

Terror Lake Unit 3 Hydroelectric Project

Grantees	Kodiak Electric Association, Inc. (Utility-Private)
Technology Type	HYDRO
Region	Kodiak
AEDG Project Code	10118

REF Grants Received

Round	App	Grant Title	Grant #	AEA Project #	Phase	Start Date	End Date	Status
2	215	Terror Lake Capacity - Feasibility/Conceptual Design	2195460	407059	Final Design	7/1/09	12/31/12	Closed
3	401	Terror Lake Unit 3 Hydroelectric Project	7030011	407068	Final Design	7/1/10	12/31/12	Closed
4	653	Terror Lake Unit 3 Hydroelectric Project 2	7040013	407059	Construction	7/1/11	6/30/14	Closed

Grant 2195460: Terror Lake Capacity - Feasibility/Conceptual Design

Project Scope: The Terror Lake Unit 3 Hydroelectric Project is to install a third hydro turbine capable of producing an additional 11.25 megawatts (MW) in the existing Terror Lake Plant. The original engineers of the Terror Lake facility had the foresight to design the facility for expansion to three turbines. The original design assumed one day additional capacity would be required. Terror Lake is KEA's primary generation source and is located approximately 25 miles southwest of the City of Kodiak and is within the Kodiak National Wildlife Refuge. The current capacity of Terror Lake has been surpassed by Kodiak's growing load demand. Without the additional hydropower capacity, the synergistic relationship of more renewable variable energy sources and water cannot be fully realized. Expanding the capacity of Terror Lake will significantly enhance the stability of KEA's isolated grid system and reduce KEA's dependence on diesel fuel by providing ample backup capacity to cover peak loads and outage backup for the other two hydro turbine generator units.

Feasibility/Conceptual Phase: The project is to complete a feasibility analysis and conceptual design to install a third hydroelectric turbine generator unit in an existing bay of the powerhouse located at Terror Lake. A current analysis will identify the regulatory, engineering, and operational issues involved in expanding the facility's capacity. Upon its successful completion, Kodiak Electric Association will initiate the necessary environmental impact studies in order to develop an appropriate conceptual design for the engineering and operational modifications to the Terror Lake system.

Project Status: KEA received the FERC License Amendment. The project phase is closed.

As of Nov. 30, 2013	Budget	Expenditures
Renewable Energy Funding	\$224,418.68	\$224,418.68
Other State Funding	\$0.00	\$0.00
Total State	\$224,418.68	\$224,418.68
Required Local Match	\$224,418.68	\$224,418.68
Federal Grant Funding	\$0.00	\$0.00
Total Project Costs	\$448,837.36	\$448,837.36

Grant 7030011: Terror Lake Unit 3 Hydroelectric Project

Project Scope: The Terror Lake Unit 3 Hydroelectric Project is to install a third hydro turbine capable of producing an additional 11.25 megawatts (MW) in the existing Terror Lake Plant. The original engineers of the Terror Lake facility had the foresight to design the facility for expansion to three turbines. The original design assumed one day additional capacity would be required. Terror Lake is KEA's primary generation source and is located approximately 25 miles southwest of the City of Kodiak and is within the Kodiak National Wildlife Refuge. The current capacity of Terror Lake has been surpassed by Kodiak's growing load demand. Without the additional hydropower capacity, the synergistic relationship of more renewable variable energy sources and water cannot be fully realized. Expanding the capacity of Terror Lake will significantly enhance the stability of KEA's isolated grid system and reduce KEA's dependence on diesel fuel by providing ample backup capacity to cover peak loads and outage backup for the other two hydro turbine generator units.

Final Design: Project is to assist with the completion of the final design and bid document development. Once complete, KEA intends to initiate the construction phase of the third turbine for the Terror Lake facility.

Project Status: KEA received the FERC License Amendment. This phase is complete and the grant is closed.

As of Nov. 30, 2013	Budget	Expenditures
Renewable Energy Funding	\$248,160.00	\$248,160.00
Other State Funding	\$0.00	\$0.00
Total State	\$248,160.00	\$248,160.00
Required Local Match	\$200,000.00	\$200,000.00
Federal Grant Funding	\$0.00	\$0.00
Total Project Costs	\$448,160.00	\$448,160.00

Grant 7040013: Terror Lake Unit 3 Hydroelectric Project 2

Project Scope: The Terror Lake Unit 3 Hydroelectric Project is to install a third hydro turbine capable of producing an additional 11.25 megawatts (MW) in the existing Terror Lake Plant. The original engineers of the Terror Lake facility had the foresight to design the facility for expansion to three turbines. The original design assumed one day additional capacity would be required. Terror Lake is KEA's primary generation source and is located approximately 25 miles southwest of the City of Kodiak and is within the Kodiak National Wildlife Refuge. The current capacity of Terror Lake has been surpassed by Kodiak's growing load demand. Without the additional hydropower capacity, the synergistic relationship of more renewable variable energy sources and water cannot be fully realized. Expanding the capacity of Terror Lake will significantly enhance the stability of KEA's isolated grid system and reduce KEA's dependence on diesel fuel by providing ample backup capacity to cover peak loads and outage backup for the other two hydro turbine generator units.

Construction: Project is for construction of the third hydropower turbine - generator unit in an empty bay within the existing powerhouse of the Terror Lake Hydroelectric Facility on Kodiak Island.

Project Status: Construction activities for Terror Lake Unit 3 addition have been completed and the unit has been commissioned.

As of Nov. 30, 2013	Budget	Expenditures
Renewable Energy Funding	\$3,751,840.00	\$3,751,840.00
Other State Funding	\$3,750,000.00	\$3,750,000.00
Total State	\$7,501,840.00	\$7,501,840.00
Required Local Match	\$7,590,927.82	\$7,590,927.82
Federal Grant Funding	\$0.00	\$0.00
Total Project Costs	\$15,092,767.82	\$15,092,767.82