

Chena Hot Springs Resort





The Chena Vision

Become a self-sustaining community in terms of energy, food, and fuel to the greatest possible extent.

Chena Hot Springs Renewables



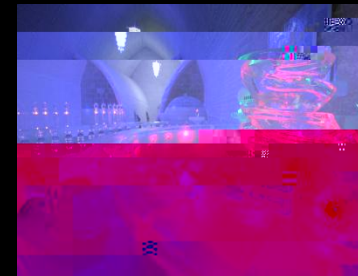
Geothermal
Generator



Water Ram
Irrigation
System



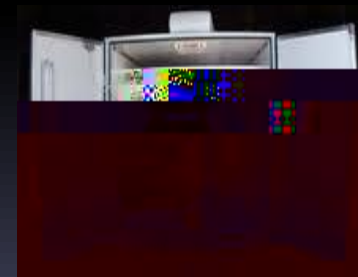
Geothermal District
Heating System



Year Round Ice
Museum



Year Round
Production
Greenhouse



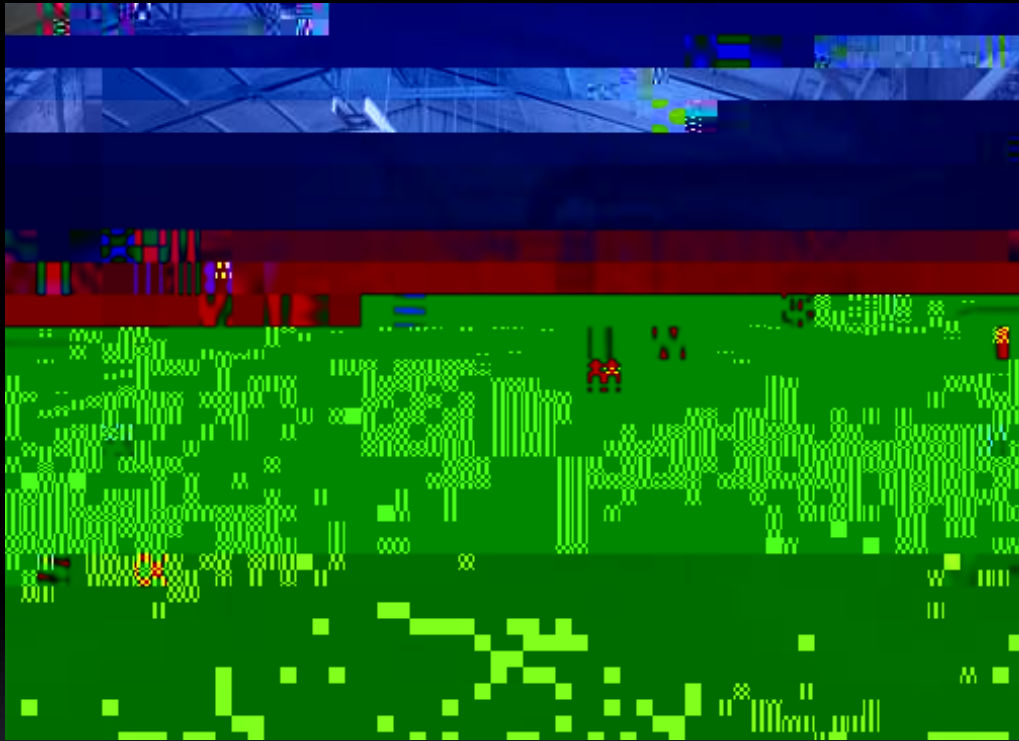
All Season
Feed System

** Just a few of Chena's many renewable projects.*

How an ORC Works



Chena Hot Springs Geothermal Power Plant



400 kW net; installed in 2006

Uses 900 gpm of 160°F water

Air and water cooled

Reduced local cost of power from 30¢ to 5¢

Total project cost \$2 million

Savings of \$500,000 in 2009

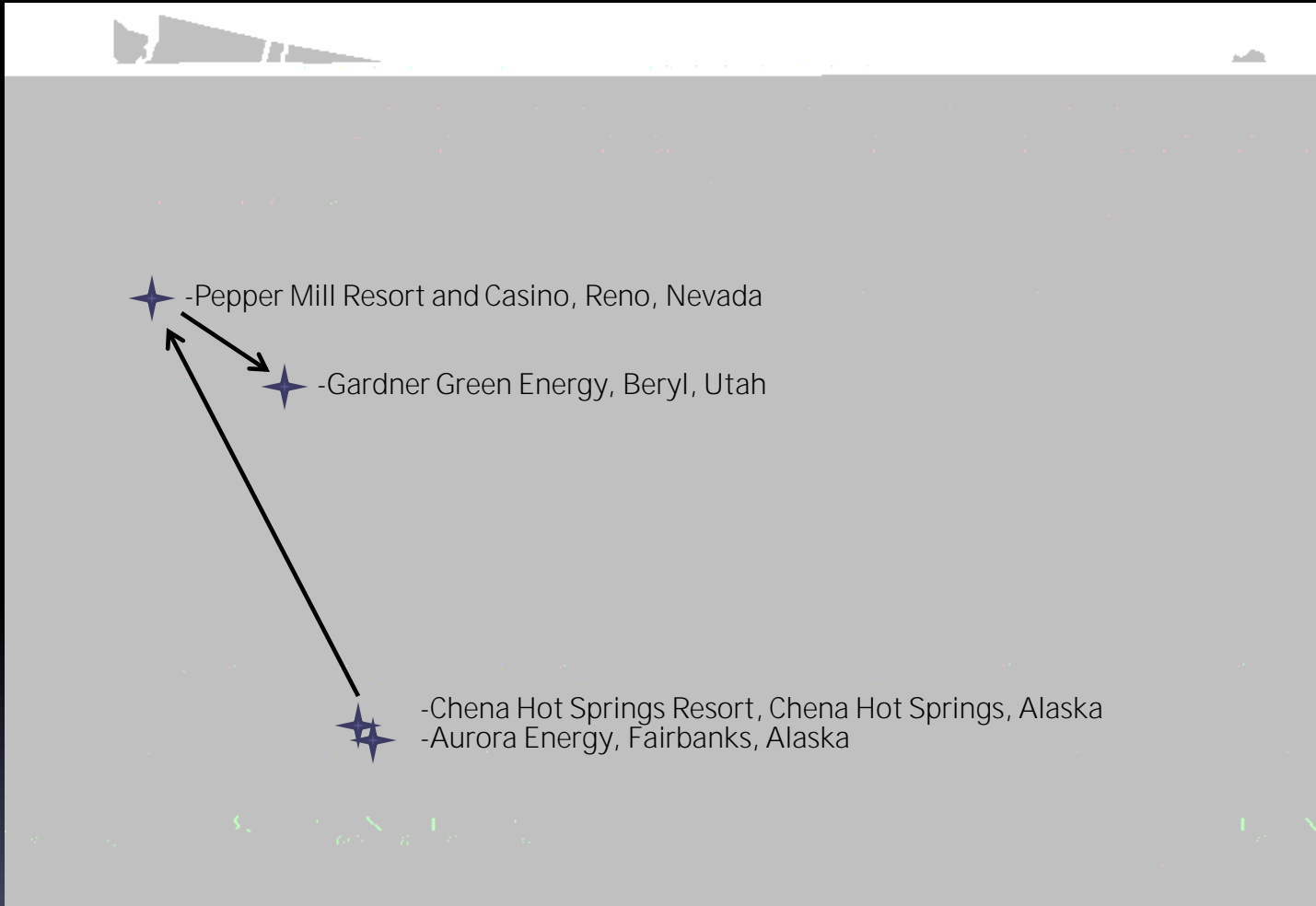
Simple Payback: 4 years



Chena Power Mobile Geothermal Power Plant

Revolutionary Unit

Where has the Mobile ORC been?



Chena Power Mobile Geothermal Power Plant



Chena Hot Springs Resort, Chena Hot Springs, Alaska



Aurora Energy, Fairbanks, Alaska



Pepper Mill Resort & Casino, Reno, Nevada



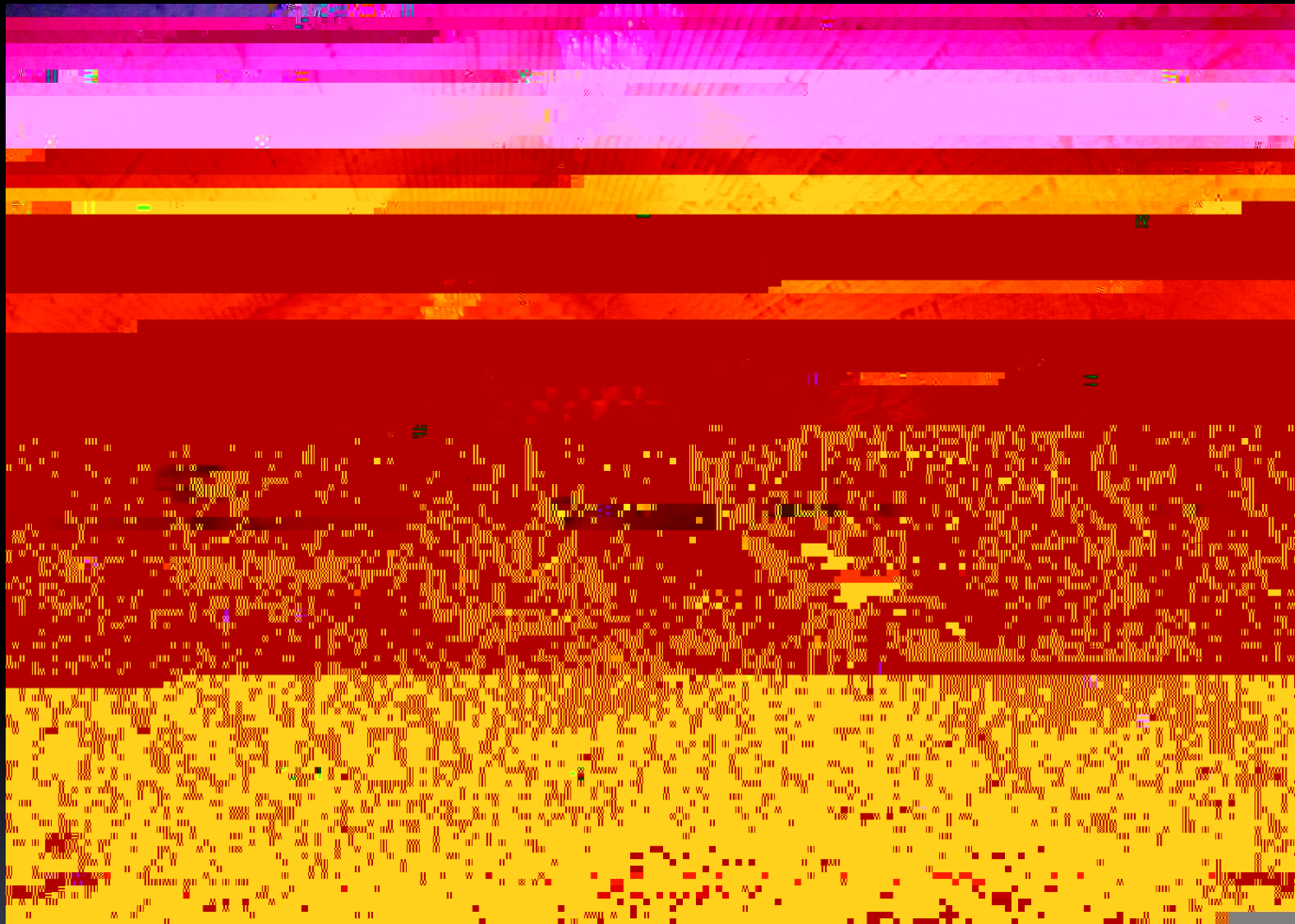
Gardner Green Energy, Beryl, Utah



Chena Fresh Greenhouse

Completed in 2006

Three Pressure Absorption Chiller

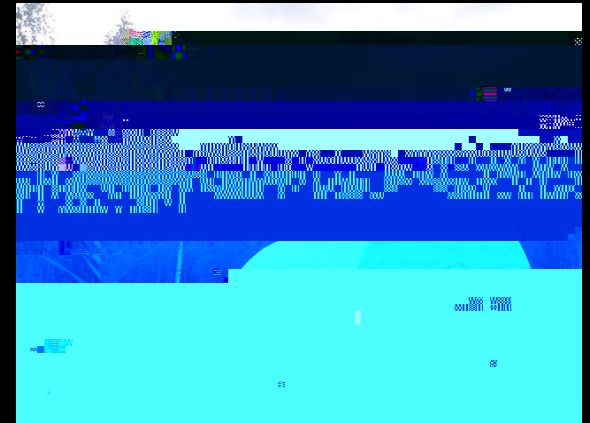
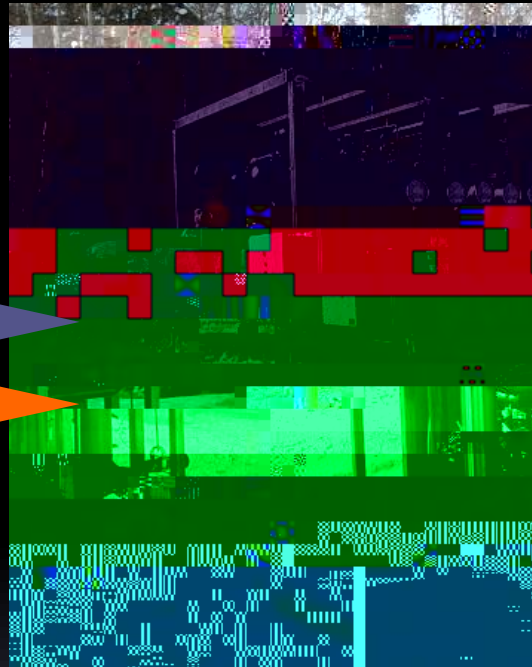


Three Pressure Absorption Chiller

Monument Creek Provides
Cooling Water (~40F)



Geothermal Wells Provide
Hot Water (~165F)



Approximately 15 tons
of Refrigeration
Required for Ice
Museum (180,000 BTU
per hour)



Future Drilling at Chena

A team from the University of Alaska Fairbanks conducted interference testing on the wells at Chena Hot Springs to gather data from the reservoir in 2009.

Chena Power, LLC Clean Biomass Power Plant

600kW gross, 500kW net output

Fuel is 5000 tons of paper, cardboard and brush supplemented with farmed willow

Designed for rural village application – thermal oil boiler

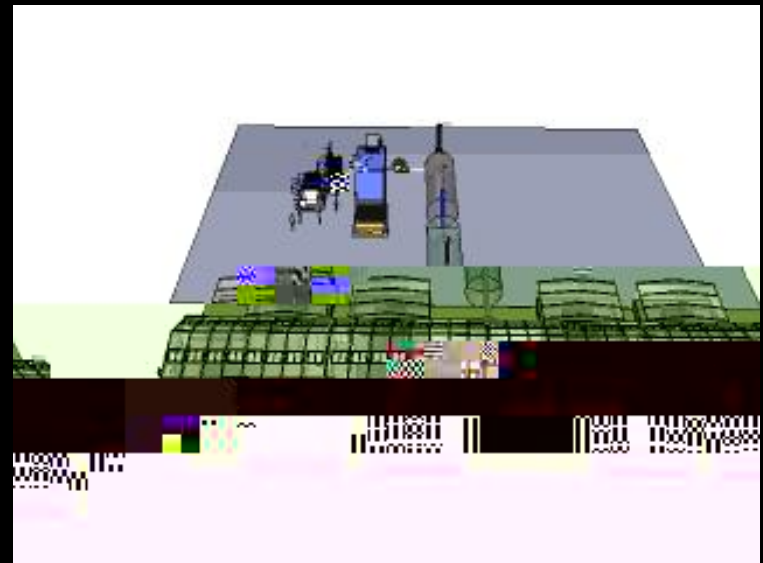
Increased efficiency over geothermal installation through addition of a topping cycle

Co-located with heat load (space heating, greenhouses)

CO₂ capture through food production and algae based biofuel production



Cardboard bales ready to be used as fuel to power the power plant



Boiler fuel intake



Engineers doing a system check

Sustainable is Attainable



CHENA HOT SPRINGS RESORT

www.chenahotsprings.com

CHENA POWER

www.chenapower.com

Bernie Karl

recycle@polarnet.com

(907) 488-1505

"Do what you can, with what you have, where you are."

-President Theodore Roosevelt