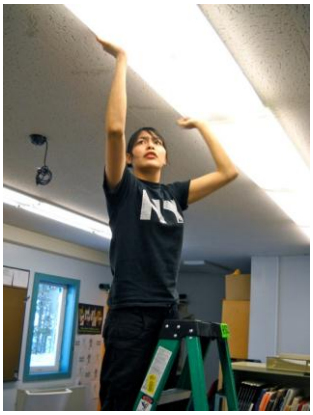
# Village End Use Energy Efficiency Measures Program

**AEA Grant # 2195294 Administered by Alaska Building Science Network**

# Huslia Final Report



## Community Summary

14 community buildings and 5 teacher housing units received energy efficiency upgrades.

City Office / VPSO, Community Hall, Gas & Oil Office, Huslia Head Start Building, Tribal Office & Elder Center, Armory, Old Clinic / Old Tribal Office, TFYS, Elementary School, High School, Maintenance Shop, Wood Shop, School Gym, Community Church, Episcopal Church

Retrofits Completed: March 2010

### Village-Wide Lighting Retrofit Summary:

- Retrofitted 274 light fixtures with electronic ballasts & T8 lamps
- Retrofitted 19 existing electronic ballasts with T8 lamps
- Installed 71 compact fluorescent light bulbs
- Pre-retrofit energy use for all lighting: 44.597 Kilowatts
- Post-retrofit energy use for all lighting: 23.378 Kilowatts
- Energy savings projection: 21.219 Kilowatts
- Pre-retrofit to post retrofit energy reduction: 48%
- Estimated Annual Savings:

kWh Rate (FY 2009 AVE): $0.65 Fuel Cost (FY 2009 Ave): $4.43

| Hours Per Day/ 250 Days Per Year | Electrical Savings | Comparative Avoided Diesel Use (gal) | Comparative Avoided Diesel Costs |
|---|---|---|---|
| Locally Estimated Use | $23,026.21 | 2639.74 | $11,694.0 |
| 4 Hours/day | $13,730.81 | 1574.11 | $6,973.31 |
| 7 Hours/day | **$24,028.93** | 2754.69 | $12,203.2 |
| 10 Hours/day | $34,327.04 | 3935.27 | $17,433.2 |

- Total project cost for all measures: 48,000
- Simple Payback (lighting measures only, using 7 hours/day lighting use run-time): 2 years
- Total village wide in-kind contribution: $5,798.00

**Additional Energy Efficiency Measures: One programmable thermostat installed in City office.**

# City of Huslia Owned Buildings


Fluorescent light ballasts retrofit.

Lighting retrofit training for maintenance workers.

Programmable thermostat installed in City office.

4 buildings owned by the City of Huslia received energy efficient lighting upgrades as follows:

City Office / VPSO, Community Hall, Gas & Oil Office, Head Start Building

- Lighting upgrades completed in March 2010
- Retrofitted 44 light fixtures with electronic ballasts & T8 lamps
- Installed 11 compact fluorescent light bulbs
- Pre-retrofit energy use for all lighting: 6.772 Kilowatts
- Post-retrofit energy use for all lighting: 3.037 Kilowatts
- Energy savings projection: 3.735 Kilowatts
- 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 |
|---|---|---|---|
| Locally Estimated | $4,966.05 | 569.31 | $2,522.05 |
| 4 Hours/day | $2,416.92 | 277.08 | $1,227.45 |
| 7 Hours/day | $4,229.61 | 484.89 | $2,148.04 |
| 10 Hours/day | $6,042.30 | 692.69 | $3,068.63 |

## City Office / VPSO



| Materials Installed | Quantity |
|---|---|
| 2-lamp electronic ballast, (2) 25 watt T8 lamps | 11 |
| CFL-20 W | 1 |
| • Pre-retrofit energy use: | 904 watts |
| • Post-retrofit energy use: | 526 watts |
| • Energy savings projection: | 378 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 | $244.60 | 28.04 | $124.22 |
| 7 Hours/day | $428.06 | 49.07 | $217.39 |
| 10 Hours/day | $611.51 | 70.10 | $310.56 |
| 2080 Hours/year (Est.) | $508.78 | 58.33 | $258.39 |

**Note: Five high output T-5 2-lamp fluorescent fixtures taken offline for additional savings**.

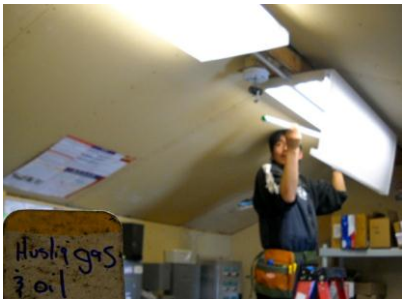
## Community Hall


| Materials Installed | Quantity |
|---|---|
| 3-lamp electronic ballast, (2) 25 watt T8 lamps | 7 |
| 4-lamp electronic ballast, (4) 25 watt T8 lamps | 2 |
| CFL-23 W | 9 |
| • Pre-retrofit energy use: | 1824 watts |
| • Post-retrofit energy use: | 751 watts |
| • Energy savings projection: | 1073 watts |
| • Pre-retrofit to post retrofit energy reduction: | 59% |

• Estimated annual savings:

| Hours Per Day / 250 Days Per Year | Electrical Savings | Comparative Avoided Diesel Use (gal) | Comparative Avoided Diesel Costs |
|---|---|---|---|
| 4 Hours/day | $694.34 | 79.60 | $352.63 |
| 7 Hours/day | $1,215.09 | 139.30 | $617.09 |
| 10 Hours/day | $1,735.85 | 199.00 | $881.56 |
| 2000 Hours/year (Est.) | $1,388.68 | 159.20 | $705.25 |

## Gas & Oil Office


| Materials Installed | Quantity |
|---|---|
| 4-lamp electronic ballast, (4) 25 watt T8 lamps | 2 |
| • Pre-retrofit energy use: | 288 watts |
| • Post-retrofit energy use: | 180 watts |
| • Energy savings projection: | 108 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 | $69.89 | 8.01 | $35.49 |
| 7 Hours/day | $122.30 | 14.02 | $62.11 |
| 10 Hours/day | $174.72 | 20.03 | $88.73 |
| 2000 Hours/year (Est.) | $139.77 | 16.02 | $70.99 |

## Head Start Building




| Materials Installed | Quantity |
|---|---|
| 2-lamp electronic ballast, (2) 25 watt T8 lamps | 3 |
| 3-lamp electronic ballast, (3) 25 watt T8 lamps | 18 |
| 4-lamp electronic ballast, (4) 25 watt T8 lamps | 1 |
| CFL-20 W | 1 |
| • Pre-retrofit energy use: | 3756 watts |
| • Post-retrofit energy use: | 1580 watts |
| • Energy savings projection: | 2176 watts |
| • Pre-retrofit to post retrofit energy reduction: | 58% |

• Estimated annual savings:

| Hours Per Day / 250 Days Per Year | Electrical Savings | Comparative Avoided Diesel Use (gal) | Comparative Avoided Diesel Costs |
|---|---|---|---|
| 4 Hours/day | $1,408.09 | 161.42 | $715.11 |
| 7 Hours/day | $2,464.16 | 282.49 | $1,251.44 |
| 10 Hours/day | $3,520.22 | 403.56 | $1,787.77 |
| 2080 Hours/year (Est.) | $2,928.83 | 335.76 | $1,487.43 |

**Note: Three fixtures reduced from 4-lamp to 2-lamp and eighteen fixtures from 3-lamp to 2-lamp fixtures for additional savings.**

**Additional Energy Efficiency Measures: One programmable thermostat installed in City office.**

# Huslia Tribal Council Owned Buildings



4 buildings owned by the Huslia Tribal Council received energy efficient lighting upgrades as follows:

Tribal Office & Elder Center, Armory, Old Clinic / Old Tribal Office, TFYS

- Lighting upgrades completed in March 2010
- Retrofitted 46 light fixtures with electronic ballasts & T8 lamps
- Installed 16 compact fluorescent light bulbs
- Pre-retrofit energy use for all lighting: 5.652 Kilowatts
- Post-retrofit energy use for all lighting: 2.507 Kilowatts
- Energy savings projection: 3.145 Kilowatts
- Pre-retrofit to post retrofit energy reduction: 56%
- Estimated Annual Savings:

| Hours Per Day / 250 Days Per Year | Electrical Savings | Comparative Avoided Diesel Use (gal) | Comparative Avoided Diesel Costs |
|---|---|---|---|
| Locally Estimated | $3,351.09 | 384.17 | $1,701.88 |
| 4 Hours/day | $2,035.13 | 233.31 | $1,033.56 |
| 7 Hours/day | $3,561.48 | 408.29 | $1,808.72 |
| 10 Hours/day | $5,087.82 | 583.27 | $2,583.89 |

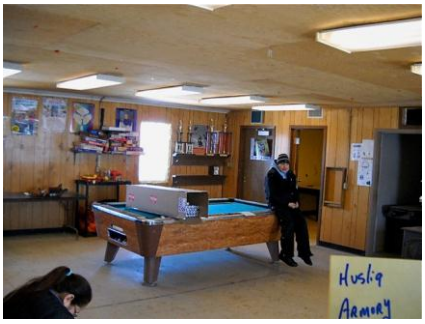
## Tribal Office & Elder Center

| Materials Installed | Quantity |
|---|---|
| 2-lamp electronic ballast, (2) 25 watt T8 lamps | 18 |
| 3-lamp electronic ballast, (2) 25 watt T8 lamps | 2 |
| CFL-23 W | 8 |
| CFL-27 W | 1 |
| CFL-9 W | 1 |
| • Pre-retrofit energy use: | 2740 watts |
| • Post-retrofit energy use: | 1152 watts |
| • Energy savings projection: | 1588 watts |
| • Pre-retrofit to post retrofit energy reduction: | 58% |
| • Estimated annual savings: | |

| Hours Per Day / 250 Days Per Year | Electrical Savings | Comparative Avoided Diesel Use (gal) | Comparative Avoided Diesel Costs |
|---|---|---|---|
| 4 Hours/day | $1,027.59 | 117.80 | $521.87 |
| 7 Hours/day | $1,798.29 | 206.16 | $913.28 |
| 10 Hours/day | $2,568.99 | 294.51 | $1,304.68 |
| 2000 Hours/year (Est.) | $2,055.19 | 235.61 | $1,043.74 |

**Note: Five fixtures reduced from 4-lamp to 2-lamp fixtures, for additional savings.**

## Armory

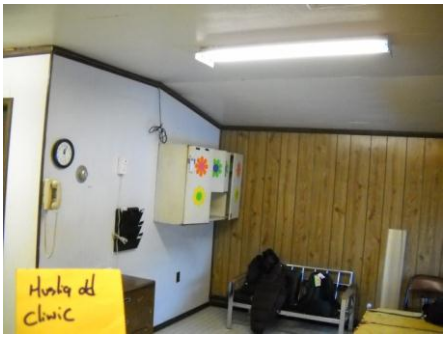

| Materials Installed | Quantity |
|---|---|
| 2-lamp electronic ballast, (2) 25 watt T8 lamps | 12 |
| 3-lamp electronic ballast, (3) 25 watt T8 lamps | 2 |
| • Pre-retrofit energy use: | 1344 watts |
| • Post-retrofit energy use: | 700 watts |
| • Energy savings projection: | 644 watts |
| • Pre-retrofit 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 |
|---|---|---|---|
| 4 Hours/day | $416.73 | 47.77 | $211.64 |
| 7 Hours/day | $729.28 | 83.61 | $370.37 |
| 10 Hours/day | $1,041.83 | 119.44 | $529.10 |
| 1500 Hours/year (Est.) | $625.10 | 71.66 | $317.46 |

**Note: Two fixtures reduced from 4-lamp to 3-lamp fixtures for additional savings.**

## Old Clinic, Old Tribal Office






| Materials Installed | Quantity |
|---|---|
| 2-lamp electronic ballast, (2) 25 watt T8 lamps | 10 |
| CFL-20 W | 1 |
| CFL-27 W | 1 |

- Pre-retrofit energy use: 1160 watts
- Post-retrofit energy use: 507 watts
- Energy savings projection: 653 watts
- Pre-retrofit to post retrofit energy reduction: 56%
- Estimated annual savings:

| Hours Per Day / 250 Days Per Year | Electrical Savings | Comparative Avoided Diesel Use (gal) | Comparative Avoided Diesel Costs |
|---|---|---|---|
| 4 Hours/day | $422.56 | 48.44 | $214.60 |
| 7 Hours/day | $739.47 | 84.77 | $375.55 |
| 10 Hours/day | $1,056.39 | 121.11 | $536.50 |
| 1040 Hours/year (Est.) | $439.46 | 50.38 | $223.18 |

**Note: Two fixtures reduced from 4-lamp to 2-lamp fixtures, for additional savings.**

## TFYS



| Materials Installed | Quantity |
|---|---|
| 2-lamp electronic ballast, (2) 25 watt T8 lamps | 2 |
| CFL-14 W | 4 |

- Pre-retrofit energy use: 408 watts
- Post-retrofit energy use: 148 watts
- Energy savings projection: 260 watts
- Pre-retrofit to post retrofit energy reduction: 64%
- Estimated annual savings:

| Hours Per Day / 250 Days Per Year | Electrical Savings | Comparative Avoided Diesel Use (gal) | Comparative Avoided Diesel Costs |
|---|---|---|---|
| 4 Hours/day | $168.25 | 19.29 | $85.45 |
| 7 Hours/day | $294.43 | 33.75 | $149.53 |
| 10 Hours/day | $420.62 | 48.22 | $213.61 |
| 1375 Hours/year (Est.) | $231.34 | 26.52 | $117.49 |

# Yukon - Koyukuk School District Owned Buildings



4 buildings and 5 teacher housing units owned by the Yukon - Koyukuk School District received energy efficient lighting upgrades as follows: Jimmy Huntington School

Elementary School, High School, Maintenance Shop, Wood Shop, School Gym, Teacher Housing 1, Teacher Housing 2, Teacher Housing 3, Teacher Housing Duplex

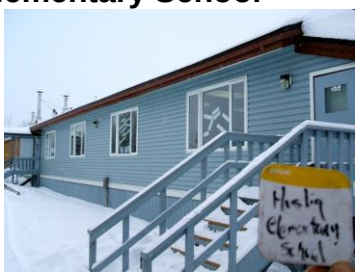
- Lighting upgrades completed in March 2010
- Retrofitted 176 light fixtures with electronic ballasts & T8 lamps
- Retrofitted 19 existing electronic ballasts with T8 lamps
- Installed 41 compact fluorescent light bulbs
- Retrofitted 32 light fixtures w HO electronic ballasts & T8 lamps
- Pre-retrofit energy use for all lighting: 31.033 Kilowatts
- Post-retrofit energy use for all lighting: 17.397 Kilowatts
- Energy savings projection: 13.636 Kilowatts
- 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 |
|---|---|---|---|
| Locally Estimated | $14,345.10 | 1644.54 | $7,285.30 |
| 4 Hours/day | $8,823.86 | 1011.57 | $4,481.27 |
| 7 Hours/day | $15,441.70 | 1770.25 | $7,842.22 |
| 10 Hours/day | $22,059.60 | 2528.93 | $11,203.10 |



ABSN Project Coordinator gives a few pointers to the school lighting crew.

## Elementary School



| Materials Installed | Quantity |
|---|---|
| 2-lamp existing electronic ballast, re-lamped with (2) | 1 |
| 3-lamp existing electronic ballast, re-lamped with (3) | 7 |
| 2-lamp electronic ballast, (2) 25 watt T8 lamps | 8 |
| 4-lamp fixture (2) 2-lamp ballasts (4) 25 watt T8 | 13 |

- Pre-retrofit energy use: 3354 watts
- Post-retrofit energy use: 2128 watts
- Energy savings projection: 1226 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 | $793.34 | 90.95 | $402.91 |
| 7 Hours/day | $1,388.35 | 159.16 | $705.09 |
| 10 Hours/day | $1,983.36 | 227.37 | $1,007.27 |
| 1800 Hours/year (Est.) | $1,428.02 | 163.71 | $725.23 |

**Note: Reduced two 4-lamp fixtures to 2-lamp fixtures for additional savings.**

## High School

| Materials Installed | Quantity |
|---|---|
| 2-lamp electronic ballast, (2) 25 watt T8 lamps | 40 |
| 3-lamp electronic ballast, (3) 25 watt T8 lamps | 6 |
| 3-lamp fixture, (2) 2-lamp electronic ballasts (3) 25 | 44 |
| 4-lamp electronic ballast, (3) 25 watt T8 lamps | 36 |
| CFL-20 W | 1 |

- Pre-retrofit energy use: 13028 watts
- Post-retrofit energy use: 8172 watts
- Energy savings projection: 4856 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 | $3,142.32 | 360.24 | $1,595.85 |
| 7 Hours/day | $5,499.06 | 630.42 | $2,792.74 |
| 10 Hours/day | $7,855.79 | 900.59 | $3,989.63 |
| 1800 Hours/year (Est.) | $5,656.17 | 648.43 | $2,872.53 |

**Note: Reduced three fixtures from 3-lamp to 2-lamp fixtures and one fixture from a 4-lamp to a 2-lamp fixture while de-lamping thirty-six 4-lamp fixtures to operate three lamps each for additional savings.**

## Maintenance Shop / Generator Shed

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

- Pre-retrofit energy use: 336 watts
- Post-retrofit energy use: 184 watts
- Energy savings projection: 152 watts
- 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 | $98.36 | 11.28 | $49.95 |
| 7 Hours/day | $172.13 | 19.73 | $87.42 |
| 10 Hours/day | $245.90 | 28.19 | $124.88 |
| 500 Hours/year (Est.) | $49.18 | 5.64 | $24.98 |

## Wood Shop


| **Materials Installed** | **Quantity** |
|---|---|
| 2-lamp electronic ballast, (2) 25 watt T8 lamps | 20 |

- Pre-retrofit energy use: 1680 watts
- Post-retrofit energy use: 920 watts
- Energy savings projection: 760 watts
- 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 | $491.80 | 56.38 | $249.76 |
| 7 Hours/day | $860.64 | 98.66 | $437.08 |
| 10 Hours/day | $1,229.49 | 140.95 | $624.41 |
| 500 Hours/year (Est.) | $245.90 | 28.19 | $124.88 |

## Teacher Housing 1


| Materials Installed | Quantity |
|---|---|
| 2-lamp existing electronic ballast, re-lamped with (2) | 7 |
| • Pre-retrofit energy use: | 420 watts |
| • Post-retrofit energy use: | 322 watts |
| • Energy savings projection: | 98 watts |
| • Pre-retrofit to post retrofit energy reduction: | 23% |

• Estimated annual savings:

| Hours Per Day / 250 Days Per Year | Electrical Savings | Comparative Avoided Diesel Use (gal) | Comparative Avoided Diesel Costs |
|---|---|---|---|
| 4 Hours/day | $63.42 | 7.27 | $32.21 |
| 7 Hours/day | $110.98 | 12.72 | $56.36 |
| 10 Hours/day | $158.54 | 18.18 | $80.52 |
| 1375 Hours/year (Est.) | $87.20 | 10.00 | $44.28 |

## Teacher Housing 2

| Materials Installed | Quantity |
|---|---|
| 4-lamp electronic ballast, (4) 25 watt T8 lamps | 1 |
| CFL-20 W | 6 |
| CFL-9 W | 3 |
| • Pre-retrofit energy use: | 859 watts |
| • Post-retrofit energy use: | 237 watts |
| • Energy savings projection: | 622 watts |
| • 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 | $402.50 | 46.14 | $204.41 |
| 7 Hours/day | $704.37 | 80.75 | $357.72 |
| 10 Hours/day | $1,006.24 | 115.36 | $511.03 |
| 1375 Hours/year (Est.) | $553.43 | 63.45 | $281.07 |

## Teacher Housing 3

| Materials Installed | Quantity |
|---|---|
| 2-lamp existing electronic ballast, re-lamped with (2) T8s | 1 |
| CFL-20 W | 8 |
| • Pre-retrofit energy use: | 540 watts |
| • Post-retrofit energy use: | 206 watts |
| • Energy savings projection: | 334 watts |
| • Pre-retrofit to post retrofit energy reduction: | 62% |

• Estimated annual savings:

| Hours Per Day / 250 Days Per Year | Electrical Savings | Comparative Avoided Diesel Use (gal) | Comparative Avoided Diesel Costs |
|---|---|---|---|
| 4 Hours/day | $216.13 | 24.78 | $109.76 |
| 7 Hours/day | $378.23 | 43.36 | $192.09 |
| 10 Hours/day | $540.33 | 61.94 | $274.41 |
| 1375 Hours/year (Est.) | $297.18 | 34.07 | $150.93 |

## Teacher Housing Duplex



| Materials Installed | Quantity |
|---|---|
| 2-lamp existing electronic ballast, re-lamped with (2) T8 lamps | 3 |
| 2-lamp electronic ballast, (2) 25 watt T8 lamps | 4 |
| CFL-14 W | 6 |
| CFL-20 W | 1 |
| CFL-27 W | 1 |
| CFL-9 W | 15 |

- Pre-retrofit energy use: 2336 watts
- Post-retrofit energy use: 588 watts
- Energy savings projection: 1748 watts
- Pre-retrofit to post retrofit energy reduction: 75%
- Estimated annual savings:

| Hours Per Day / 250 Days Per Year | Electrical Savings | Comparative Avoided Diesel Use (gal) | Comparative Avoided Diesel Costs |
|---|---|---|---|
| 4 Hours/day | $1,131.13 | 129.67 | $574.45 |
| 7 Hours/day | $1,979.48 | 226.93 | $1,005.29 |
| 10 Hours/day | $2,827.83 | 324.18 | $1,436.14 |
| 1375 Hours/year (Est.) | $1,555.30 | 178.30 | $789.87 |

## School Gym

| Materials Installed | Quantity |
|---|---|
| 8 FT, 2 lamp HO electronic ballast, T8 (145w | 32 |

- Pre-retrofit energy use: 8480 watts
- Post-retrofit energy use: 4640 watts
- Energy savings projection: 3840 watts
- 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 | $2,484.86 | 284.87 | $1,261.96 |
| 7 Hours/day | $4,348.51 | 498.52 | $2,208.43 |
| 10 Hours/day | $6,212.16 | 712.17 | $3,154.90 |
| 1800 Hours/year (Est.) | $4,472.76 | 512.76 | $2,271.53 |

# Community Owned Church Buildings

2 buildings owned by the Community Churches received energy efficient lighting upgrades as follows:

Community Church, Episcopal Church

- Lighting upgrades completed in March 2010
- Retrofitted 8 light fixtures with electronic ballasts & T8 lamps
- Installed 3 compact fluorescent light bulbs
- Pre-retrofit energy use for all lighting: 1.14 Kilowatts
- Post-retrofit energy use for all lighting: 0.437 Kilowatts
- Energy savings projection: 0.703 Kilowatts
- Pre-retrofit to post retrofit energy reduction: 62%
- Estimated Annual Savings:

| Hours Per Day / 250 Days Per Year | Electrical Savings | Comparative Avoided Diesel Use (gal) | Comparative Avoided Diesel Costs |
|---|---|---|---|
| Locally Estimated | $363.93 | 41.72 | $184.82 |
| 4 Hours/day | $454.91 | 52.15 | $231.03 |
| 7 Hours/day | $796.09 | 91.26 | $404.30 |
| 10 Hours/day | $1,137.28 | 130.38 | $577.58 |

## Community Church



| **Materials Installed** | **Quantity** |
|---|---|
| 2-lamp electronic ballast, (2) 25 watt T8 lamps | 8 |
| CFL-23 W | 1 |

- Pre-retrofit energy use: 940 watts
- Post-retrofit energy use: 391 watts
- Energy savings projection: 549 watts
- Pre-retrofit to post retrofit energy reduction: 58%
- Estimated annual savings:

| Hours Per Day / 250 Days Per Year | Electrical Savings | Comparative Avoided Diesel Use (gal) | Comparative Avoided Diesel Costs |
|---|---|---|---|
| 4 Hours/day | $355.26 | 40.73 | $180.42 |
| 7 Hours/day | $621.70 | 71.27 | $315.74 |
| 10 Hours/day | $888.14 | 101.82 | $451.05 |
| 800 Hours/year (Est.) | $284.21 | 32.58 | $144.34 |

**Note: Two fixtures reduced from 4-lamp to 2-lamp fixtures, for additional savings.**

## Episcopal Church



**Materials Installed** **Quantity**

CFL-23 W 2

- Pre-retrofit energy use: 200 watts
- Post-retrofit energy use: 46 watts
- Energy savings projection: 154 watts
- Pre-retrofit to post retrofit energy reduction: 77%
- Estimated annual savings:

| Hours Per Day / 250 Days Per Year | Electrical Savings | Comparative Avoided Diesel Use (gal) | Comparative Avoided Diesel Costs |
|---|---|---|---|
| 4 Hours/day | $99.65 | 11.42 | $50.61 |
| 7 Hours/day | $174.39 | 19.99 | $88.57 |
| 10 Hours/day | $249.13 | 28.56 | $126.52 |
| 800 Hours/year (Est.) | $79.72 | 9.14 | $40.49 |

All waste electrical lighting ballasts and fluorescent lamps back hauled for recycling.

**Huslia In-Kind Contribution Tracking Record - ABSN Energy Efficiency Projects**:

| In-Kind Item | Dates | Hours Contri-buted | Hourly Wage | Value / Amount | Notes |
|---|---|---|---|---|---|
| Staff time for project contact & review of intro materials (# of entities x 1 hour) | | 3 | $ 20.00 | $ 60.00 | |
| | | | | | |
| Staff time for Attending teleconference | | 1 | $ 20.00 | $ 20.00 | (TC/IRA) |
| Staff time for Attending teleconference | | 1 | $ 20.00 | $ 20.00 | (City) |
| Staff time for Attending teleconference | | 2 | $ 20.00 | $ 40.00 | (School) |
| | | | | | |
| Maint. Staff time with Field Manager on building assessments - 1st site visit | 2/24/2009 | 3 | $ 15.00 | $ 37.50 | Phillip Roberts-YKSD Maintenance |
| **Conservative village office administrative percentage of total project cost less ABSN Admin %.** Total project cost = $48,000/village - (our admin percentage , (around 12%) Approx: $5,760) = $42,240 x 5.5% = $2,323 (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. | Feb, '07 through | | | $2,323.00 | 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 - 1st assessment site visit | 3/23-24/2010 | 3 | 25 | $ 75.00 | 3 nights at the school for Field Manager Dan Lung ($25/night) |
| Transportation and fuel costs | | | | | 1st assessment site-visit |
| Lodging for ABSN Field Managers - 2nd site visit | 3/15-20/2010 | 11 | 25 | $ 275.00 | 5 nights for Dan Lung, 2 nights for Geoff Butler and 4 nights for Anna Hilbruner-($25 ea. Per night) |
| Transportation and fuel costs 2nd Visit | 3/15-20/2010 | 3 | 50 | $ 150.00 | Use of YKSD School truck to transport materials & staff $50/day |
| | | | | | |
| Employer share of payroll contributions | | | | | |
| School Work on Lighting Upgrades | 3/15-20/2010 | 186.50 | $15 | $2,797.50 | Byron Peters, Whitney Sam, Tanya Yatlin, Samatha Sam, Russell David, Elizabeth Peters |
| | TOTAL | | | $5,798.00 | |

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 Huslia to deliver 12% more energy savings measures beyond the original grant funding.