

TO: Town of North Hampton, NH Energy Committee
FROM: Kaj Huld, P.E. and Steven Weisman, Peregrine Energy Group, Inc., for ETAP
DATE: October 19, 2011
RE: Review of North Hampton Town Buildings for Energy Efficiency

On October 14th, 2011, Peregrine Energy Group met with the North Hampton Energy Committee to review and discuss several of the Town's buildings including the Library, Town Clerk Building, Old Town Hall, and the Town Offices / Fire / Police Complex, as well as the building audit prepared by the Committee in 2009. We briefly toured each building to obtain a firsthand understanding of the buildings and to review improvement opportunities. Our work is funded by the NH OEP's Energy Technical Assistance and Planning program ("ETAP") with the goal of supporting the Town's efforts with respect to energy efficiency improvement and capital upgrades.

This memorandum summarizes accomplishments to date under the Committee's efficiency initiative and identifies further opportunities to reduce utility use with potential cost and savings implications. We commend the Committee for creating a valuable and comprehensive planning document and also commend the Town for moving forward and implementing many Committee recommendations. Table-1 (below) summarizes the previously identified opportunities, their current status, and our recommendations for next steps for these measures.

Our Table-2 (following page) summarizes the additional opportunities we observed during our site visit, with estimated cost for implementing each measure and anticipated savings and other benefits. Measures we recommend for immediate implementation are identified and the total investment and cost savings for these items are totaled at the bottom of the table. The cost for this recommended subset of measures is around \$6,050 and will result in annual savings of \$1,430, for a simple payback of just over four years.

Table 1 – Summary of 2009 Committee Audit, with Status and Our Recommendations

Audit Recommendation	Bldg	Recommendation Addressed?	Peregrine Recommendation
1. Outdoor Lighting Above Doorway is Constantly On	TO	✓	
2. Indoor Light in Stairwell Left On	TO	✓	
3. HVAC House Fan Left On	TO		Add Programmable Thermostat
4. T12 Fluorescent Lights - Update to T8	FD	✓	
5. Floodlights on During Day	FD	✓	
6. Flag Illumination on During Day	FD	✓	
7. Cracked Window	TO	✓	
8. Fire Department Windows	FD		No Action - Poor Economic Return
9. Fire Department Hose Tower - Replace Window	FD		No Action - Area is Isolated in Winter
10. Fire Department Hose Tower - Limit Operation	FD		No Action - Area is Isolated in Winter
11. Replace Boiler	FD		Solicit Pricing for Propane-Fired Condensing Boiler & New Controls
12. Basement Insulation	TC		No action
13. Insulation Adjustment	TO		Solicit Pricing from Airseal / Insulation Specialist to Solve Ice Dam Issue
14. Computer Server Room Inefficiency	TO	✓	Adjust Setpoint to 68 DegF
15. Building Shell Intrusions	TO		Address Roof Leak
16. Building Maintenance & Repairs	ALL		Solicit Pricing from Airseal Specialist to Review All Bldgs
17. Exterior Doors	FD	✓	
18. Storm Window on Back Door	TC		Address Frame Issues and Add Weather Stripping
19. Water Heater Too Hot	OTH	✓	
20. Water Heater Insulation	OTH	✓	
21. Old Inefficient Refrigerator	OTH	✓	
22. Incandescent Lights	OTH	✓	
23. Refrigerated Vending Machine	FD		Remove unit
24. Office Area Refrigerated Water Dispenser	ALL		No Action

Energy Technical Assistance & Planning For New Hampshire Communities

Funded by the ARRA Energy Efficiency Conservation Block Grant



Table 2 – Additional Utility Reduction Opportunities

Description	Technology	Bldg	Recommended For Immediate Implementation	Approximate Implementation Cost	Utility Incentive Available ¹	Other Benefits ²	Potential Utility Savings				Annual Cost Avoidance	Simple Payback Yr
							Demand kW	Electric kWh/yr	Oil Gal/yr	Propane Gal/yr		
1. Replace 4' T12 Lamps & Ballasts w/ T8 System	Lighting	Police	✓	\$1,300	\$300	B, E, F	-	2,000	-	-	\$300	2- 5
2. Adjust Programmable Thermostats	Controls	Library	✓	\$0	\$0		-	-	75	-	\$190	Immediate
3. Adjust Programmable Thermostats	Controls	Tax Collector	✓	\$0	\$0		-	-	75	-	\$190	Immediate
4. Add Programmable Thermostats	Controls	Town Offices	✓	\$500	\$0		-	500	-	75	\$210	1 - 4
5. Adjust Server Room Thermostat to 68F	Controls	Town Offices	✓	\$0	\$0		-	100	-	-	\$20	Immediate
6. Install Heat Trace Controls	Controls	Library	✓	\$200	\$0		-	300	-	-	\$50	3 - 5
7. Update Weather Seals on Front Door	Envelope	Library	✓	\$150	\$0	C	-	-	10	-	\$30	4 - 7
8. Install Insulation Over Boiler Rm + Seal Stack	Envelope	Library	✓	\$1,000	\$0		-	-	50	-	\$130	8+
9. Add Weather Seals on All Doors	Envelope	Tax Collector	✓	\$250	\$0	C	-	-	15	-	\$40	4 - 7
10. Seal Stairwell to Attic & Add Additional Insulation	Envelope	Tax Collector	✓	\$1,500	\$0		-	-	50	-	\$130	8 - 12
11. Add Weather Seals on Back Door	Envelope	Town Offices	✓	\$50	\$0		-	-	5	-	\$10	4 - 7
12. Fix Roof Leak and Restore Attic Insulation	Envelope	Town Offices		Unknown	\$0		-	-	-	50	\$90	Negligible
13. Add Threshold & Bottom Seals on Overhead Doors	Envelope	Fire Dept		\$1,000	\$0	C	-	-	25	-	\$60	15+
14. Add Roof Insulation	Envelope	Fire Dept		\$20,000	\$0		-	-	200	-	\$500	20+
15. Solve Attic / Eve Insulation Issue	Envelope	Town Offices		Unknown	\$0	C, D, E, F	-	-	100	-	\$250	15+
16. Insulate Mtg Room Walls and Attic	Envelope	Old Town Hall		\$15,000	\$0	C	-	-	-	150	\$280	25+
17. Additional Window Tightening & Fill Weight Voids	Envelope	Old Town Hall		\$5,000	\$0	C	-	-	-	50	\$90	25+
18. Insulate Hot Water Pipe in Boiler Room	HVAC	Library	✓	\$500	\$0	C, D	-	-	25	-	\$60	6+
19. Reconfigure Ductwork	HVAC	Library		\$27,000	\$0	C	-	-	-	-	\$0	None
20. Insulate Ductwork in Basement	HVAC	Tax Collector		\$1,000	\$0		-	-	25	-	\$60	10+
21. Add Zone Control to Isolate File Storage Area	HVAC	Town Offices		\$5,000	\$0		-	-	-	50	\$90	20+
22. Insulate Hot Water Pipe in Boiler Room	HVAC	Fire Dept	✓	\$500	\$0	C, D	-	-	25	-	\$60	6+
23. Insulate Hot Water Pipe @ Manifold	HVAC	Old Town Hall	✓	\$100	\$0	D	-	-	-	5	\$10	6+
24. Replace Boiler w/ High Efficiency Propane Unit	HVAC	Fire Dept		\$15,000	\$0	B, C, D, E, F, G	-	-	2,000	(2,300)	\$750	15+
Estimated Program				\$6,050	\$300		-	2,900	330	80	\$1,430	4.0

Notes

(1) Subject to Utility Incentive Policy and Screening Analysis

(2) A - Enhanced Appearance; B - Replaces End Of Life Equipment; C - Better Comfort; D - Improved Safety; E - Improved Reliability; F - Reduced Maintenance; G - Reduced Stack Emissions

Cost of Electricity: \$0.150 /kWh

Cost of Oil: \$2.50 /Gal

Cost of Propane: \$1.85 /Gal