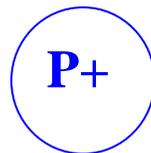

TEN YEAR PLANNING GUIDE

SHASTA LAKE ELECTRIC UTILITY

2011 - 2020



**PowerPlus
Engineering**

A Department of STAR Energy Services, LLC

TEN YEAR PLANNING GUIDE

2011 - 2020

SHASTA LAKE ELECTRIC UTILITY

CITY OF SHASTA LAKE, CA

Prepared by PowerPlus Engineering

July 2011



PowerPlus
Engineering
A Department of STAR Energy Services, LLC



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July 29, 2011

City Council
City of Shasta Lake
1650 Stanton Drive
Shasta Lake, CA 96019

Attention: Tom Miller – Electric Utility Director

Dear Council Members:

We are pleased to present our “Report on the Ten Year Plan” which has been prepared for your electric distribution system. This report presents the results of studies made to determine the ten year requirements for your electric system. The report provides recommendations for the development of the electric system to accommodate load growth and improve reliability for the next 10 years.

The ten year plan analysis is based on providing electric service to approximately 5,000 customers with a peak load of approximately 23 MW (not including Knauf demand) that is estimated to occur in the next ten years. The majority of recommendations for electric improvements to serve the existing and new loads include rebuilding feeder ties to improve reliability and replacing the substation voltage regulators in Central Valley substation. The estimated investment over the next 10 years is approximately \$13.2 million in 2011 dollars.

We thank you for allowing us to provide you with professional consulting services.

Sincerely,

A handwritten signature in black ink that reads "Tom Nigon".

Tom Nigon, P.E.

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1 EXECUTIVE SUMMARY

This plan covers a ten year system planning period for the City of Shasta Lake Electric Utility (Shasta Lake). Shasta Lake is headquartered in Shasta Lake, California. Shasta Lake is a municipal electric utility serving the City of Shasta Lake.

The economy of the area is based primarily on commercial and light industry. Employment growth in the area is due to expansion in the retail and services such as tourism. The area has growth from residential developments located within the City of Shasta Lake. Shasta Lake serves the large industrial customer Knauf Insulation. The City of Shasta Lake is expected to have low to moderate growth in electrical use over the next 10 years.

This long range plan presented in this report is based on a design load of 23 MW. This demand doesn't include the demand for the Knauf substation which is a dedicated substation for a large industrial customer. This design load is approximately 1.1 times the past peak load and is estimated to occur in approximately 10 years.

The proposed distribution plan includes the following recommended improvements over the next 10 years. The list is prioritized by importance and the estimated timing where the lower numbered projects have a higher priority and are estimated to be completed during the initial time period of the ten year planning period:

1. Update the master SCADA
2. Upgrade Central Valley substation with new voltage regulators
3. Provide service extensions for approximately 500 new members
4. Replace 400 poles
5. Upgrade 2.8 miles of existing distribution
6. Upgrade Central Valley substation with an expanded control house and updated relaying
7. Install new feeders and ties when the Mt. Gate development begins and monitor load growth for a possible future new substation
8. Continue to monitor the condition of the Central Valley substation and replace with a new transformer based on the transformer condition and operating concerns
9. Flanagan upgrade will be planned with WAPA and no cost estimate is available at this time so this upgrade is not included in this plan

The estimated investment over the next 10 years is approximately \$13.2 million in 2011 dollars.

This plan does not include a review of the Flanagan 230 to 115 kV substation. This substation is included in the planning process under a separate agreement with WAPA.