

Task Work
Order

PROPOSAL TO PROVIDE RENEWABLE HEAT NY - LARGE
COMMERCIAL SERVICES FOR
The Town of Bethel
White Lake, NY 12786

Submitted by:

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Submitted to:

New York State Energy Research and Development Authority
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Attention: - Matthew McQuinn Project
Manager
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Date:

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I. Project Summary

CFA Number: 34981

Customer Contact: Town Supervisor, Daniel Sturm (845) 583-4350 ext. 12
bethelsupervisor@libertybiz.rr.com

The Town of Bethel has two buildings under consideration for Renewable Heat in New York Services. This includes:

1. Town Hall - 3454 Route 55, P.O. Box 300, White Lake, NY 12786,
2. Town Highway Garage - 3695 Route 55, Kauneonga Lake, NY 12749,

Electricity is provided by the New York State Electric and Gas Corporation (NYSEG) with Amanda Hess Corporation acting as the electric supplier. Recently supply costs have risen sharply. Overall supply costs were \$0.065 per kWh from 12/2012 to 12/2013 and in the month of February 2014 they were \$0.14 per kWh. The town pays SBC.

New York State Electric and Gas Corporation annual electricity consumption and costs:

Town Hall

kWh	kW	Supply Costs Hess	Delivery Costs	kW Cost	Total
21,312	90.0	\$1,385.28	\$1,009.83	\$801.91	\$3,197.01

Town Highway Garage

kWh	kW	Supply Costs Hess	Delivery Costs	kW Cost	Total
63,869	214.1	\$4,151.49	\$2,358.36	\$1,906.44	\$8,416.29

Total annual electric costs: \$9,613.30

Oil Consumption and Cost

Town Highway Garage: Propane, 6782 gallons @ 2.32 per gallon. Total \$15,754.00

Town Hall: #2 fuel oil, 702 Gallons @ \$3.38 per gallon. Total \$2,372.36

The Town Hall is a metal framed 3,800 sq. ft. building constructed in the 1960's with a semi conditioned full basement. Insulation levels are minimal, the Bomback 220,000 btu/hr forced hot air oil furnace in the basement is the original and no return air plenum exists. The output plenum is unsealed. Air conditioning is supplied by window units and a central outdoor AC condenser with no manufacturing data. The estimated condenser size is 5 tons. A 40 gallon electric hot water heater exists. The lighting systems were upgraded several years ago.

Town highway operations are headquartered at the highway garage a 4,000 sq. ft. masonry building constructed in the 1960's that's is utilized as the main operations center for highway truck repair, storage and office operations. Two 10 horsepower Ingersoll Rand compressors are used regularly. Heating is provided by two conventional ceiling hung propane forced air unit heaters with propeller blowers. Insulation levels are minimal, the ceiling air barrier has degraded and there is an electric hot water heater. An exhaust air system is used in the truck bays used to remove truck exhaust fumes.

Both buildings are under consideration for commercial biomass heating system projects through Phase II of NYSERDA's Cleaner Greener Communities Program. The buildings will receive calculations to assist in replacing the existing heating equipment with biomass heating equipment which will supply 100% of the heating requirement for each building.

The study will include:

American Society of Heating Refrigeration Air-conditioning Engineers (ASHRAE) Level II energy assessment for the town hall that has an existing heating plant under $\leq 300,000$ Btu/h and ASHRAE Level II Energy Assessment for the Town Highway garage with a total heating system requirement $\geq 300,000$ Btu/h.

Conducted heat loss calculations for the Town Hall and Highway Garage consistent with ASHRAE guidelines, an annual heat load profile, diurnal heat load profile on a demand day, and bin-hourly analysis based on the building heating needs and energy assessments.

Study outdoor only bulk fuel storage requirements, locations and placement of storage soil's, and

fuel feed requirements to the boiler.

Determine boiler water thermal storage requirements, size of thermal storage, placement locations and develop an energy management strategy including a control system or simpler control system in the case of the Town Hall and recommend an effective electronic energy management system to control boilers and maximize performance and efficiency. Currently there is no central energy management system only simple thermostats exist.

Advise the customer on the selection of equipment specifications that meet program guidelines. This will vary from manufacture to manufacture, but must meet NYSERDA minimums.

II. Purpose

This proposal is submitted by L&S Energy Services, Inc. to provide energy conservation services to the Town of Bethel sites mentioned above. L&S is an energy analysis firm with over 30 years' experience in building and process energy analysis. The purpose of this study is to identify and estimate cost-effective energy conservation measures related to the heating system that can be incorporated into each of the facilities mentioned above saving energy.

Approach

Annual utility bills shall be reviewed to determine current utility rates. Equipment documentation, as provided by the town, shall be reviewed. Run time loggers will be installed only if equipment run time cannot be estimated during the audit through staff interviews. Conservation measures to be evaluated shall include, but not be limited to:

Locations

Town Hall:

1. Survey the existing oil-fired furnace and evaluate replacement with high efficiency propane condensing technology or high efficiency oil technology.
2. Survey the existing ceiling air barrier, attic insulation and measure the ceiling area. Evaluate the air sealing and additional thermal insulation in the attic.
3. Evaluate the existing heating system for replacement with a High Efficiency-Low Emissions (HELE) wood pellet boiler.
4. Evaluate Building Management System (EMS)

Highway Garage

1. Survey the two existing standard efficiency propane unit heaters and evaluate replacement with high efficiency propane fired condensing sealed combustion equipment.
2. Survey the existing ceiling air barrier, attic insulation and measure the ceiling area. Evaluate improvements in the ceiling air barrier along with additional attic insulation levels.
3. Evaluate the existing heating system for replacement with a HELEwood pellet boiler.
4. Evaluate building EMS

Utility bills will be reviewed and summarized. Existing equipment documentation and floor plans, as provided by the facility owner, will be reviewed. A walk-through audit will be performed of the two sites to observe existing conditions and to take equipment nameplate data and evaluate energy system conditions stated in this proposal. Each energy conservation measure will list an energy consumption and cost savings and payback period. A description will be prepared in sufficient detail to permit the customer to understand what it is that must be implemented. Energy and demand quantity and cost savings, and non-energy cost savings will be calculated using spreadsheets and bin analysis. Cost estimates will be determined using RS Means and/or vendor quotes. Vendor quote equipment may be required for estimating purposes.

Task 1 – RHNY – Large Commercial Site Survey: L&S will conduct a site survey of the two facilities mentioned above.

Task 2 – Energy Analysis: The energy cost savings and payback period will be calculated for each measure. L&S will develop one or more solutions for each type of conservation measure and prepare descriptions and cost estimates.

Task 3 – Conceptual Design and Cost Estimating: Each measure will be developed conceptually and an estimate cost shall be prepared. Costs shall be developed using means or contracting quotes. The energy savings and costs will be used to recommend measures for implementation.

Task 4 – Reporting: A draft report will be prepared and submitted to the Town Supervisor, Daniel Sturm for review and NYSERDA. L&S will incorporate comments and prepare a final RHNY – Large Commercial report.

III. Schedule

The EFP Services will be completed within six weeks of the notice to proceed. It is anticipated that overall process will proceed according to the following milestones:

Task	Weeks from Project Start					
	1	2	3	4	5	6
1 Site Survey	■					
2 Energy Analysis		■				
3 Economic Assessment			■			
4 Reporting					■	

IV. Project Deliverables

A Final Report addressing the recommended ECMs will be prepared including an Executive Summary and Technology Transfer Summary. The ECM section of the report will include a table of all of the recommended measures with implementation costs, energy quantity and demand savings, energy cost savings, other cost savings, and simple payback; a monthly breakout on energy consumption for each energy source; a detailed description of present rate tariff for each utility; all relevant calculations, assumptions, and observations; a description, rough sizing, payback information, and maintenance considerations for each recommendation. A draft of the final report will be submitted to the NYSERDA project manager and the Town Supervisor, Daniel Sturm for review. Comments received will be incorporated, as appropriate, into the final report and deliverables associated with this project.

V. Project Cost

The Not-to-Exceed cost for the Renewable Heat in New York study is \$6,650.

	Personnel	Leads Energy Engineer	Energy Engineer	Senior Energy Analyst	Energy Analyst	Admin Asst	Total	
	Hourly Rates	\$229.00	\$115.94	\$105.00	\$84.00	\$42.00		
Task	Task Description	Hours		Hours	Hours	Hours	Hours	Cost
1	Site Survey				8.0		8.0	\$672.00
2	Energy Analysis	1.0		12.0	32.0	1.0	46.0	\$4,219.00
3	Economic Analysis	0.0	0.0	0.0	8.0	0.0	8.0	\$672.00
4	Project Report	1.0	0.0	0.0	8.0	1.0	10.0	\$943.00
Subtotal		2.0	0.0	12.0	56.0	2.0	72.0	\$6,506.00
Expenses								
	Miscellaneous							\$144.00
Grand Total								\$6,650.00

-----End of Proposal-----