

**Agency: Commerce, Community and Economic Development****Grants to Municipalities (AS 37.05.315)****Grant Recipient: Northwest Arctic Borough****Federal Tax ID: 920116661****Project Title:****Project Type: Remodel, Reconstruction and Upgrades**

# Northwest Arctic Borough - Borough-Wide LED Light Project

**State Funding Requested: \$477,000****House District: 40 / T**

One-Time Need

**Brief Project Description:**

Replace all street-lights with LED equivalents in our communities for cost and energy savings.

**Funding Plan:**

Total Project Cost:	\$477,000
Funding Already Secured:	(\$0)
FY2015 State Funding Request:	<u>(\$477,000)</u>
Project Deficit:	\$0

*Funding Details:**There is no prior funding history.***Detailed Project Description and Justification:**

The Northwest Arctic Borough experiences one of the highest costs of living in the State, with many residents spending 30% or more of their income on energy. With fuel prices ranging from \$6.00 up towards \$11.00 per gallon and electric rates of \$0.45 - 0.85 per kilowatt/hour, the cost of operations for our city governments has reached a critical tipping point. Our 11 communities are remote and mainly connected by air transportation, making most changes to the existing energy infrastructure expensive to implement. Any changes that can be made in the cost of energy will be extremely beneficial.

The Borough is actively pursuing all possible ways to assist our local governments in reducing their costs and relieving some of the financial stress they face. To help reduce energy costs, we are hoping to replace all streetlights with LED equivalents. Testing of the new technology has been done in previous years and shown that up to a 62% savings could be achieved if the new technology were adopted borough-wide. Over the next 25 years, this would amount to over \$3.2 million in savings for the region.

The eleven communities that will benefit from replacing 507 streetlights with LED lighting are Kotzebue, Ambler, Kobuk Shungnak, Kiana, Noorvik, Selawik, Buckland, Deering, Kivalina, and Noatak.

This project will achieve several goals: 1) Lower the operational costs and energy usage for each community, 2) Reduce the amount of diesel oil imported and used in our region, and 3) Reduce overhead and maintenance costs for the streetlights. In future years, the Borough plans to expand the project, utilizing some of the savings from each year to ultimately replace all lights in government and community buildings with LED equivalents. These goals are in line with the State of Alaska's and the region's long term energy strategy.

The Northwest Arctic Borough will oversee the grant and reporting on behalf of the city governments. The city governments will collaborate with the utilities in each community for the installation schedule of the lights. An Operational Director for the project would be chosen that would coordinate and execute the project plan in collaboration with the City governments and the utilities. Utility personnel will replace the streetlights according to the communities' directions. Our Region's "Energy Steering Committee" would oversee the project and the Director would report to the Committee on an annual basis. After a period of a year, a report would be created as to how well the project performed and what savings were realized. The reports would be accumulated annually and added to our "Long Range Strategic Energy Plan."

Our approach is also to have an ongoing collaboration between our communities and organizations regarding energy usage and implementation of energy solving technologies in the region. The project is part of this region's Long Range Strategic Energy Plan. An excel spreadsheet is attached with a breakdown by village of the cost.

### Project Timeline:

The lights will be replaced in the summer of 2014 and 2015.

### Entity Responsible for the Ongoing Operation and Maintenance of this Project:

Northwest Arctic Borough

### Grant Recipient Contact Information:

Name: Kenny Gallahorn  
 Title: Director Public Services  
 Address: PO Box 1110  
 Kotzebue, Alaska 99752  
 Phone Number: (907)442-2500  
 Email: kgallahorn@nwab.org

Has this project been through a public review process at the local level and is it a community priority?  Yes  No

The Northwest Arctic LED project  
Project Impact Table For Topic 2

Project Impact Metrics  
Assuming \$ 0.40/Kwh

During Project Period

	Year 1	Year 2 to 11	Year 12-25	total
Average utilities savings (electricity cost) 750 Street lights 25 year lifespan in \$ \$	201,300.00	2,013,000.00	2,818,200.00	5,032,500.00
Average utility savings ( electricity cost) T8 replacement 25 year lifespan in \$	217,087.50	2,170,875.00	3,039,225.00	5,427,187.50
Kwh saved total	1,045,968.75	10,459,687.50	14,643,563	26,149,218.75
Amount of Diesel fuel not needed for the communities utilities in Gallons	77,479	774,792	1,084,708.33	1,936,979
Reduction in Greenhouse gases CO2 equivalent per 1000 lbs	1,734	17,340	24,275.77	43,350
Number of buildings retrofitted with T8 replacement tubes	10	20	20	50
Numbers of street-lights retrofitted with LED	750			
Funding created to expand project to other areas (50 % of total savings) in \$	209,193.75	2,091,937.50	2,928,712.50	5,229,843.75
Jobs created but not retained	5	5	5	15
Funds Expended in \$	1,093,654	0	0	1,093,654
Total Direct Savings from the startup of project, over 25 years in \$				10,459,687.50
Payback ( actual payback is better than this due to the effect of the Energy Fund ) in Years	2.61			

**Expected outcome with the "Energy Fund" in place**

Total expected savings (Electricity Cost) over 25 years in \$	32,168,437.50
Total expected Diesel fuel not needed over 25 years in Gallons	5,957,118
Total expected reduction in Greehouse gases CO2 equivalent per 1000 lbs	133,320

Village	Cost Per Light*	Number of Lights	Total Cost of Lights	Admin Salary
Ambler	\$ 750.00	38	\$ 28,500.00	\$8,750
Kiana	\$ 750.00	27	\$ 20,250.00	\$8,750
Kivalina	\$ 750.00	18	\$ 13,500.00	\$8,750
Kobuk	\$ 750.00	13	\$ 9,750.00	\$8,750
Noatak	\$ 750.00	22	\$ 16,500.00	\$8,750
Noorvik	\$ 750.00	35	\$ 26,250.00	\$8,750
Selawik	\$ 750.00	46	\$ 34,500.00	\$8,750
Shungnak	\$ 750.00	10	\$ 7,500.00	\$8,750
<b>Total</b>		<b>209</b>	<b>\$ 156,750.00</b>	<b>\$ 70,000.00</b>

Village	Cost Per LED	Number of LEDs	Total LED Cost	Replacement Labor
Kotzebue	\$ 555.00	275	\$ 152,625.00	\$ 97.50
Deering	\$ 555.00	15	\$ 8,325.00	\$ 97.50
Buckland	\$ 555.00	8	\$ 4,440.00	\$ 97.50
<b>Total</b>		<b>298</b>	<b>\$ 165,390.00</b>	

\* Perdiem for laborers is based on \$80/day (3 days, 2 laborers) times two teams

\*\* \$250/night, 3 nights, 2 laborers by two teams

\*\*\* Airfare is at 450/person by 4 people

<b>Admin Airfare</b>	<b>Admin Perdiem</b>	<b>Total</b>
\$ 500.00	\$ 172.00	\$ 37,922.00
\$ 500.00	\$ 172.00	\$ 29,672.00
\$ 500.00	\$ 172.00	\$ 22,922.00
\$ 500.00	\$ 172.00	\$ 19,172.00
\$ 500.00	\$ 172.00	\$ 25,922.00
\$ 500.00	\$ 172.00	\$ 35,672.00
\$ 500.00	\$ 172.00	\$ 43,922.00
\$ 500.00	\$ 172.00	\$ 16,922.00
\$ 4,000.00	\$ 1,376.00	\$ 232,126.00

<b>Labor Cost</b>	<b>Perdiem*</b>	<b>Lodging**</b>	<b>Airfare***</b>	<b>Shipping per Light</b>
\$ 26,812.50	\$0	0	0	\$ 37.10
\$ 1,462.50	\$960	3000	1800	\$ 37.10
\$ 780.00	\$960	3000	1800	\$ 37.10
\$ 29,055.00	\$ 1,920.00	\$ 6,000.00	\$ 3,600.00	

Shipping Cost	Admin Salary	Air Fare for one Adr	Perdiem	Total
\$ 10,202.50	\$ 8,750.00	\$ -	\$ -	\$ 198,390.00
\$ 556.50	\$ 8,750.00	\$ 500.00	\$ 172.00	\$ 25,526.00
\$ 296.80	\$ 8,750.00	\$ 500.00	\$ 172.00	\$ 20,698.80
\$ 11,055.80	\$ 26,250.00	\$ 1,000.00	\$ 344.00	\$ 244,614.80
Total for all Villages				\$ 476,740.80