

Village End Use Energy Efficiency Measures Program
AEA Grant # 2195294 Administered by Alaska Building Science Network

Alatna Final Report



Community Summary

3 community buildings owned by the Alatna Traditional Council received energy efficiency upgrades.

Tribal Council Office, Clinic & Washeteria, Safe House

Upgrades Completed: April 2010

Village-Wide Lighting Retrofit Summary:

- Installed 3 compact fluorescent light bulbs
- Retrofitted 31 existing electronic ballasts with 25w T8 lamps
- Retrofitted 59 light fixtures with electronic ballasts & T8 lamps
- Pre-retrofit energy use for all lighting: 10.548 Kilowatts
- Post-retrofit energy use for all lighting: 6.204 Kilowatts
- Energy savings projection: 4.344 Kilowatts
- Pre-retrofit to post retrofit energy reduction: 41%
- Estimated Annual Savings:

kWh Rate (FY 2009 AVE): \$0.67 Fuel Cost (FY 2009 Ave): \$4.98

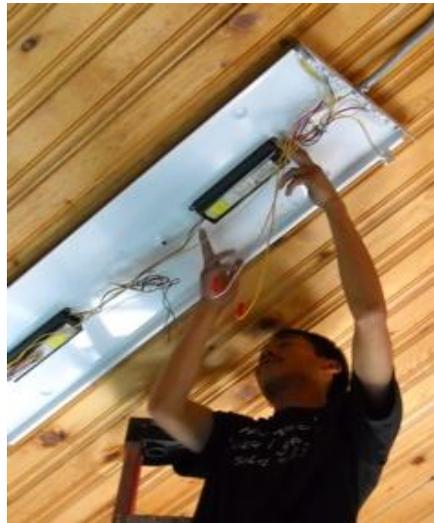
Hours Per Day/ 250 Days Per Year	Electrical Savings	Comparative Avoided Diesel Use (gal)	Comparative Avoided Diesel Costs
Locally Estimated Use	\$4,751.75	533.16	\$2,655.13
4 Hours/day	\$2,897.88	325.15	\$1,619.25
7 Hours/day	\$5,071.29	569.01	\$2,833.68
10 Hours/day	\$7,244.71	812.87	\$4,048.11

- Total project cost for all measures: \$12,000
- Simple Payback (lighting measures only, using 7 hours/day lighting use run-time): 2.37 Years
- Total village wide in-kind contribution: \$1,001.44

Alatna Tribal Council Owned Buildings



Tribal Office



Materials Installed

- 2-lamp electronic ballast, (2) 25 watt T8 lamps
- 4-lamp electronic ballast, (3) 25 watt T8 lamps
- 4-lamp electronic ballast, (4) 25 watt T8 lamps
- Pre-retrofit energy use:
- Post-retrofit energy use:
- Energy savings projection:
- Pre-retrofit to post retrofit energy reduction:
- Estimated annual savings:

Quantity

- 22
- 2
- 9
- 3888 watts
- 1972 watts
- 1916 watts
- 49%

Hours Per Day / 250 Days Per Year	Electrical Savings	Comparative Avoided Diesel Use (gal)	Comparative Avoided Diesel Costs
4 Hours/day	\$1,278.16	143.41	\$714.20
7 Hours/day	\$2,236.79	250.97	\$1,249.85
10 Hours/day	\$3,195.41	358.53	\$1,785.49
1500 Hours/year (Est.)	\$1,917.25	215.12	\$1,071.30

Note: Seven 4-lamp fixtures reduced to 2-lamp fixtures for additional savings.

Clinic & Washeteria



Materials Installed

2-lamp existing electronic ballast, re-lamped with (2)	15
3-lamp existing electronic ballast, re-lamped with (3)	10
4-lamp existing electronic ballast, re-lamped with (4)	6
4-lamp electronic ballast, (4) 25 watt T8 lamps	22
• Pre-retrofit energy use:	6120 watts
• Post-retrofit energy use:	3950 watts
• Energy savings projection:	2170 watts
• Pre-retrofit to post retrofit energy reduction:	35%
• Estimated annual savings:	

Quantity

Hours Per Day / 250 Days Per Year	Electrical Savings	Comparative Avoided Diesel Use (gal)	Comparative Avoided Diesel Costs
4 Hours/day	\$1,447.61	162.43	\$808.88
7 Hours/day	\$2,533.31	284.24	\$1,415.54
10 Hours/day	\$3,619.02	406.06	\$2,022.19
1750 Hours/year (Est.)	\$2,533.31	284.24	\$1,415.54

Safe House



Materials Installed

CFL-14 W	1
CFL-20 W	2
2-lamp electronic ballast, (2) 25 watt T8 lamps	3
4-lamp electronic ballast, (4) 25 watt T8 lamps	1
• Pre-retrofit energy use:	540 watts
• Post-retrofit energy use:	282 watts
• Energy savings projection:	258 watts
• Pre-retrofit to post retrofit energy reduction:	48%
• Estimated annual savings:	

Quantity

Hours Per Day / 250 Days Per Year	Electrical Savings	Comparative Avoided Diesel Use (gal)	Comparative Avoided Diesel Costs
4 Hours/day	\$172.11	19.31	\$96.17
7 Hours/day	\$301.20	33.79	\$168.30
10 Hours/day	\$430.28	48.28	\$240.43
1750 Hours/year (Est.)	\$301.20	33.79	\$168.30

Alatna, In-Kind Contribution Tracking Record - ABSN Energy Efficiency Projects:

In-Kind Item	Dates	Hours Contributed	Hourly Wage	Value / Amount	Notes
Staff time for project contact, review of intro materials		1	\$ 15.00	\$ 15.00	(Number of entities x 1 hour each)
Staff time for Attending teleconference		1	\$ 15.00	\$ 15.00	Village Council Tribal Administrator
Maint. Staff time to accompany Field Manager on building assessments - 1st site visit	March '09	4	\$ 15.00	\$ 60.00	list entity and maint staff, add rows as necessary
Conservative village office administrative percentage of total project cost less ABSN Admin %. Total project cost = \$12,000 village - (our admin percentage, (around 12%) Approx: \$1,440) = \$10,560 x 5.5% = \$580.80 (this 5.5% village admin cost estimate is spread across all entities we work with for the course of the grant for completing all energy efficiency measures. These are primarily for cumulative, otherwise unaccounted time expense for village-based project support.				\$ 580.80	Each time we call, email, or fax a village entity, someone has to receive the communication, review and/or forward the information, follow-up on requests, etc. Whether it is to set-up a teleconference, verify maintenance staff participation in lighting or boiler trainings, set-up in-kind lodging and transportation, lighting trainings, track a shipment, verify completion of lighting in a given building, ship lamps and ballasts out of the village, request a labor reimbursement agreement, or invoice etc. Village expenses for phone charges, copying and fax costs, office supplies, etc. are part of this amount.
Lodging for ABSN Field Managers - 2nd assessment site visit	May-10			\$100	2 nights lodging-\$50/night
Transportation and fuel costs - 1st assessment site-visit				\$50	Travel in Alatna and to Allakaket
Transportation and fuel costs - 2nd assessment site-visit	May-10			\$100	2 days 4-wheeler rental-\$50/day
Alatna Employee Fringe Contribution				\$ 80.64	Employee Payroll Taxes & Workman's Comp
	TOTAL			\$1,001.44	

The capacity of ABSN's scope of work was greatly increased by the response of local communities to work in partnership with ABSN and provide in-kind services of project coordination, paid labor for lighting retrofits, transportation and lodging for ABSN field staff, and other valuable contributions. This allowed ABSN and the community of Alatna to deliver 8% more energy savings measures beyond the original grant funding.