

**Agency: Commerce, Community and Economic Development**

**Grants to Municipalities (AS 37.05.315)**

**Grant Recipient: Ketchikan**

**Project Title:**

**Project Type:** New Construction and Land Acquisition

# Ketchikan - Bethe Substation Replacement

**State Funding Requested: \$5,000,000**  
One-Time Need

**House District: 1 / A**

**Brief Project Description:**

Funding to replace community electrical substation to accommodate increased power transmission loads in Ketchikan.

**Funding Plan:**

**Total Cost of Project: \$5,300,000**

	<u>Funding Secured</u>		<u>Other Pending Requests</u>		<u>Anticipated Future Need</u>	
	<i>Amount</i>	<i>FY</i>	<i>Amount</i>	<i>FY</i>	<i>Amount</i>	<i>FY</i>
Local Funds	\$300,000	09, 10				
<b>Total</b>	<b>\$300,000</b>					

**Detailed Project Description and Justification:**

Funding to replace community electrical substation to accommodate increased power transmission loads in Ketchikan.

Project is funding to replace Ketchikan Bethe electrical substation to accommodate increased power transmission loads. Ketchikan Public Utilities' (KPU) Bethe Substation serves major power load centers including the University of Alaska Southeast Ketchikan campus, several schools, Ketchikan General Hospital, and major residential areas.

The transformer in Bethe Substation has reached its maximum capacity as KPU sees increasing load growth due to electrical heating conversions. Future planned conversions by local school facilities, as well as ongoing conversions by apartment complexes and private homeowners will put a demand on the Substation that it will be unable to meet.

Ketchikan is actively engaged in addressing its future power needs. Specifically, the Swan Lake-Lake Tyee Intertie became operational in November 2009. It is anticipated that the electrical intertie between Ketchikan and Metlakatla will be constructed in the next two to five years. Lastly, the City is actively working toward construction of the Whitman Lake 4.6 MW hydroelectric station having received the FERC License in March of 2009.

Bethe Substation is located very close to the geographic center of Ketchikan and is critical to the residential neighborhoods, public infrastructure and the economic health of the community. Bethe Substation is approximately 50 years old and is frequently exceeding its rated capacity. It serves approximately 18% of Ketchikan Public Utility's customers.

While aggressive efforts are underway to provide sufficient power for the greater Ketchikan community, the concurrent load growth largely due to electric heat conversions is placing a greater demand on system infrastructure requiring costly upgrades the absence of which could potentially be catastrophic.

*For use by Co-chair Staff Only:*

\$5,000,000  
Approved

During January 2009, a warmer than average period, Bethe's 5 megawatt rating was exceeded more than 50% of the time. During December 2008, the substation experienced a load 20% greater than its rating. The substation going forward must be capable of supporting additional load such as routine new construction and residential/small business heating conversions but also significant projects such as proposed public school heating conversions and improvements planned for Ketchikan General Hospital under its Master Plan.

The project is a vital piece of public works infrastructure, and is necessary in allowing the community to expand its hydroelectric capacity.

**Project Timeline:**

Phase I - Alternatives consideration and selection - 2009 - \$50,000

Phase II - Engineering design & equipment specifications - 2010 - \$250,000

Phase III - Land acquisitions, site prep, procurement, & construction - 2011 - \$5,000,000

Total \$5,300,000

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

City of Ketchikan

**Grant Recipient Contact Information:**

Name: Karl R. Amylon

Address: 334 Front Street

Ketchikan, AK 99901

Phone Number: (907)228-5603

Email: karla@city.ketchikan.ak.us

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

# City of Ketchikan, Alaska d/b/a Ketchikan Public Utilities

## Bethe Substation Upgrade

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**Owner:** City of Ketchikan  
334 Front Street  
Ketchikan, Alaska 99901

**Contact:** Karl R. Amylon, City Manager  
(907) 228-5603  
karla@city.ketchikan.ak.us

**Start of Construction:** 2011  
**Estimated Cost:** \$5,300,000  
**Funding Request:** \$5,000,000



Bethe Substation

### Project Description

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Ketchikan Public Utilities' (KPU) Bethe Substation serves approximately 1,350 customers. Significant load centers are fed from this substation, including the University of Alaska Southeast Ketchikan campus, several schools, Ketchikan General Hospital, and major residential zones.

The transformer in Bethe Substation has reached its nameplate capacity as KPU sees increasing load growth due to electrical heating conversions. Future planned conversions by local school facilities, as well as ongoing conversions by apartment complexes and private homeowners, will put a demand on Bethe Substation that, in its current form, the facility will be unable to meet.

### Project Benefits

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Ketchikan is actively engaged in addressing its future power needs. Specifically, the Swan Lake-Lake Tyee Intertie became operational in November 2009. It is anticipated that the electrical intertie between Ketchikan and Metlakatla will be constructed in the next two to five years. Lastly, the City is actively working toward construction of the Whitman Lake 4.6 MW hydroelectric station having received the FERC License in March of 2009.

Bethe Substation is located very close to the geographic center of Ketchikan and is critical to the residential neighborhoods, public infrastructure and the economic health of the community. Bethe Substation is approximately 50 years old and is frequently exceeding its rated capacity. It serves approximately 18% of Ketchikan Public Utility's customers.

Bethe Substation is rated to distribute approximately 5 megawatts of power. December peak loads have increased from 5.4 megawatts to 5.8 megawatts and 6.1 megawatts in 2006, 2007 and 2008 respectively.

In the summer of 2009, the Ketchikan School Board approved plans to convert from oil to electric boilers. Preliminary information indicates that such a conversion could add as much as 5.4 to 6.5 megawatts to the KPU system load. This is approximately a 20% increase over the

current winter peak electrical demand. Three (3) plus megawatts of this load increase will be at Bethe Substation. This potentially could be 60% beyond the rated capacity of this substation.

Other electric heat conversions that will be fed from this substation are also occurring. Owners or their contractors do not always identify specific projects to KPU in advance.

While aggressive efforts are underway to provide sufficient power for the greater Ketchikan community, the concurrent load growth largely due to electric heat conversions is placing a greater demand on system infrastructure requiring costly upgrades the absence of which could potentially be catastrophic.

During January 2009, a warmer than average period, Bethe's 5 megawatt rating was exceeded more than 50% of the time. During December 2008, the substation experienced a load 20% greater than its rating. The substation going forward must be capable of supporting additional load such as routine new construction and residential/small business heating conversions but also significant projects such as proposed public school heating conversions and improvements planned for Ketchikan General Hospital under it's Master Plan.

### **Schedule and Cost Estimate**

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The City has initiated a study to determine the best alternative between upgrading the existing substation and relocating the substation to meet projected load growth. This study is to be completed in late 2009. Engineering design and equipment specification for the selected alternative is planned for 2010. Any necessary land acquisition, site preparation, equipment procurement and construction would occur in 2011 with the goal of operation not later than fall 2011 before the start of the 2011/2012 heating season. The following is a brief summary of the three construction phases and the corresponding cost estimates.

Phase	Description	Schedule	Cost Estimate
I	Alternatives consideration and selection	2009 2009	\$50,000
II	Engineering design and equipment specification	2010	\$250,000
III	Land acquisition/site prep, equipment procurement & construction	2011	\$5,000,000
Total			\$5,300,000

Phase I has been completed by the end of 2009. Local resources of \$250,000 have been appropriated in the 2010 budget to support the Phase II engineering work.

### **Funding Request**

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The City of Ketchikan is seeking an additional \$5,000,000 to fund the upgrade of Bethe Substation. Utilizing local appropriations, the City will fund the remaining project cost of \$300,000.



April 20, 2010

The Honorable Sean Parnell  
Alaska State Capitol Building  
Third Floor  
P.O. Box 110001  
Juneau, AK 99811-0001

Dear Governor Parnell:

**Re: FY 2011 Capital Budget - City of Ketchikan Projects**

On behalf of the City of Ketchikan, I wish to take this opportunity to stress the critical nature of the infrastructure projects included in the FY 2011 Capital Budget for the City of Ketchikan.

As you know, the past several years have seen substantial decline in both timber and tourism industry dollars coming into the City of Ketchikan. These declines have severely impacted our ability to deal with the continuing major infrastructure improvement needs that the City of Ketchikan is experiencing. Although we have incurred debt for many major capital improvement projects, there simply is too much for one municipality to shoulder without assistance.

Again, I wish to stress the critical importance of all of these projects to the City of Ketchikan and urge you for your continued support. These projects truly are of utmost importance to the City of Ketchikan.

In closing, the City Council and I look forward to working with your office in the future to address matters of importance both to Ketchikan and the State of Alaska.

Should you have any questions on this matter, please do not hesitate to contact me.

Sincerely,

Lew Williams, III  
Mayor

cc: City Councilmembers  
Karen Rehfeld, OMB Director  
Randy Ruaro, Deputy Chief of Staff  
Ray Matiashowski