McKinley Village Solar Thermal

Grantees	Golden Valley Electric Association (Utility-Cooperative)
Technology Type	SOLAR THERMAL
Region	Railbelt
AEDG Project Code	10103

REF Grants Received

Round	App	Grant Title	Grant #	AEA Project #	Phase	Start Date	End Date	Status
1	108	McKinley Village Solar Thermal Construction	2195394	411003	Construction	8/20/08	9/30/09	Closed

Grant 2195394: McKinley Village Solar Thermal Construction

Project Scope: The SWHS consists of 36 Heliodyne flat panel solar thermal collectors mounted on a 50' X 30' array. Heat from the flat-plate collectors flow into an energy and distribution center that contains a large 3,000-gallon insulated heat storage/exchange tank containing a liquid medium. Heat is transferred through two independent separated copper coil loops in the heat exchange tank; one loop for the solar heated liquid and one loop for the domestic water. The heated domestic water is then distributed through a 2,000-foot insulated pipe system circulating in a loop between the laundry building at the south side of the campus, 13 guest cabins, the Riverside complex on the north side, and to the Sheldon Visitors Center to the west by circulating pumps.

Project Status: The system came online in August of 2009. Total solar energy to array was 39,000 kWh (132000 kBTUs). Total energy to loads was 3,750 kWh (12,800 kBTUs). Estimated maximum yield (@ 35% efficiency) is about 13,800 kWh (49,900 kBTUs). System utilization (i.e., yield/available energy) was 27% of available capacity. Monitoring limitations that were seen in 2010 were rectified in 2011 with additional fine tuning for 2012. System distribution problems experienced in 2010 were also rectified in 2011 but additional retrofit efforts were thwarted by a lack of labor resources. Complete retrofitting of end use stations is expected to be completed before the start up in 2012. With retrofits complete, the efficiency yield should also increase. 7/13: during PM site visit solar thermal system was operating well. Operator thrilled with savings and marketing potential of solar energy.

11/14: GVEA reported the system performed well in 2014. No problems.

As of Nov. 30, 2013	Budget	Expenditures
Renewable Energy Funding	$190,000.00	$190,000.00
Other State Funding	$0.00	$0.00
Total State	**$190,000.00**	**$190,000.00**
Required Local Match	$3,600.00	$20,878.92
Federal Grant Funding	$0.00	$0.00
Total Project Costs	**$193,600.00**	**$210,878.92**