Village End Use Energy Efficiency Measures Program

AEA Grant # 2195225 Administered by Alaska Building Science Network

New Stuyahok Final Report



Community Summary

15 community buildings and 2 teacher-housing units received energy efficiency upgrades as follows:

Old High School, City Office, Public Safety Bldg, Water Plant, Boys and Girls Club, Old School Maintenance Garage, Community Gym, Traditional Council Store, Clinic – BBHC, Traditional Council Office, Blue Building, Tank Farm Trailer, Quvularia Senior Center, BBNA Head Start, St. Segius Russian Orthodox Church,

Retrofits Completed: September 2009 – November 2009
ABSN Field Management by: Dan Lung, Garrison Collette, Anna Hilbruner
Trained 8 local maintenance staff who were employed by village entities to complete lighting retrofits

Village-Wide Lighting Retrofit Summary:

- Retrofitted 425 light fixtures with electronic ballasts & T8 lamps
- Installed 38 compact fluorescent light bulbs
- Installed 25 T5 linear fluorescent fixtures
- Pre-retrofit energy use for all lighting: 48.84 Kilowatts
- Post-retrofit energy use for all lighting: 26.22 Kilowatts
- Energy savings projection: 22.62 Kilowatts
- Pre-retrofit to post retrofit energy reduction: 46%
- Estimated Annual Savings:

kWh Rate (FY 2009 AVE): $0.63 Fuel Cost (FY 2009 Ave): $4.30

Hours Per Day/ 250 Days Per Year	Electrical Savings	Comparative Avoided Diesel Use (gal)	Comparative Avoided Diesel Costs
Locally Estimated Use	$24,924	2,921	$12,560
4 Hours/day	$14,243	1,669	$7,178
7 Hours/day	**$24,926**	2,921	$12,562
10 Hours/day	$35,609	4,173	$17,945

- Total project cost for all measures: $42,000 (Allocated according to number of lighting retrofits and tracked grant expense)
- Simple Payback (lighting measures only, using 7 hours/day lighting use run-time): 1.68 years
- Total village wide in-kind contribution: $10,955

Additional Energy Efficiency Measures: One programmable set-back thermostat installed in Store and one in Clinic.

City of New Stuyahok Owned Buildings



City maintenance workers repair a fixture.

8 buildings owned by the City of New Stuyahok received energy efficient lighting upgrades as follows:

Old High School, City Office, Public Safety Bldg., Water Plant, Boys and Girls Club, Old School Maintenance Garage, Old School, Community Gym

- Lighting upgrades completed in: November 2009
- Retrofitted 217 light fixtures with electronic ballasts & T8 lamps
- Installed 20 compact fluorescent light bulbs
- Installed 25 T5 linear fluorescent fixtures
- Pre-retrofit energy use for all lighting: 26.985 Kilowatts
- Post-retrofit energy use for all lighting: 14.664 Kilowatts
- Energy savings projection: 12.321 Kilowatts
- Pre-retrofit to post retrofit energy reduction: 46%
- Estimated Annual Savings:

Hours Per Day / 250 Days Per Year	Electrical Savings	Comparative Avoided Diesel Use (gal)	Comparative Avoided Diesel Costs
Locally Estimated	$13,402.8	1570.81	$6,754.49
4 Hours/day	$7,758.53	909.30	$3,909.99
7 Hours/day	$13,577.4	1591.27	$6,842.47
10 Hours/day	$19,396.3	2273.25	$9,774.96



ABSN Project Coordinator Anna Hilbruner recycles old ballasts.

Old High School (now City owned)

Old High School building converted to City office space.

All classrooms and hallways updated with electronic ballast and T-8 lamps.

Lighting retro-kit converts 248 watt High Output T-12 fixture to 60 watt energy efficient T-8 fixture.

Retro-kits installed in woodshop with every other fixture taken offline for additional savings.

Materials Installed	**Quantity**
2-lamp electronic ballast, (2) 25 watt T8 lamps	94
4ft retrokit, 2-lamp electronic ballast, (2) 32 watt T8	26
4-lamp electronic ballast, (4) 25 watt T8 lamps	16
CFL-19W	2
CFL-9 W	2

- Pre-retrofit energy use: 14416 watts
- Post-retrofit energy use: 7380 watts
- Energy savings projection: 7036 watts
- Pre-retrofit to post retrofit energy reduction: 49%
- Estimated annual savings:

Hours Per Day / 250 Days Per Year	Electrical Savings	Comparative Avoided Diesel Use (gal)	Comparative Avoided Diesel Costs
4 Hours/day	$4,430.57	519.26	$2,232.83
7 Hours/day	$7,753.50	908.71	$3,907.45
10 Hours/day	$11,076.4	1298.15	$5,582.07
2000 Hours/year (Est.)	$8,861.14	1038.52	$4,465.65

Notes: Fourteen (248 watt) High Output T-12 fixtures taken offline in Wood & Welding shops for additional savings.

City Office



Materials Installed	Quantity
2 ft fixture, 2-lamp electronic ballast, (2) 17 watt T8	1
2-lamp electronic ballast, (2) 25 watt T8 lamps	36
3 ft, 2-lamp electronic ballast, (2) 25w T8 Lamps	1
CFL-13 W	4
CFL-19W	3

- Pre-retrofit energy use: 3112 watts
- Post-retrofit energy use: 1853 watts
- Energy savings projection: 1259 watts
- Pre-retrofit to post retrofit energy reduction: 40%
- Estimated annual savings:

Hours Per Day / 250 Days Per Year	Electrical Savings	Comparative Avoided Diesel Use (gal)	Comparative Avoided Diesel Costs
4 Hours/day	$792.79	92.92	$399.54
7 Hours/day	$1,387.39	162.60	$699.19
10 Hours/day	$1,981.98	232.29	$998.84
1500 Hours/year (Est.)	$1,189.19	139.37	$599.30

Public Safety Bldg.



Materials Installed	Quantity
2-lamp electronic ballast, (2) 25 watt T8 lamps	13
CFL-13 W	4
CFL-23 W	4

- Pre-retrofit energy use: 1652 watts
- Post-retrofit energy use: 742 watts
- Energy savings projection: 910 watts
- Pre-retrofit to post retrofit energy reduction: 55%
- Estimated annual savings:

Hours Per Day / 250 Days Per Year	Electrical Savings	Comparative Avoided Diesel Use (gal)	Comparative Avoided Diesel Costs
4 Hours/day	$573.03	67.16	$288.78
7 Hours/day	$1,002.80	117.53	$505.37
10 Hours/day	$1,432.57	167.90	$721.96
1000 Hours/year (Est.)	$573.03	67.16	$288.78

Water Plant

Materials Installed **Quantity**

4-lamp electronic ballast, (4) 25 watt T8 lamps	8
• Pre-retrofit energy use:	1344 watts
• Post-retrofit energy use:	720 watts
• Energy savings projection:	624 watts
• Pre-retrofit to post retrofit energy reduction:	46%
• Estimated annual savings:	

Hours Per Day / 250 Days Per Year	Electrical Savings	Comparative Avoided Diesel Use (gal)	Comparative Avoided Diesel Costs
4 Hours/day	$392.93	46.05	$198.02
7 Hours/day	$687.63	80.59	$346.54
10 Hours/day	$982.33	115.13	$495.06
1500 Hours/year (Est.)	$589.40	69.08	$297.03

Boys and Girls Club

Materials Installed **Quantity**

2-lamp electronic ballast, (2) 25 watt T8 lamps	16
CFL-19W	1
• Pre-retrofit energy use:	1212 watts
• Post-retrofit energy use:	755 watts
• Energy savings projection:	457 watts
• Pre-retrofit to post retrofit energy reduction:	38%
• Estimated annual savings:	

Hours Per Day / 250 Days Per Year	Electrical Savings	Comparative Avoided Diesel Use (gal)	Comparative Avoided Diesel Costs
4 Hours/day	$287.77	33.73	$145.03
7 Hours/day	$503.60	59.02	$253.80
10 Hours/day	$719.43	84.32	$362.56
1500 Hours/year (Est.)	$431.66	50.59	$217.54

Old School Maintenance Garage

Materials Installed	Quantity
2-lamp electronic ballast, (2) 25 watt T8 lamps	4
4-lamp electronic ballast, (4) 25 watt T8 lamps	2

- Pre-retrofit energy use: 624 watts
- Post-retrofit energy use: 364 watts
- Energy savings projection: 260 watts
- Pre-retrofit to post retrofit energy reduction: 42%

- Estimated annual savings:

Hours Per Day / 250 Days Per Year	Electrical Savings	Comparative Avoided Diesel Use (gal)	Comparative Avoided Diesel Costs
4 Hours/day	$163.72	19.19	$82.51
7 Hours/day	$286.51	33.58	$144.39
10 Hours/day	$409.31	47.97	$206.27
500 Hours/year (Est.)	$81.86	9.59	$41.25

Community Gym


T5 fluorescent fixtures replace old high-pressure sodium fixtures for energy savings while improving light levels in gym. Gymnasium ownership transferred to City for community activities.

Materials Installed	**Quantity**
T5 fixture, electronic ballast, (2) 54 watt T5 HO	25

- Pre-retrofit energy use: 4625 watts
- Post-retrofit energy use: 2850 watts
- Energy savings projection: 1775 watts
- Pre-retrofit to post retrofit energy reduction: 38%
- Estimated annual savings:

Hours Per Day / 250 Days Per Year	Electrical Savings	Comparative Avoided Diesel Use (gal)	Comparative Avoided Diesel Costs
4 Hours/day	$1,117.72	131.00	$563.28
7 Hours/day	$1,956.01	229.24	$985.75
10 Hours/day	$2,794.29	327.49	$1,408.21
1500 Hours/year (Est.)	$1,676.58	196.49	$844.93

Note: Twenty-five (175watt) High Pressure Sodium fixtures were replaced with 114 watt T5 fluorescent fixtures.



Community Gym in use before retrofits.

ABSN T5 Fluorescent Lighting plans are designed to increase light levels throughout the space (when all fixtures are switched on) - in comparison with previous existing light output. Existing switching controls are retained - allowing users to choose the appropriate number of light fixtures/rows of light fixtures needed for various use patterns. In many cases building staff will choose not to use all fixtures available, thereby achieving further electrical savings than what is shown above. ABSN T5 lighting plans employ 54-watt, high output T5 lamps with a color-rendering index (CRI) of 85, which improves light quality. Existing light fixtures in rural high ceiling areas typically have a CRI ranging from 30 to 70. The T5 retrofits boost CRI which greatly improves light quality, resulting in objects appearing much closer to their true color as seen under sunlight. This increased light quality can result in less light needed to illuminate a given space. As an added advantage, building owners also appreciate the “instant-on” function of T5 lighting compared with long wait periods for older HID fixtures to come on. With the waiting period eliminated, building owners have indicated they are more likely to keep lighting off until needed.

New Stuyahok - Alaska Building Science Network - T5 Lighting Upgrade Details

These retrofits were completed in (October, 2009).

Old School Gym	Length (feet)	Width (feet)	Ceiling Height (feet)	Type of Existing Fixture	# of Existing Fixtures	Existing Fixture Wattage	**Total Existing Wattage**	Existing Foot-candles	New Foot-Candles	# of New Fixtures	New fixtures	New Fixture Wattage	**Total New Wattage**
	69	63	20	HPS 150 watt		160	**0**	13 - 17 fc	37	25	T-5 2 lamps	114	**2850**
Color shade of walls	dark paneling	**13-17 fc**		HPS 250 watt		260	**0**				T-5 3 lamps	171	**0**
Color shade of floor	dark yellow			Multi-Vapor 400 watt		415	**0**				T-5 4 lamps	228	**0**
				HPS 175watt	25	185	**4,625**				T-5 6 lamps	342	**0**
					Total Existing Watts		4,625				Total New Watts		2850

Percent Savings Pre to Post Retrofit:	**38.38%**	neg 1 (New watts / Old watts x 100 - 100) / 100

1750 — New watts / old watts

Savings & Payback Calculation for Gym:

Assume 1750 hrs / year for 250 days/year of use

Full cost of electricity: $0.6297 /kWh

Watts of existing lighting: 4,625

New wattage for T5 fixtures: 2,850

Calculation: (Watts) x (hrs/year) / (1000w/kw) x (cost of electricity) = (cost / year)

Existing Cost: $ 5,097

Retrofitted Cost: $ 3,141

Annual Savings: $ $ 1,956

T5 Materials costs	$ 4,311.75
T5 Shipping costs	$ 246.00
T5 Labor costs	$ 2,470.00

Material & shipping cost of Gym retrofit: $7,027.75

Simple Payback: Materials cost / annual savings = **3.59** years (for retrofit to pay for itself in materials)

New Stuyahok Traditional Council Owned Buildings

4 buildings owned by the New Stuyahok Traditional Council received energy efficient lighting upgrades as follows:

Traditional Council Store, Clinic – BBHC, Traditional Council Office, Blue Building

- Lighting upgrades completed in: September 2009
- Retrofitted 123 light fixtures with electronic ballasts & T8 lamps
- Installed 7 compact fluorescent light bulbs
- Pre-retrofit energy use for all lighting: 10.684 Kilowatts
- Post-retrofit energy use for all lighting: 6.311 Kilowatts
- Energy savings projection: 4.373 Kilowatts
- Pre-retrofit to post retrofit energy reduction: 41%

- Estimated Annual Savings:

Hours Per Day / 250 Days Per Year	Electrical Savings	Comparative Avoided Diesel Use (gal)	Comparative Avoided Diesel Costs
Locally Estimated	$6,144.96	720.19	$3,096.81
4 Hours/day	$2,753.68	322.73	$1,387.74
7 Hours/day	$4,818.94	564.78	$2,428.55
10 Hours/day	$6,884.20	806.83	$3,469.35

Traditional Council Store

ABSN Field Manager Garrison Collette explains how to operate a programmable setback thermostat.

Materials Installed	**Quantity**
2-lamp electronic ballast, (2) 25 watt T8 lamps	65
CFL-13 W	1
• Pre-retrofit energy use:	4740 watts
• Post-retrofit energy use:	3003 watts
• Energy savings projection:	1737 watts
• Pre-retrofit to post retrofit energy reduction:	37%

• Estimated annual savings:

Hours Per Day / 250 Days Per Year	Electrical Savings	Comparative Avoided Diesel Use (gal)	Comparative Avoided Diesel Costs
4 Hours/day	$1,093.79	128.19	$551.23
7 Hours/day	$1,914.13	224.34	$964.64
10 Hours/day	$2,734.47	320.48	$1,378.06
2750 Hours/year (Est.)	$3,007.92	352.53	$1,515.87

Clinic - BBHC

Materials Installed	**Quantity**
2 ft fixture, 2-lamp electronic ballast, (2) 17 watt T8	1
2-lamp electronic ballast, (2) 25 watt T8 lamps	12
4-lamp electronic ballast, (3) 25 watt T8 lamps	12
CFL-23 W	1
• Pre-retrofit energy use:	2692 watts
• Post-retrofit energy use:	1507 watts
• Energy savings projection:	1185 watts
• Pre-retrofit to post retrofit energy reduction:	44%

• Estimated annual savings:

Hours Per Day / 250 Days Per Year	Electrical Savings	Comparative Avoided Diesel Use (gal)	Comparative Avoided Diesel Costs
4 Hours/day	$746.19	87.45	$376.05
7 Hours/day	$1,305.84	153.04	$658.09
10 Hours/day	$1,865.49	218.63	$940.13
2000 Hours/year (Est.)	$1,492.39	174.91	$752.10

Traditional Council Office



Materials Installed	Quantity
2-lamp electronic ballast, (2) 25 watt T8 lamps	21
3-lamp electronic ballast, (3) 25 watt T8 lamps	6

- Pre-retrofit energy use: 2520 watts
- Post-retrofit energy use: 1410 watts
- Energy savings projection: 1110 watts
- Pre-retrofit to post retrofit energy reduction: 44%
- Estimated annual savings:

Hours Per Day / 250 Days Per Year	Electrical Savings	Comparative Avoided Diesel Use (gal)	Comparative Avoided Diesel Costs
4 Hours/day	$698.97	81.92	$352.25
7 Hours/day	$1,223.19	143.36	$616.44
10 Hours/day	$1,747.42	204.80	$880.63
1800 Hours/year (Est.)	$1,258.14	147.45	$634.05

Note: Six 2-lamp fixtures taken offline for additional savings.

Blue Building


Materials Installed	Quantity
2-lamp electronic ballast, (2) 25 watt T8 lamps	6
CFL-23 W	5

- Pre-retrofit energy use: 732 watts
- Post-retrofit energy use: 391 watts
- Energy savings projection: 341 watts
- Pre-retrofit to post retrofit energy reduction: 47%
- Estimated annual savings:

Hours Per Day / 250 Days Per Year	Electrical Savings	Comparative Avoided Diesel Use (gal)	Comparative Avoided Diesel Costs
4 Hours/day	$214.73	25.17	$108.21
7 Hours/day	$375.77	44.04	$189.37
10 Hours/day	$536.82	62.92	$270.54
1800 Hours/year (Est.)	$386.51	45.30	$194.79

Stuyahok Limited Owned Buildings

1 building owned by Stuyahok Limited received energy efficient lighting upgrades as follows:

Tank Farm Trailer

Materials Installed	**Quantity**
2-lamp electronic ballast, (2) 25 watt T8 lamps	11

- Lighting upgrades completed in: September, 2009
- Retrofitted 11 light fixtures with electronic ballasts & T8 lamps
- Pre-retrofit energy use for all lighting: 0.924 Kilowatts
- Post-retrofit energy use for all lighting: 0.506 Kilowatts
- Energy savings projection: 0.418 Kilowatts
- Pre-retrofit to post retrofit energy reduction: 45%

- Estimated Annual Savings:

Hours Per Day / 250 Days Per Year	Electrical Savings	Comparative Avoided Diesel Use (gal)	Comparative Avoided Diesel Costs
4 Hours/day	$263.21	30.85	$132.65
7 Hours/day	$460.63	53.99	$232.14
10 Hours/day	$658.04	77.12	$331.62
500 Hours/year (Est.)	$131.61	15.42	$66.32

Southwest Region School District Owned Buildings

1 building owned by the Southwest Region School District received energy efficient lighting upgrades in Chief Ivan Blunka School teacher housing as follows:

Old Teacher Housing # 11 & 12

Materials Installed	Quantity
2-lamp electronic ballast, (2) 25 watt T8 lamps	14
CFL-9 W	3

- Lighting upgrades completed in: September 2009
- Retrofitted 14 light fixtures with electronic ballasts & T8 lamps
- Installed 3 compact fluorescent light bulbs
- Pre-retrofit energy use for all lighting: 2.364 Kilowatts
- Post-retrofit energy use for all lighting: 0.671 Kilowatts
- Energy savings projection: 1.693 Kilowatts
- Pre-retrofit to post retrofit energy reduction: 72%

- Estimated Annual Savings:

Hours Per Day / 250 Days Per Year	Electrical Savings	Comparative Avoided Diesel Use (gal)	Comparative Avoided Diesel Costs
4 Hours/day	$1,066.08	124.94	$537.26
7 Hours/day	$1,865.64	218.65	$940.21
10 Hours/day	$2,665.21	312.36	$1,343.15
1375 Hours/year (Est.)	$1,465.86	171.80	$738.74

Note: Fourteen 4-lamp fixtures were converted to 2-lamp fixtures for additional savings. Labor costs for this work was provided as an In-kind contribution by the Bering Straits School District.

Additional Community Owned Buildings



3 buildings owned by Bristol Bay Housing Authority, Bristol Bay Native Association and the community supported Russian Orthodox Church received energy efficient lighting upgrades as follows:

Quvularia Senior Center, BBNA Head Start, St. Sergius Russian Orthodox Church

- Lighting upgrades completed in: September 2009
- Retrofitted 60 light fixtures with electronic ballasts & T8 lamps
- Installed 60 light fixtures with electronic ballasts & T8 lamps
- Pre-retrofit energy use for all lighting: 7.881 Kilowatts
- Post-retrofit energy use for all lighting: 4.066 Kilowatts
- Energy savings projection: 3.815 Kilowatts
- Pre-retrofit to post retrofit energy reduction: 48%

- Estimated Annual Savings:

Hours Per Day / 250 Days Per Year	Electrical Savings	Comparative Avoided Diesel Use (gal)	Comparative Avoided Diesel Costs
Locally Estimated	$3,779.21	442.92	$1,904.57
4 Hours/day	$2,402.31	281.55	$1,210.66
7 Hours/day	$4,204.03	492.71	$2,118.66
10 Hours/day	$6,005.76	703.87	$3,026.66

Quvularia Senior Center



Materials Installed **Quantity**

4-lamp electronic ballast, (4) 25 watt T8 lamps	18
• Pre-retrofit energy use:	3024 watts
• Post-retrofit energy use:	1620 watts
• Energy savings projection:	1404 watts
• Pre-retrofit to post retrofit energy reduction:	46%

• Estimated annual savings:

Hours Per Day / 250 Days Per Year	Electrical Savings	Comparative Avoided Diesel Use (gal)	Comparative Avoided Diesel Costs
4 Hours/day	$884.10	103.62	$445.55
7 Hours/day	$1,547.17	181.33	$779.71
10 Hours/day	$2,210.25	259.04	$1,113.87
2250 Hours/year (Est.)	$1,989.22	233.14	$1,002.49

BBNA Head Start



Materials Installed **Quantity**

2-lamp electronic ballast, (2) 25 watt T8 lamps	3
3-lamp electronic ballast, (3) 25 watt T8 lamps	1
4-lamp electronic ballast, (3) 25 watt T8 lamps	6
4-lamp electronic ballast, (4) 25 watt T8 lamps	5
CFL-13 W	2
CFL-9 W	3
• Pre-retrofit energy use:	2688 watts
• Post-retrofit energy use:	1165 watts
• Energy savings projection:	1523 watts
• Pre-retrofit to post retrofit energy reduction:	57%

• Estimated annual savings:

Hours Per Day / 250 Days Per Year	Electrical Savings	Comparative Avoided Diesel Use (gal)	Comparative Avoided Diesel Costs
4 Hours/day	$959.03	112.40	$483.31
7 Hours/day	$1,678.31	196.70	$845.80
10 Hours/day	$2,397.58	281.00	$1,208.28
1400 Hours/year (Est.)	$1,342.65	157.36	$676.64

St. Sergius Russian Orthodox Church

Materials Installed	Quantity
2-lamp electronic ballast, (2) 25 watt T8 lamps	27
CFL-13 W	3
• Pre-retrofit energy use:	2169 watts
• Post-retrofit energy use:	1281 watts
• Energy savings projection:	888 watts
• Pre-retrofit to post retrofit energy reduction:	41%

• Estimated annual savings:

Hours Per Day / 250 Days Per Year	Electrical Savings	Comparative Avoided Diesel Use (gal)	Comparative Avoided Diesel Costs
4 Hours/day	$559.17	65.54	$281.80
7 Hours/day	$978.55	114.69	$493.15
10 Hours/day	$1,397.93	163.84	$704.50
800 Hours/year (Est.)	$447.34	52.43	$225.44

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

In-Kind Item	Dates	Hours	Hourly Wage	Value / Amount	Notes
Staff time for project contact introduction		7	$ 20.00	$ 140.00	Number of entities x 1 hour each
Staff time for Attending teleconference		2	$ 20.00	$ 40.00	TC/IRA
Staff time for Attending teleconference		2	$ 20.00	$ 40.00	City
Staff time for Attending teleconference		1	$ 20.00	$ 20.00	Village Corp
Staff time for Attending teleconference		2	$ 20.00	$ 40.00	School
Conservative village office administrative percentage of total project cost less ABSN Admin %. Total project cost = $42,000/village - (our admin percentage , (around 12%) Approx: $5,040) = $36,960 x 5.5% = $2,032.80 (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, unaccounted time expense for village project support.	Feb, '07 through			$ 2,032.80	Each time we call, email, or fax a village entity, someone receives the communication, reviews and/or forwards the information, follows-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 for recycling, 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.
Maint. Staff time w/ FM - 1st site visit		4	$ 15.00	$ 60.00	Aaron Basler - maintenance staff SWRSD maintenance
Maint. Staff time w/ FM - 1st site visit		6	$ 15.00	$ 90.00	City maintenance staff-6 hrs
Lodging for - 1st assessment site visit		4	$125	$ 500.00	4 nights in teacher housing for 1 ABSN Field Manager
Transportation & fuel costs - Asses		1	$100	$ 100.00	1st assessment site-visit - School Contribution
Transportation & fuel costs - Asses		2	$40	$ 80.00	1st assessment site-visit - City Truck Use $40 per day
School - Lodging 2nd site visit	9/22-26/09	12	$125	$ 1,500.00	9/22-9/26 4 nights in teacher housing, 3 ABSN FMs $125 per person per night
Transportation and fuel costs - 2nd visit	9/22-26/09	4	$75	$ 300.00	Traditional Council provided 4-wheeler -4 days
Transportation and fuel costs - 2nd visit	9/22-26/09	5	$40	$ 200.00	City provided truck to move supplies regularly
Corporation Maint. Hours All In-kind		11.50	$15	$ 172.50	Bobby Blunka's hours on main lighting upgrades
Staff & truck to transport backhaul		3	$15	$ 85.00	IGAP/City Staff transport to airstrip 3 hours + $40 Truck rental
School lift for old gym	10/13-23/09	37	$75	$ 2,775.00	SWRSD is providing use & transportation of a lift to the City In-kind for completion of **old gym lighting**.
School lift for wood shop	10/13-23/09	16	$75	$ 1,200.00	SWRSD is providing use & transportation of a lift to the City In-kind for completion of **wood shop**.
retro-fit set-up preparation		13	$15	$ 195.00	Chuck time to meet with the council, prep& follow up time
IGAP Coordinator for Backhaul		10	$17	$ 399.60	Coordinated Backhaul for all Entities
Denaina Air Taxi, Lamp & Ballast Backhaul				$ 399.60	On Invoice # 4708, they discounted backhaul. Usual rate is $.85/lb. On 1332 lbs they charged us $732.60 (.55/lb) as opposed to .85/lb for $1132.20.
Orthodox Church All In-Kind Labor		17	$15	$ 255.00	This is our estimate with our typical wage
School old teacher housing unit		9	$15	$ 135.00	All In-Kind Labor This is our estimate with our typical wage
Senior Center lights		13	$15	$ 195.00	This is our estimate with our typical wage
	TOTAL			**$10,954.50**	

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 New Stuyahok to deliver 26% more energy savings measures beyond the original grant funding.