

# Plumas Sierra Electric - High Sierra Cogeneration Project

July 2009

**DOCKET**

**09-IEP-1H**

DATE July 23 2009

RECD. July 27 2009

# Summary of High Sierra Cogeneration Project

- The High Sierra Cogeneration Project is located in the northern portion of the Plumas Sierra Electric System near Susanville, California.
- High Sierra is designed to produce up to 6 MW of Electricity and provide hot water for use at the California Correctional Center and High Desert Prison

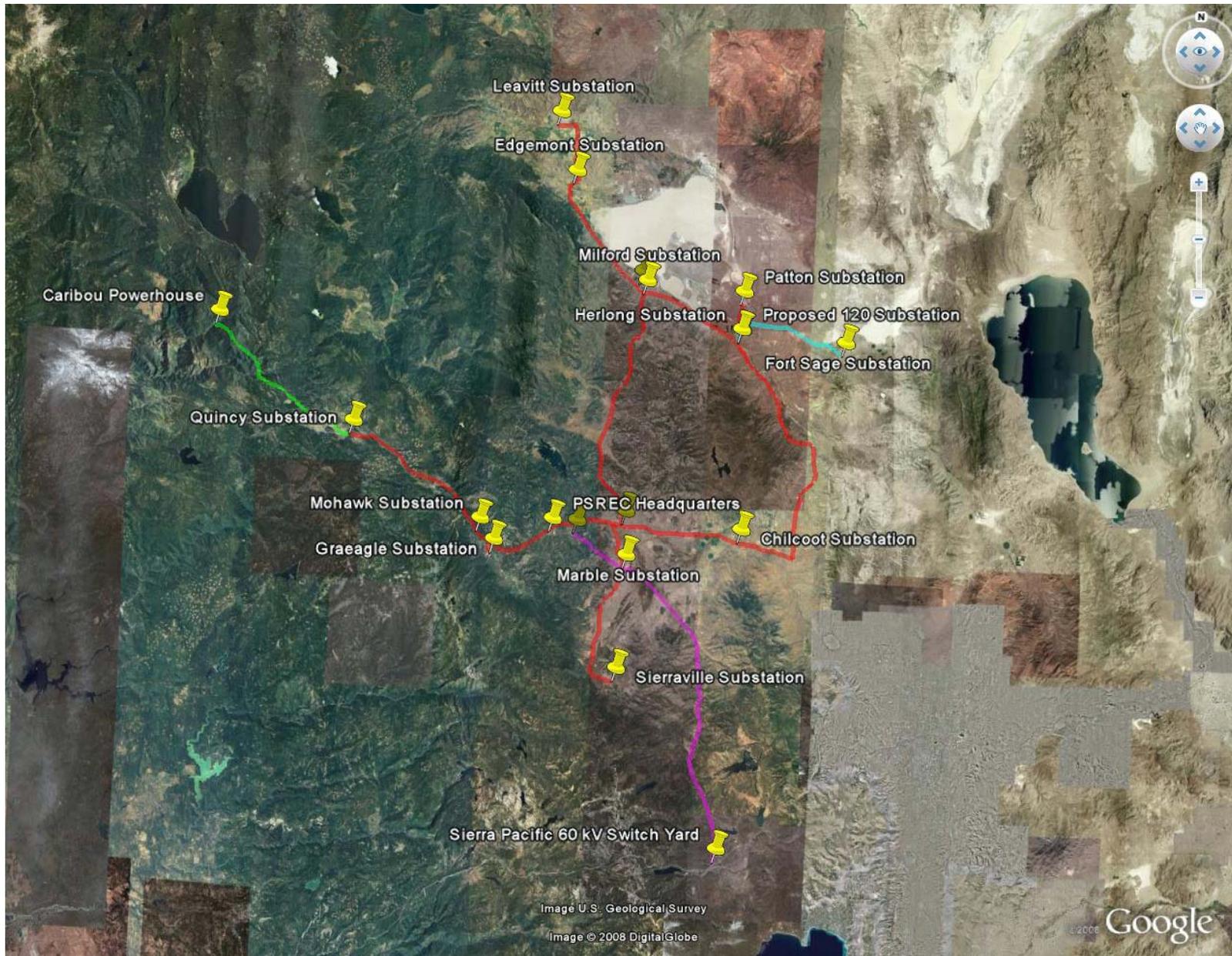
# PSREC Overview

Plumas-Sierra Rural Electric Cooperative is an 8,000 member electric cooperative serving Plumas, Lassen, Sierra counties CA and a small part of Washoe Co., NV. We don't serve Portola, Quincy, Loyalton, Susanville, or Janesville. We serve around them.

We were founded in 1937 as part of the Rural Electrification Administration's effort to electrify Rural America.

We have 16,000 telecommunications customers through our subsidiaries that exist to improve the quality of life of our area, create jobs, and share costs with the electric utility.

Governance is by an elected 7 member board.



# Summary of High Sierra Cogeneration Project

- The High Sierra Cogeneration Project (High Sierra) includes two 3-MW Jennbacher engines fueled by natural gas and a heat exchanger system to provide hot water or if necessary to operate independent of the heat loop .
- High Sierra is designed and constructed for potential expansion to include an additional engine set and additional hot water capability in the future.
- Heat rate of 9,300 (HHR)

# Summary of High Sierra Cogeneration Project

- The High Sierra project is interconnected to the Plumas Sierra electrical distribution system and will provide voltage support and increased reliability for Plumas Sierra customers .
- The High Sierra project will also help reduce costs at the correction facilities by increasing efficiency and lowering fuel costs.

# Summary of High Sierra Cogeneration Project

- The High Sierra project is being constructed to the BACT requirements of the South Coast Air Quality Management District to achieve lower emissions.
- The High Sierra Project is a win – win endeavor providing improved reliability and electricity supply to Plumas Sierra customers and reduced costs for the State of California.

# The Deal

- State of CA assumes 100% efficiency – Actual efficiency is approximately 80%. State of CA may do well on this but this makes allowances for state having to keep boilers on “low” while co-generation is going, operator error by either parties, and other operational issues.
- State buys at 90% of index price.
- Neither party has must perform obligations, either to run or accept heat. PSREC will send heat if it has it and CDCR will take it if they need it.

# Obstacles along the Way

## The lease and the Thermal Sales Agreement

- Large obstacle was the previous experience of the Department of Corrections. Most earlier projects were with private developers. Systems weren't maintained, savings didn't really materialize
- Second significant obstacle was the Department of General Services. They wanted things done their way, and PSREC was less than successful in moving them to see things our way. Both groups could have done things differently.

**We hope that our experience ends up good for everyone and a model for the future.**

# Obstacles (Cont.)

Second Obstacle was Cost escalation and profitability

Original price assumption was \$11,000,000 for 7 MW.

Bid prices came in much higher than that.

Negotiated price was \$20,000,000 for 6 MW.

Factors weighing in:

- Line loss of 10% on north end of system
- CA ISO fees increasing, PSREC short of Local Capacity (by ISO definitions)
- Carbon at \$25/ton
- Thermal sales assumed to be in 85 to 90% of value of market.

## Obstacles (cont.)

Regulatory uncertainty.

Who gets the CO<sub>2</sub>? The NO<sub>x</sub> and SO<sub>x</sub>.

Will the value hold for the feds?

Does it count as green? Should it count as green?

# Obstacles

## How clean is good enough?

- Lassen Air Quality Regulations are “relaxed” compared to SCAQMD.
- SCAQMD ('08-'09) migrating towards no Internal Combustion Engines.
- Draft standards for 2007 never adopted.
- State of California wanted a very clean project.

# Solutions

## The lease and the Thermal Sales Agreement

DGS vs. PSREC Legal

Sometimes all you have is persistence

AQMD got signed off. Beat SEC deadline for EMCOR by 30 hours.

# Solutions

Second Obstacle was Cost escalation  
and profitability

On the second iteration, increased costs  
of power, carbon credit, line loss, all  
helped.

Tipping point was intangibles of  
independence, regulatory worries about  
Generation in WECC, Carbon issues,  
and CAISO MRTU.

# Solutions

## Regulatory Uncertainty – How to fix it

Prayer Helps! Well, it helps you sleep.

That's why we are here. We could really use regulatory certainty:

- Encourage, and give credit to, early adopters

- Make credits transferable, sellable, etc.

- Make process simple and hard to screw up.

# Solutions

## How clean is good enough?

Jenbacher's are quite clean.

Design – NO<sub>x</sub> - .074 grams/HP/hr

CO .105

AQMD language was cleaned up. The documents were “rushed” through the process. EMCOR had a Dec. 31<sup>st</sup> 2008 deadline. We beat the deadline for EMCOR by 30 hours.

# Progress – The Engines



# Progress – the transformer



# Summary

Would we do it again? Heck of a Question.

We had to build this project to keep system going. Less than \$1,000,000 was due to delays and/or unnecessary.

PSREC had too many projects all at once and not enough staff.

We've tried to avoid the "gone too far to turn back", but that's an easy trap in the Muni/Cooperative world.