Village End Use Energy Efficiency Measures Program ’05 – ’06
AEA Grant # 2195234 Administered by Alaska Building Science Network

Kongiganak Final Report



Community Summary

12 Community buildings and 7 teacher housing units received energy efficiency upgrades May ’06 - December ’06

Water Treatment Plant, Laundromat, Power Company, Community Hall, ICWA, Clinic, Fire Hall & Public Safety Building, Traditional Council Building, Traditional Council Office, Traditional Council Rental Apartment, Village Corporation Hardware Store, School Building and 7 Teacher Housing Units

Village-Wide Lighting Retrofit Summary:

- Retrofitted 218 light fixtures village-wide with electronic ballasts and T8 lamps
- Installed: 71 compact fluorescent light bulbs village-wide
- T5 Light fixtures were installed in the school gym
- Pre-retrofit energy use for all lighting: 29,783 watts
- Post-retrofit energy use for all lighting: 17,117 watts
- Energy savings projection: 12,666 watts (12.67 kW)
- **Pre-retrofit to post retrofit energy reduction**: 43 %
- **Estimated Annual Savings:**

Hours Per Day / 250 Days Per Year	Electrical Savings	Avoided Diesel Use	Avoided Diesel Costs
4 Hours	$5,066	1,020 Gallons	$2,468
7 Hours	$8,866	1,785 Gallons	$4,319
10 Hours	$12,666	2,550 Gallons	$6,170

- Total project cost for all measures: $ 37,250
- Simple mean payback* (on lighting savings only) 4.20 Years
- Total village wide in-kind contribution: $ 8,529

Additional Energy Efficiency Measures: (Budget Expense: $ 4,954)

- Boiler Training for 2 local maintenance staff (16-hour Bethel training for one, hands-on village training for two Kongiganak maint staff).
- Cleaning and energy efficiency tuning for washeteria dryer heat boiler
- Programmable thermostats installed in 5 locations

Kongiganak City Owned Buildings

Energy efficient lighting upgrades were completed in seven buildings owned by the City of Kongiganak.

Like most west grant villages, the majority of T8 lighting retrofits in Kong were done with Phillips high-phosphor 25-watt lamps. Approximately 400 4' T8 lamps were installed village wide. Of those, only around 20 lamps were standard 32-watt T8 lamps. Using 25-watt lamps brings an immediate 22% savings over using standard 32-watt lamps. In some cases, 3-lamp ballasts were installed to power two lamps – resulting in slightly higher light output. Depending on the existing light layouts and light levels needed, there are times when 4-lamp fixtures were de-lamped to 2-lamp fixtures, powered by 3-lamp ballasts running either 32 watt or 25 watt T8s. Other options for de-lamping 4-lamp fixtures were to run only 3 lamps with either a 3, or 4-lamp ballast.

City owned Buildings - Lighting Retrofit Summary:

- Lighting upgrades completed in June 2006
- Retrofitted 95 linear fluorescent fixtures with T8 lamps and electronic ballasts
- Installed: 40 compact fluorescent light bulbs
- Pre-retrofit energy use for all lighting: 10,636 watts
- Post-retrofit energy use for all lighting: 6,217 watts
- Energy savings projection: 4,419 watts (4.42 kW)
- **Pre-retrofit to post retrofit energy reduction**: 42 %
- **Estimated Annual Savings:**

Hours Per Day / 250 Days Per Year	Electrical Savings	Avoided Diesel Use	Avoided Diesel Costs
4 Hours	$1,768	356 Gallons	$861
7 Hours	$3,093	623 Gallons	$1,507
10 Hours	$4,419	889 Gallons	$2,153

Water Treatment Plant

Materials Installed	2-Lamp Ballasts 25w lamps	2-Lamp Fixtures 3-lamp ballasts 32w lamps	2-Lamp Fixtures 3-lamp ballasts 25w lamps	4-Lamp Fixtures 3-lamp ballasts 25w lamps	4-Lamp Ballasts 25w lamps	13w CFL	20w CFL	25w CFL
Water Treatment	21	0	19	0	4	0	4	0

- Pre-retrofit energy use: 3,542 watts
- Post-Retrofit Energy Use: 2,435 watts
- Energy savings projection: 1,107 watts (1.11 Kw)
- **Pre-retrofit to post retrofit energy reduction**: 31 %

- **Estimated Annual Savings:**

Hours Per Day / 250 Days Per Year	Electrical Savings	Avoided Diesel Use	Avoided Diesel Costs
4 Hours	$443	89 Gallons	$216
7 Hours	$775	156 Gallons	$377
10 Hours	$1,107	223 Gallons	$539

Laundromat

Materials Installed	2-Lamp Ballasts 25w lamps	2-Lamp Fixtures 3-lamp ballasts 32w lamps	2-Lamp Fixtures 3-lamp ballasts 25w lamps	4-Lamp Fixtures 3-lamp ballasts 25w lamps	4-Lamp Ballasts 25w lamps	13w CFL	20w CFL	25w CFL
Laundromat	7	0	0	0	10	0	4	0

- Pre-retrofit energy use: 2,048 watts
- Post-Retrofit Energy Use: 1,359 watts
- Energy savings projection: 689 watts (.69 Kw)
- **Pre-retrofit to post retrofit energy reduction**: 34 %

- **Estimated Annual Savings:**

Hours Per Day / 250 Days Per Year	Electrical Savings	Avoided Diesel Use	Avoided Diesel Costs
4 Hours	$276	55 Gallons	$134
7 Hours	$482	97 Gallons	$235
10 Hours	$689	139 Gallons	$336

Notes: The Laundromat and Water Treatment Building had a different sort of existing lighting situation. Five or more years ago all light fixtures were retrofitted with electronic ballasts. But T12 lamps had been installed throughout. Energy use was comparatively low – just a little higher than if 32 watt T8 lamps had been used. The ABSN lighting strategy called for using nearly all 25 watt lamps and using existing 2-lamp ballasts. Ten fixtures were retrofitted with 4-lamp ballasts.

Power Company

Power Company building

CFLs were installed wherever possible

25-watt T8s and 2-lamp ballasts come to 47 or less watts / fixture

Materials Installed	2-Lamp Ballasts 32w lamps	4-Lamp Ballasts 32w lamps	2-Lamp Ballasts 25w lamps	4-Lamp Ballasts 25w lamps	13w CFL	20w CFL	25w CFL
Power Company	0	0	6	0	0	6	0

- Pre-retrofit energy use: 870 watts
- Post-Retrofit Energy Use: 402 watts
- Energy savings projection: 468 watts (.47 Kw)
- **Pre-retrofit to post retrofit energy reduction**: 54 %

- **Estimated Annual Savings:**

Hours Per Day / 250 Days Per Year	Electrical Savings	Avoided Diesel Use	Avoided Diesel Costs
4 Hours	$187	38 Gallons	$91
7 Hours	$328	66 Gallons	$160
10 Hours	$468	94 Gallons	$228

Community Hall

The next generation of community leadership

Retrofitted with all 25 watt lamps

Materials Installed	2-Lamp Ballasts 32w lamps	4-Lamp Ballasts 32w lamps	2-Lamp Ballasts 25w lamps	4-Lamp Ballasts 25w lamps	13w CFL	20w CFL	25w CFL
Community Hall	0	0	6	0	0	4	4

- Pre-retrofit energy use: 1,192 watts
- Post-Retrofit Energy Use: 462 watts
- Energy savings projection: 730 watts (.73 Kw)
- **Pre-retrofit to post retrofit energy reduction**: 61 %

- **Estimated Annual Savings:**

Hours Per Day / 250 Days Per Year	Electrical Savings	Avoided Diesel Use	Avoided Diesel Costs
4 Hours	$292	59 Gallons	$142
7 Hours	$511	103 Gallons	$249
10 Hours	$730	147 Gallons	$356

ICWA

Materials Installed	2-Lamp Ballasts 32w lamps	4-Lamp Ballasts 32w lamps	2-Lamp Ballasts 25w lamps	4-Lamp Ballasts 25w lamps	13w CFL	20w CFL	25w CFL
ICWA	5	0	0	0	0	7	0

- Pre-retrofit energy use: 935 watts
- Post-Retrofit Energy Use: 440 watts
- Energy savings projection: 495 watts (.50 Kw)
- **Pre-retrofit to post retrofit energy reduction**: 53 %
- **Estimated Annual Savings:**

Hours Per Day / 250 Days Per Year	Electrical Savings	Avoided Diesel Use	Avoided Diesel Costs
4 Hours	$198	40 Gallons	$96
7 Hours	$347	70 Gallons	$169
10 Hours	$495	100 Gallons	$241

New Clinic

Materials Installed	2-Lamp Ballasts 25w lamps	2-Lamp Fixtures 3-lamp ballasts 32w lamps	2-Lamp Fixtures 3-lamp ballasts 25w lamps	4-Lamp Fixtures 3-lamp ballasts 25w lamps	4-Lamp Ballasts 25w lamps	13w CFL	20w CFL	25w CFL
New Clinic	3	4	10	0	0	6	1	0

- Pre-retrofit energy use: 1,649 watts
- Post-Retrofit Energy Use: 1,019 watts
- Energy savings projection: 630 watts (.63 Kw)
- **Pre-retrofit to post retrofit energy reduction**: 38 %

- **Estimated Annual Savings:**

Hours Per Day / 250 Days Per Year	Electrical Savings	Avoided Diesel Use	Avoided Diesel Costs
4 Hours	$252	51 Gallons	$123
7 Hours	$441	89 Gallons	$215
10 Hours	$630	127 Gallons	$307

Fire Hall & Public Safety Building

Materials Installed	2-Lamp Ballasts 32w lamps	4-Lamp Ballasts 32w lamps	2-Lamp Ballasts 25w lamps	4-Lamp Ballasts 25w lamps	13w CFL	20w CFL	25w CFL
Fire Hall & Public safety building	0	0	0	0	0	0	4

- Pre-retrofit energy use: 400 watts
- Post-Retrofit Energy Use: 100 watts
- Energy savings projection: 300 watts (F Kw)
- **Pre-retrofit to post retrofit energy reduction**: 75 %
- **Estimated Annual Savings:**

Hours Per Day / 250 Days Per Year	Electrical Savings	Avoided Diesel Use	Avoided Diesel Costs
4 Hours	$120	24 Gallons	$58
7 Hours	$210	42 Gallons	$102
10 Hours	$300	60 Gallons	$146

Kongiganak Traditional Council Owned Buildings

Energy efficient lighting upgrades were completed in two buildings owned by the Kongiganak Traditional Council. All T8 retrofits used 25-watt lamps.

Traditional Council owned Buildings - Lighting Retrofit Summary:

- Lighting upgrades completed in June 2006
- Retrofitted 22 linear fluorescent fixtures with T8 lamps and electronic ballasts
- Installed: 15 compact fluorescent light bulbs
- Pre-retrofit energy use for all lighting: 3,665 watts
- Post-retrofit energy use for all lighting: 1,982 watts
- Energy savings projection: 1,683 watts (1.68 kW)
- **Pre-retrofit to post retrofit energy reduction**: 46 %

- **Estimated Annual Savings:**

Hours Per Day / 250 Days Per Year	Electrical Savings	Avoided Diesel Use	Avoided Diesel Costs
4 Hours	$673	136 Gallons	$328
7 Hours	$1,178	237 Gallons	$574
10 Hours	$1,683	339 Gallons	$820

Traditional Council Building

Materials Installed	2-Lamp Ballasts 32w lamps	4-Lamp Ballasts 32w lamps	2-Lamp Ballasts 25w lamps	4-Lamp Ballasts (4) 25w lamps	13w CFL	20w CFL	25w CFL
Traditional Council	0	0	1	7	0	0	0

- Pre-retrofit energy use: 1,050 watts
- Post-Retrofit Energy Use: 712 watts
- Energy savings projection: 338 watts (.34 Kw)
- **Pre-retrofit to post retrofit energy reduction**: 32 %

- **Estimated Annual Savings:**

Hours Per Day / 250 Days Per Year	Electrical Savings	Avoided Diesel Use	Avoided Diesel Costs
4 Hours	$135	27 Gallons	$66
7 Hours	$237	48 Gallons	$115
10 Hours	$338	68 Gallons	$165

Traditional Council Offices

Materials Installed	2-Lamp Ballasts 32w lamps	4-Lamp Ballasts 32w lamps	2-Lamp Ballasts 25w lamps	4-Lamp Ballasts (4) 25w lamps	13w CFL	20w CFL	25w CFL
Council Office	0	0	4	7	0	3	5

- Pre-retrofit energy use: 1,985 watts
- Post-Retrofit Energy Use: 1,038 watts
- Energy savings projection: 947 watts (.95 Kw)
- **Pre-retrofit to post retrofit energy reduction**: 48 %
- **Estimated Annual Savings:**

Hours Per Day / 250 Days Per Year	Electrical Savings	Avoided Diesel Use	Avoided Diesel Costs
4 Hours	$379	76 Gallons	$185
7 Hours	$663	133 Gallons	$323
10 Hours	$947	191 Gallons	$461

Council Rental Apartment

Materials Installed	2-Lamp Ballasts 32w lamps	4-Lamp Ballasts 32w lamps	2-Lamp Ballasts 25w lamps	4-Lamp Ballasts (4) 25w lamps	13w CFL	20w CFL	25w CFL
Council Rental Apt	0	0	3	0	7	0	0

- Pre-retrofit energy use: 630 watts
- Post-Retrofit Energy Use: 232 watts
- Energy savings projection: 398 watts (.40 Kw)
- **Pre-retrofit to post retrofit energy reduction**: 63 %

- **Estimated Annual Savings:**

Hours Per Day / 250 Days Per Year	Electrical Savings	Avoided Diesel Use	Avoided Diesel Costs
4 Hours	$159	32 Gallons	$78
7 Hours	$279	56 Gallons	$136
10 Hours	$398	80 Gallons	$194

Kongiganak Village Corporation Owned Buildings

Qemirtalek Coast Corporation
Hardware Store

2-lamp fixtures, 25-watt T8 lamps and
3-lamp ballasts

Energy efficient lighting upgrades were completed in one building owned by the Qemirtalek Coast Corporation

Village Corporation Hardware Store - Lighting Retrofit Summary:

- Lighting upgrades completed in December, 2006
- Retrofitted 31 linear fluorescent fixtures with T8 lamps and electronic ballasts
- Installed: 1 compact fluorescent light bulbs

Materials Installed	2-Lamp Ballasts 32w lamps	4-Lamp Ballasts 32w lamps	2-Lamp Ballasts 25w lamps	2-Lamp Fixtures 3-lamp ballasts 25w lamps	13w CFL	20w CFL	25w CFL
Hardware Store	0	0	0	31	0	1	0

- Pre-retrofit energy use for all lighting: 2,230 watts
- Post-retrofit energy use for all lighting: 1,632 watts
- Energy savings projection: 598 watts (.60 kW)
- **Pre-retrofit to post retrofit energy reduction**: 27 %
- **Estimated Annual Savings:**

Hours Per Day / 250 Days Per Year	Electrical Savings	Avoided Diesel Use	Avoided Diesel Costs
4 Hours	$239	48 Gallons	$117
7 Hours	$419	84 Gallons	$204
10 Hours	$598	120 Gallons	$291

Notes: This building was lit with 34-watt T12s and had poor existing light levels averaging around 22 foot-candles. Generally, wherever 34-watt T12 lamps have been adequate, 25-watt T8 lamps can replace them and provide enough light. With the higher ceilings and low existing light levels of this village corp. store we were still able to use 25 watt lamps by combining them with 3-lamp ballasts which marginally increase light output.

Lower Kuskokwim School Owned Buildings - District Kongiganak School

Energy efficient lighting upgrades were completed in eight LKSD owned buildings, which included six teacher-housing units.

School owned Buildings - Lighting Retrofit Summary:

- Lighting upgrades completed in May, 2006
- Retrofitted 70 linear fluorescent fixtures with T8 lamps and electronic ballasts
- Installed: 15 compact fluorescent light bulbs
- Pre-retrofit energy use for all lighting: 13,252 watts
- Post-retrofit energy use for all lighting: 7,286 watts
- Energy savings projection: 5,966 watts (5.97 kW)
- **Pre-retrofit to post retrofit energy reduction**: 45 %
- **Estimated Annual Savings:**

Hours Per Day / 250 Days Per Year	Electrical Savings	Avoided Diesel Use	Avoided Diesel Costs
4 Hours	$2,386	480 Gallons	$1,162
7 Hours	$4,176	841 Gallons	$2,034
10 Hours	$5,966	1,201 Gallons	$2,906

Teacher Housing

Materials Installed	2-Lamp Ballasts 32w lamps	4-Lamp Ballasts 32w lamps	2-Lamp Ballasts 25w lamps	4-Lamp Ballasts 25w lamps	13w CFL	20w CFL	25w CFL
Fixture TOTALS	**0**	**0**	**13**	**3**	**0**	**15**	**0**

- Pre-retrofit energy use: 2,389 watts
- Post-Retrofit Energy Use: 1,055 watts
- Energy savings projection: 1,334 watts (1.33 Kw)
- **Pre-retrofit to post retrofit energy reduction**: 56 %
- **Estimated Annual Savings:**

Hours Per Day / 250 Days Per Year	Electrical Savings	Avoided Diesel Use	Avoided Diesel Costs
4 Hours	$534	107 Gallons	$260
7 Hours	$934	188 Gallons	$455
10 Hours	$1,334	269 Gallons	$650

Notes: Most lighting in Kong's teacher housing was circular fluorescent lighting, which has relatively low existing energy use.

School Building (Shop and Food Storage)

Materials Installed	2-Lamp Ballasts 32w lamps	4-Lamp Ballasts 32w lamps	2-Lamp Ballasts 25w lamps	4-Lamp Ballasts 25w lamps	13w CFL	20w CFL	25w CFL
Shop/Food Storage	54	0	3	0	0	0	0

- Pre-retrofit energy use: 4,638 watts
- Post-Retrofit Energy Use: 3,381 watts
- Energy savings projection: 1,257 watts (1.26 Kw)
- **Pre-retrofit to post retrofit energy reduction**: 27 %
- **Estimated Annual Savings:**

Hours Per Day / 250 Days Per Year	Electrical Savings	Avoided Diesel Use	Avoided Diesel Costs
4 Hours	$503	101 Gallons	$245
7 Hours	$880	177 Gallons	$429
10 Hours	$1,257	253 Gallons	$612

Notes: The higher ceilings and need for strong light levels in the school shop required 32-watt T8 lamps to replace existing 40-watt lamps.

High Output T5 Lighting Upgrades for the Gym

Hours Per Day / 250 Days Per Year	Electrical Savings	Avoided Diesel Use	Avoided Diesel Costs
4 Hours	$1,350	272 Gallons	$658
7 Hours	$2,363	476 Gallons	$1,151
10 Hours	$3,375	679 Gallons	$1,644

The Kongiganak school gym T5 lighting upgrades were completed in September, 2006. Energy use from gym lighting dropped by 54% while increasing existing light levels and light quality. Five 4-lamp and ten 3-lamp T5 fixtures (new total wattage of 2,850) replaced fifteen 415-watt Mercury vapor fixtures (previous total wattage of 6,225).

Alaska Building Science Network - Kongiganak T5 Lighting Upgrade Details

These retrofits were completed in Sept '06.

Kongiganak School	Length (feet)	Width (feet)	Ceiling Hieght (feet)	# of Existing Fixtures	Existing Fixture Wattage	**Total Existing Wattage**	Existing Foot-candles	New Foot Candles	# of New Fixtures	lamps / fixture	New Fixture Wattage	**Total New Wattage**
Gym	80	49	sloping 16'-19'	15	415	6,225	20 -25 USKH	43	5	4	228	1140
									10	3	171	1710
												2850

Percent Savings Pre to Post Retrofit:	**54.22%**

Savings & Payback Calculation for Gym:

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

Full cost of electricity: $ 0.40 /kWh

Watts of existing lighting: 6,225

New wattage for T5 fixtures: 2,850

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

Existing Cost: $ 4,358

Retrofitted Cost: $1,995

Annual Savings: $ $2,363

Est material & shipping cost of Gym retrofit: $ 3,966

Simple Payback: Materials cost / annual savings = **1.67873** years (for retrofit to pay for itself in materials)

Bethel Boiler Training at Yuut Elitnaurviat Learning Center, March 24 & 25, 2006

16 hours of classroom time at the Learning Center Shop

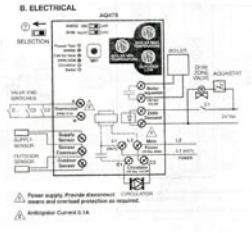
Blue plastic cases are Bacharach flu gas analyzer kits – taken back to villages by maintenance staff

Training on oil burner combustion efficiency

Kongiganak Traditional Council maintenance staff: John Phillip traveled to Bethel March 24 and 25, 2006 to participate in this training. ABSN partnered with Bethel Community Services Association, YKHC's Yuut Elitnaurviat Learning Center and AVCP Housing Authority to provide ABSN's 16 hour boiler training course to 7 rural maintenance staff. Charlie deer's training hours were covered by $2,100 in matching funds from ABSN. AEA VEUEEM grant funds were used to cover air fair and lodging in Bethel for the following maintenance staff from this grant's villages: **Chefornak**: Bernard Mael, **Kongiganak**: John Phillip, **Kwigillingok**: Benedict White, **Mekoryuk**: Alvin David, **Quinhagak**: Norman Cleveland and Adolph Pleasant. Andrew Lind of Port Heiden (NW-SW Region VEUEEM grant) was also brought to Bethel for this class.

Components of a Bacharach Flu Gas Analyzing Kit used in boiler efficiency training and left with capable maint staff

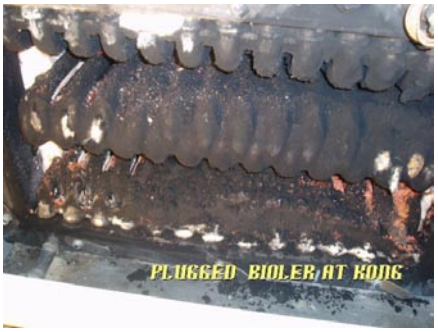
Smoke-test kit for analyzing flu gases for boiler efficiency



Schematic of outdoor temperature sensing boiler control

During this 16-hour course ABSN's boiler specialist Charlie Deer instructed maintenance staff in the fundamentals of boiler and fuel energy efficiency. Training topics covered: fuel, proper heating system sizing, testing boiler efficiency with a flu gas analyzer kit, cleaning and tuning boilers for energy efficiency, control options and proper control function, burner and nozzle components and function, outdoor temperature boiler controls, programmable thermostats, etc.

Kongiganak - Heating Energy Efficiency Site Visit by Charlie Deer May 5 – 6, 2006



During this site visit Charlie worked with 2 Kongiganak Traditional Council maintenance staff. Maintenance man John Phillip had also attended ABSN's 16-hour boiler class in Bethel earlier that spring. Charlie and Kong maintenance staff inspected the heating systems in the water treatment and washeteria buildings and found the dryer heat boiler on its last legs. - plugged solid with soot, and with a stack temperature over 800°re indicates much of the heat generated by the boiler's burner this high temperatu) .F .and not into the heating coils of the boiler because of caked on soot was going up the chimney Charlie and maintenance staff cleaned and resealed the boiler. The dryer boiler had a substitute burner installed instead of the burner specified for that boiler. It was a Beckett AFG and it should have been an SF. The draft tube and retention head off the original burner didn't match the other parts of the AFG burner but by trying different nozzles they got it to burn well at about 81% efficiency. Charlie found the boiler was oversized which allowed the AFG burner to carry the load. The expansion tank was bad and had been for a long time. The boiler relief lifted every time the boiler fired and the temperature raised. The relief had been changed previously at least once. Charlie and John got a new tank ordered from Bethel. When the expansion tank did arrive, John Phillip installed it and it solved the problem of frequent relief valve discharge. The consequences of not fixing the problem would be premature degredation and failure of the boiler and all ferrous metal parts in the heating system due to excessive corrosion from constant infusion of oxygenated make-up water.

On Saturday May 6, Charlie and John went through the rest of the heating system. It was equipped with a Tekmar outside boiler temperature reset control but it was bypassed and had been for some time. Charlie did some training on the controls and system line up and reinstated the outdoor temp control. Charlie also found all circulating pumps including the stand-bys were running all the time and there was an overheat problem in the office building. The system has waste heat from the generator shed and the boilers don't need to run at all except in the coldest weather. If the entire heating and waste heat recovery system was re-engineered, substantial fuel could likely be saved.

Kongiganak Energy Efficiency Window Class

May 6, 2006: Since Charlie Deer is also an energy efficient window specialist, he observed all the dual action/turn tilt windows in the Kongiganak administration building were mounted 3/8" to ½" out of square and had never have operated properly. Charlie arranged a window training class and taught several attendees how to adjust, and lubricate the hardware, and change the glass when necessary.

Kongiganak In-Kind Contribution Tracking Record - ABSN Energy Efficiency Projects:

Village entities worked with: Tribe, City, Village Corp, School District.

In-Kind Item	Dates	Hours Contri-buted	Hourly Wage	Value / Amount	Notes
Staff time for project contact, introduction, and reviewof intro materials (Number of entities x 1 hour each)		4	$15.00	$60.00	Hrs contributed column indicates # of entities we worked with in the village. $15 / hr is our estimated average wage for local village staff: Tribal Administrators, City Clerks, Facilities Managers, maintenance staff, etc.
Staff time for Attending teleconference - all entities village-wide		13.5	$15.00	$202.50	Hrs contributed column indicates length of telecon multiplied by # of village telecon participants
Maint. Staff all entities - research and record lighting counts and PCB info. City/TC - 6 hrs, School - 4 hours, Vilage Corp - 5 hours		16	$13.00	$208.00	After we discovered USKH counts were quite spotty in the West region we asked some villages to re-do counts and check for PCBs
Maint. Staff time to attend ABSN training		12	$13.00	$156.00	Hrs contributed column indicates length of training multiplied by # of in-kind training participants
Village office administrative percentage of total project cost less ABSN Admin %. Total project cost = $37,250/village - (our admin percentage , (around 9%) Approx: $3,352) = $33,897 x 5% = $1,694 (this 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 project support.	Jan '05 - Jan '07			$1,694.00	Each time we call, email, or fax a village entity, someone has to receive the communication, review and/or foward the information, follow-up on requests, etc. Wether 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, etc. Village expenses for phone charges, copying and fax costs, office supplies, etc are part of this ammount.
Lodging for ABSN Field Managers - 2nd assessment site visit	5/9-11/06	5	80	$400.00	John Woodward (3 nights), Geoff Butgler (2 nights)
Transportation and fuel costs - all site visits		5	40	$200.00	4-wheel rental - Trad Council 5 days @ $40/day
Lodging, Charlie Deer's site visit	5/5/06			$80.00	Charlie Deer
School & teacher housing lighting upgrades		45	16	$720.00	45 hours for retrofitting 70 linear fluorescents and 15 CFLs
School T5 Gym lighting upgrades				$4,741.00	LKSD inkind records includes $600 for air fare
Employer expense for Workman's Comp		1358	0.05	$67.90	Generic multiplier: .05 x gross payroll of village labor
	TOTAL			$8,529.40	