

**Agency: Commerce, Community and Economic Development****Grants to Named Recipients (AS 37.05.316)****Grant Recipient: Copper Valley Electric Association****Federal Tax ID: 92-0023631****Project Title:****Project Type: Planning and Research**

# Copper Valley Electric Association - Tiekel River Hydroelectric Project

**State Funding Requested: \$500,000****House District: 12 / F**

Future Funding May Be Requested

**Brief Project Description:**

Feasibility study to determine potential for hydroelectric project on Tiekel River

**Funding Plan:**

Total Project Cost:	\$500,000
Funding Already Secured:	(\$0)
FY2013 State Funding Request:	<u>(\$500,000)</u>
Project Deficit:	\$0

*Funding Details:*

<i>Feasibility study</i>	\$500,000
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**Detailed Project Description and Justification:**

The Tiekel River has four sources of drainage flowing into it 10 miles from where Tiekel River drains into the Copper River. This flow is year-round and the feeder sources water do not have any salmon population. The study will include a literature search, stream gauging, and data collection to determine size of energy output.

**Project Timeline:**

Acquire funding for research	July 2012
Ongoing research and onsite gauging	August 2012 - Dec 2013

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

Copper Valley Electric Association

**Grant Recipient Contact Information:**

Name:	Robert Wilkinson
Title:	CEO
Address:	P.O. Box 45 Glennallen, Alaska 99588
Phone Number:	(907)822-3171
Email:	wilkinson@cvea.org

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

# Legislative Capital Budget Request

## Pre-feasibility Study on Tiekel River Hydroelectric Project (This document replaces the document submitted February 23, 2012)

March 19, 2012

Submitted to:

Senator John Coghill  
Alaska State Senate

Submitted by:

Robert A. Wilkinson  
Chief Executive Officer  
Copper Valley Electric Association, Inc.  
[wilkinson@cvea.org](mailto:wilkinson@cvea.org)  
907 822 3171

## Copper Valley Electric Association, Inc. Legislative Capital Budget Request

In preparing your capital project requests for legislative consideration, please try to break your information into the following components:

**Who is requesting the grant?**

*Copper Valley Electric Association, Inc.*

**Federal Tax ID Number:** 92-0023631

*See attached brochure.*

**What is the physical location of the project?**

*Milepost 45 Richardson Highway*

**What is the project title?**

*Pre-Feasibility Study on Tiegel River Hydroelectric Project*

**Has the project gone through a local public review and approval process?**

*No. This project has been the subject of numerous reconnaissance reviews but has not been studied sufficient to generate support.*

**What is the project description and objective?**

*The objective of this project is to conduct prefeasibility analysis to determine the extent of the hydroelectric resource in the Tiegel River watershed. Preliminary analysis suggests the resource can be as much as 350 megawatts of generating capacity which could produce as much as 1.2 billion kilowatt hours of electric energy annually.*

**Top-Level Project Funding Table** *(Quick Facts):*

	Category	\$\$\$	Description
A	Total Project Cost	\$500,000	
B	Funding Already Secured	None	
C	FY13 State Funding Request	\$500,000	
D	Other Funding Requests	None	
E	Additional Funding Required/Outstanding	None	

**If you receive the funding you've requested from the state in this year's budget, will you be requesting additional state funding for this project in the future?**

*Yes. It is highly likely that CVEA will apply to the Renewable Energy Fund for additional money to further assess the feasibility of this project.*

**Detailed project description:**

- *The money will be used to hire a consultant to assess the hydro power potential of the Tikel River watershed*
- *The hydro power potential of the Tikel River system is thought to range in size from a local resource, to displace CVEA existing fossil fuel requirements, to a large regional/statewide resource, which could be part of a state energy cost solution and further the goals promoting renewable energy*
- *Developing a local hydro project could displace fossil fuel generated energy, reduce costs, and create environmental benefits*
- *Developing a regional/statewide project could create a market for clean renewable energy for the Railbelt, Tok/Chistochina, Alyeska Valdez Marine Terminal, Cordova (transmission connections required)*
- *SEE ATTACHED POWERPOINT PRESENTATION*

**Top-Level Project timeline:**

*Several reconnaissance reviews have been completed on this project, mostly in the 1980s. Completion of the prefeasibility study will dictate the future direction this project will take.*

**Detailed project funding data:**

*For all intents and purposes this is a new project. Determining the potential of the resource will dictate, if and how a project proceeds.*

- *If the resource is determined to be limited to serving the local customer (CVEA), then CVEA would likely proceed with matching grant funding (Renewable Energy Fund) to further assess the potential for a CVEA only project*
- *If the resource is determined to be of regional/statewide significance, then additional stakeholders will be sought; those stakeholders might include Alaska Energy Authority, Golden Valley Electric, Matanuska Electric, Alaska Railbelt Cooperative Transmission & Electric Company, Cordova Electric Cooperative, etc*

**What entity will be responsible for the ongoing maintenance and operations of this project once it's complete?**

*Copper Valley Electric Association*

**Name and contact information for the person who will administer this grant if it is approved and who can answer questions about this request.**

*Robert A. Wilkinson  
Chief Executive Officer  
Copper Valley Electric Association  
Phone: 907-822-3171  
Email: wilkinson@cvea.org*

**Additional Backup –**

*Please see the attached PowerPoint presentation that describes the project, previous studies, location, benefits, features, and alternatives.*

# Copper Valley Electric Association

**Vision:** To reduce or eliminate our dependence on fossil fuel and stabilize the Cooperative's cost of generation with regional, sustainable resources

**Mission:** To provide exceptional customer service through safe, reliable, cost-effective electric service and programs

January 2012

## About CVEA

- CVEA provides electric service to over 3,800 business and residential customers in the Copper River Basin and Valdez regions of the state
- CVEA covers a large area: 160 miles north to south and 100 miles east to west; we provide service from Valdez to Kenny Lake to Sourdough to Sheep Mountain
- Dependent on fossil fuel (50% of the annual generation requirement)
- CVEA does not participate in the Power Cost Equalization program
- CVEA is not interconnected electrically to any other utility

## CVEA Assets

- 45 Alaskan employees
- Over 500 miles of distribution and transmission line
- 8 substations
- Solomon Gulch hydro, Cogen Plant, 2 Diesel Plants
- SCADA system with remote control of all four generating plants from one main station
- Density of 9 customers per mile

## The Winter of 2011-2012



In the Copper Basin we get COLD!



In Valdez we get SNOW!



## Major Undertakings

- Build Allison Creek
- Move transmission line out of avalanche zone in Thompson Pass
- Implement 2011 Rate Study
- Evaluate mid-system hydro opportunity
- Participate in Regional Energy Plan
- Find ways to deal with fuel costs

Web: [www.cvea.org](http://www.cvea.org)

Jim Manning, President Board of Directors  
Robert A. Wilkinson, Chief Executive Officer  
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# ***TIEKEL RIVER HYDRO PROJECT*** ***Copper Valley Electric Association (CVEA)***



# CVEA Initiative

- CVEA is in pursuit of clean renewable energy to eliminate its dependence on fossil fuel
- Tiekel River hydropower has the potential to meet CVEA's goals and to provide renewable energy beyond CVEA's service territory
- CVEA is initiating a Reconnaissance Study to evaluate the hydropower potential of the Tiekel River system

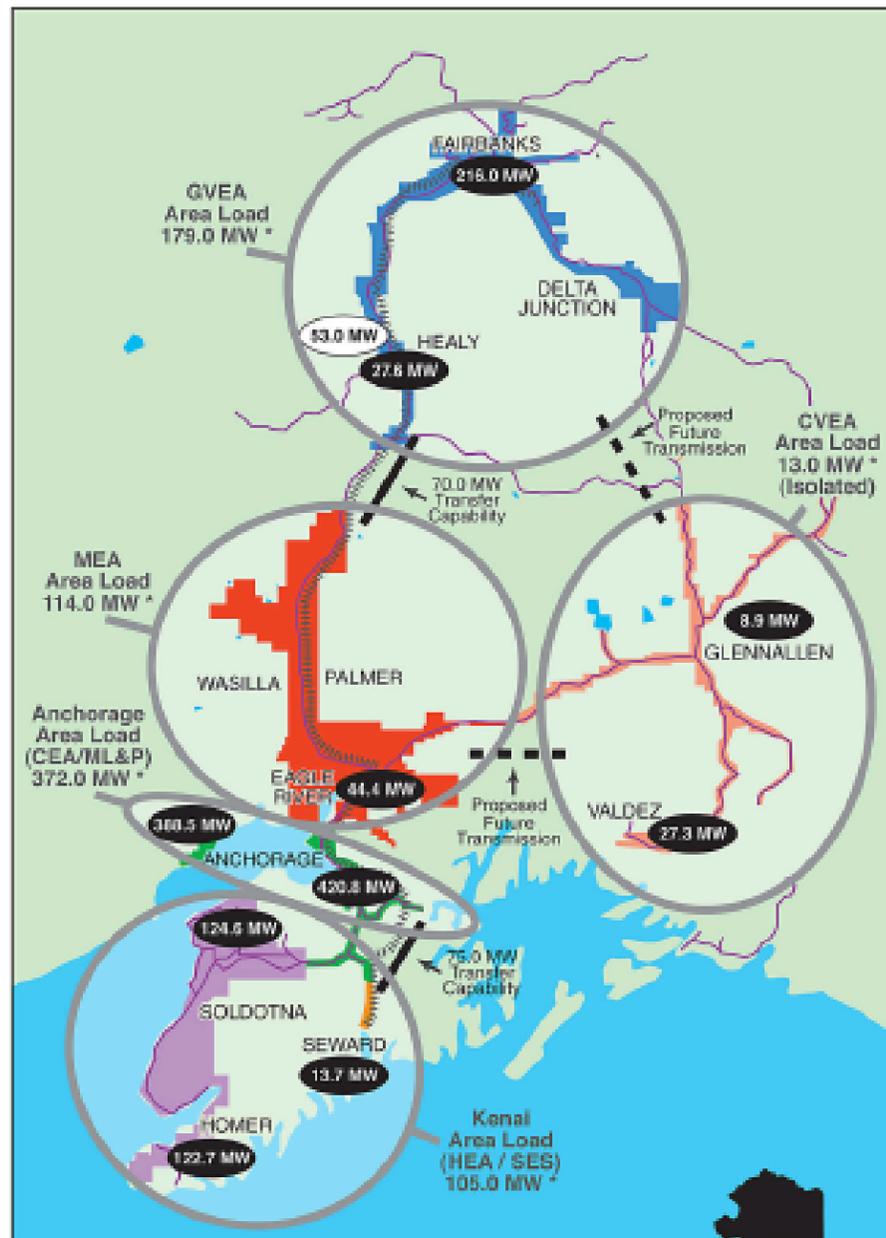
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# Regional/Statewide Implications

Report on the RAILBELT 12/2003  
Findings and Recommendations of the Alaska Energy Policy Task Force

## RAILBELT LOAD CENTERS



\* Indicates peak load for 2002

Sources: Alaska Systems Coordinating Council, 2002 Coordinated Bulk Power Supply Report (Department of Energy EIA-411), May 23, 2003; Railbelt Energy Study, 2003; Copper Valley Electric Association

Area Generation Capacity Available

Healy Clean Coal Plant

- Power can be exported west to Palmer or north to Fairbanks (Transmission Interconnection required)
- If connected, power can be exported to several isolated regional systems
  - Tok
  - Chistochina
  - Chitina
  - Cordova
  - Tatitlik
- New Industrial loads can be served
  - Valdez Marine Terminal

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# CVEA and Fossil Fuels

- Current Capacity – 50% Hydro vs 50% Fossil Fuel
- With Allison Lake – 60% Hydro vs 40% Fossil Fuel
- With Tiekel River – 100% Hydropower
  - Diesel for emergency only

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# Project Location

- Project is located at Mile 45 Richardson Highway (near the middle of the CVEA system)
- CVEA transmission line runs adjacent to Richardson Highway in this location
- Project footprint is characterized by mountainous terrain with deep ravine river channels
- It is believed that all lands belong to State of Alaska but some possible mineral claims exist

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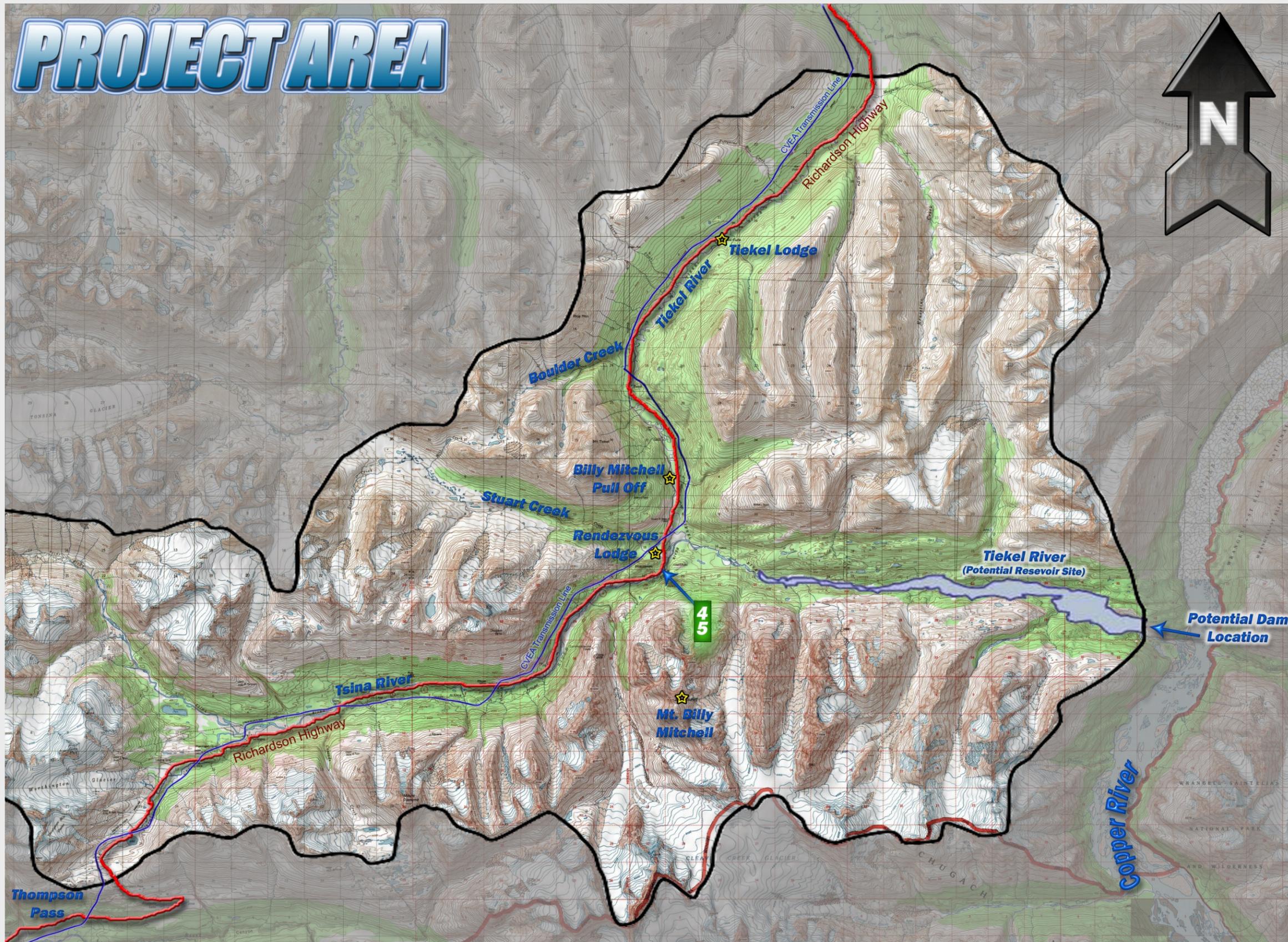
# Project Area Description

- Water flows west to east
- Boulder Creek flows into Tiekkel River
- Stuart Creek flows into Tsina River
- Tsina River flows into Tiekkel River
- Tiekkel flows into the Copper River

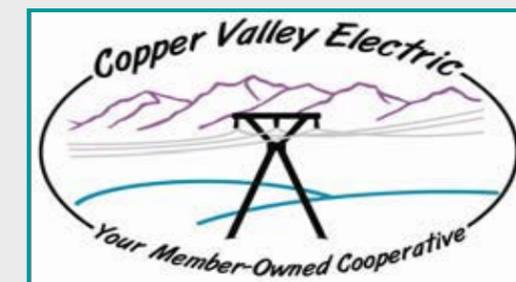
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# PROJECT AREA



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# View Looking West of Deep Ravine Channels



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# Previous Evaluations

- USGS – A Water Power Reconnaissance in South Central Alaska, Water Supply Paper 372, 1915
- Division of Energy and Power – Development of Inventory for Potential Hydro Sites – Mar 1978
- Division of Energy and Power – Alaska Regional Energy Resources Planning Project, Hydroelectric Development, 1980
- Army Corps of Engineers – Copper River Basin and Valdez – 1981

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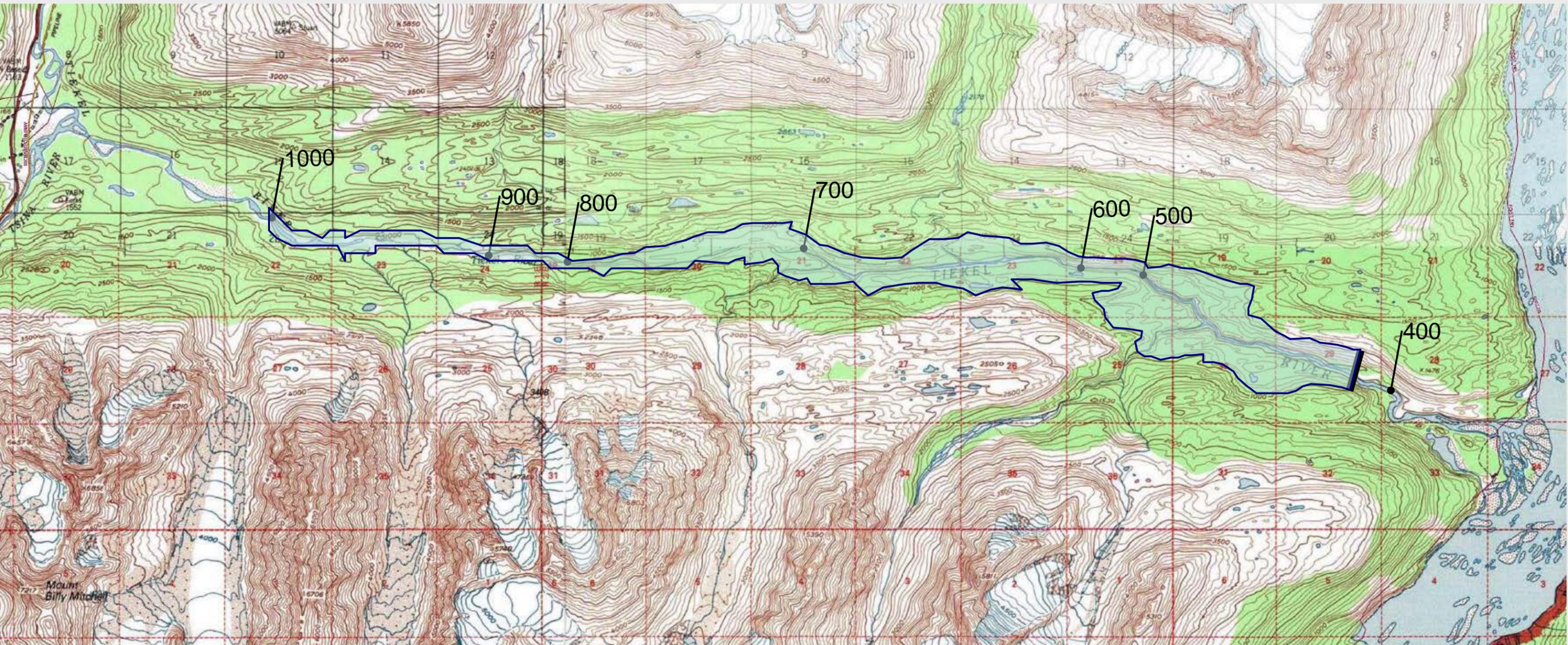
# Previous Evaluations

- Reconnaissance Study of the Energy Requirements and Alternatives for Cordova, Jun 1981
- Alaska Power Authority – Feasibility assessment, addendum 1, November 1982
- Population Characteristics of Dolly Varden in the Tiekkel River – L. Saree Gregory - 1988
- Hatch Associates for CVEA, November 2008

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# Suggested Potential



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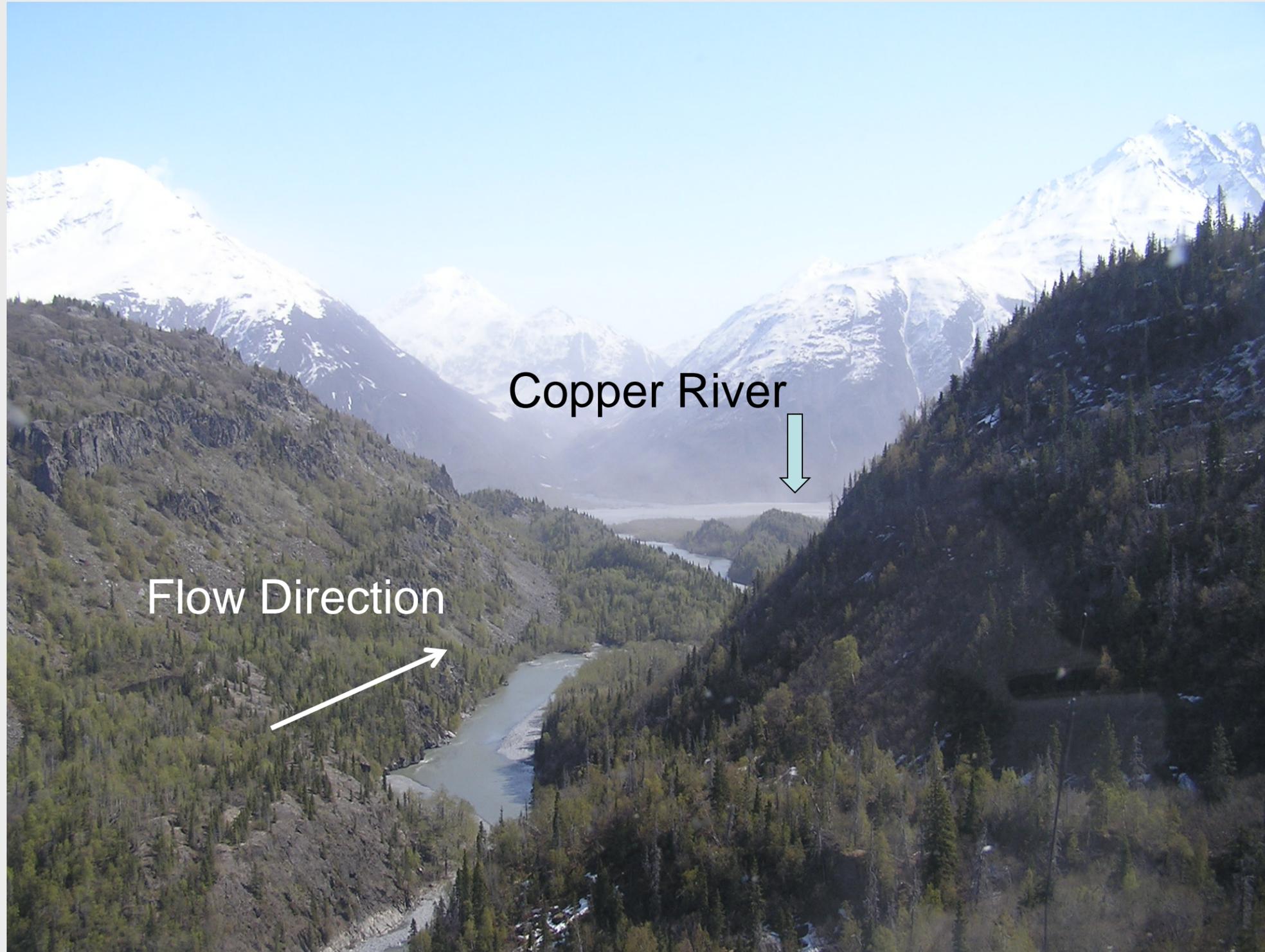
# Key Features

- 1,000 foot max lake level
- 600 foot head pressure (dam height)
- 409 square miles of drainage area
- 3,300 CFS average inflows
- Potential capacity-350 MW
- Potential energy-1,200 GWH

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# View Looking East toward Copper River



View of Possible Dam location upstream of fish barrier. Water is traveling east toward the Copper River (located in the center of this picture).

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# Reconnaissance Workplan

- Conduct literature search
- Assess land ownership issues
- Conduct surveys and topographical mapping
- Evaluate hydrology/develop stream gauging program
- Assess storage potential

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# Reconnaissance Workplan

Continued

- Initiate environmental studies
- Perform geotechnical review
- Prepare a cost estimate for generation and transmission project components
- Address FERC licensing issues
- Identify critical issues
- Generate a report

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# Capital Budget Request

- The estimated cost to prepare a reconnaissance/prefeasibility study to determine the hydropower potential of the Tiekel River watershed is \$500,000

March 19, 2012

