal for the town of Sandisfield. This project is cashflow positive.

Darek, the other two bills do not qualify for solar, as no net metering is available. Because of this, the streetlights meter, which does not have an address, is not somewhere we can serve it, and the 3 silverbrook rd site has no summertime consumption, which represents 2/3 of the solar production.

I've provided a PPA and purchase option. The PPA is contingent on incentives from SMART, and as such if they do not act on it and the incentives dry up, it will need to be adjusted.

Thanks,

Morgan Kennedy

Energy Resources
603-731-2035

<http://energyresourcesusa.net>

Information provided by Allan Ferry, BETNR about the new highway garage

LIGHTING:

T-12 8' LONG FLOURESCENT TUBES VS LED LIGHTING

- TESTING PROVES LED PERFORMS OVER 50% BETTER

OVERHEAD DOORS:

R-1.4 vs R-12.76 = 90% BETTER

BUILDING ENVELOPE:

ROOF; MAYBE R-2 WITH WOOD SHINGLES VS R-38

= OVER 90% BETTER

HEATING SYSTEM:

OIL BURNING CEILING MOUNTED UNIT HEATER VS HIGH EFFICIENCY PROPANE FIRED BOILER (95% EFFICIENT)

IF UNIT HEATER WAS 80% EFFICIENT (THIS IS SAYING A LOT),

THE NEW ONE IS 15-20% MORE EFFICIENT.

FORCED HOT AIR VS RADIANT HEAT IN THE SLAB

- CEILING MOUNTED UNIT HEATERS BLOW HOT AIR DOWN. THE HEAT THEN RISES AND LEAVES THE FLOOR SPACE COOL.

- RADIANT IN THE SLAB HEATS FROM THE FLOOR UP. THE SLAB STAYS WARM CONTINUOUSLY ACCOUNTING FOR LOWER HEATING BILLS, UP TO 50% LESS THAN FORCED HOT AIR PER YEAR

Notes from phone conversation with A. Ferry, 10-25-18:

An overall conservative estimate is that the new garage will use 50% of the heating fuel and electricity of the old building.

A Family of Condensing Boilers



- ✓ **Superior energy savings**
- ✓ **Quality construction**
- ✓ **Variety of configurations**
- ✓ **Energy-saving standard features**

■ **FOUR great options!**

U.S. Boiler Company offers the NEW K2 Firtube, the original K2, the Alpine, and the value-priced X-C boiler. These four condensing boiler models offer an incredibly comprehensive array of sizes and capabilities that are **UNMATCHED** in the home heating industry. Unsure of which boiler to choose? Simply ask your home heating professional; they will eliminate the guesswork and help you find the best model to fit your needs.



■ **A Month of FREE HEAT?**

Yes, it may seem unbelievable, but upgrading from a typical 80% efficient boiler to any of U.S. Boiler's condensing boilers can provide about a 15-20% savings in energy, which can equate to a month (or more) of heating fuel costs. What this means to homeowners is that energy savings can be realized during the first year of operation, and **EVERY YEAR THEREAFTER.**

■ **Good for you and the environment**

High efficiency home heating benefits you by providing home heating comfort with lower fuel consumption. It also means less emissions, which benefits everyone!

■ **Extras INCLUDED**

All of these boilers come packed with standard energy saving features, one of which is "Outdoor Reset". By reading input from a sensor located outside the house, these boilers are able to determine what the correct output should be in order to match the heating requirement of the temperature outside. This feature is very useful in the "fringe" seasons of fall and spring, when the temperature outside can fluctuate greatly.



SANDSFIELD

LIGHTING: ORIGINAL BLDG: 8' FLOURESCENT T-12 STRIPS
NEW BLDG: (8) 135 WATT LED HIGH BAY c/ INTERIOR
(4) 78 WATT LED EXTERIOR LIGHTS

LED LIGHTS ARE OVER 50% MORE EFFICIENT THAN
FLOURESCENT TUBES.

OVERHEAD DOORS: ORIGINAL BUILDING HAD (3) WOODEN DOORS
R-VALUE FOR A 1" THICK WOOD DOOR IS
APPROXIMATELY 1.4
NEW BUILDING HAS (4) OVERHEAD DOORS. THESE
DOORS HAVE METAL SKINS FILLED WITH POLYURETHANE
INSULATION. THE R-VALUE IS 12.76. THERE
ARE WEATHER SEALS ON ALL EDGES TO PREVENT
AIR INFILTRATION
THESE DOORS PERFORM GREATER THAN 90 %
BETTER THAN THE WOOD DOORS

BUILDING INSULATION:

ORIGINAL BLDG: Block walls R-1.28 TYPICAL
WOOD ROOF: NO INSULATION
NEW BUILDING: R-25 Full cavity insulation
with continuous vapor barrier
Roof: R-38 8" Full cavity insulation
with 4" over the top of the 8",
Continuous vapor barrier