

Project Objective:

The primary objective of the grant was to reduce the Tribes complete dependency on non-renewable, diesel generated electricity by incorporating renewable technology – a small-scale wind turbine.

Results:

The small-scale wind turbine was one effort of many made by the St. George Traditional Council to help make the Tribal building and other tribally owned buildings “greener”. The wind turbine and all of the necessary supplies are on the Island and ready for installation. Despite extensive planning efforts, many unexpected hurdles were encountered during the project period which prevented the complete install during the one year project period. It is expected that these lessons learned will be valuable to other communities that are considering a small-scale wind project. It is anticipated that the turbine will be completely operational by the end of March 2010. Once installed, a data logger will collect usage information daily and monthly cost savings estimates will be calculated for the benefit of the Tribe and other communities facing high energy costs from non-renewable sources.

Benefits:

- The Tribe has an increased knowledge of small-scale wind turbines; a renewable energy source.
- There will be a reduction in non-renewable energy use which will account for lower emissions and a reduction in energy costs for the Tribe.
- As long as there is wind on the Island, there will be energy produced. Sustainable.
- The turbine can be lowered during extreme weather events or if maintenance becomes necessary.
- Data will be gathered and shared with other communities.
- The Tribe will be one step closer to “green” status for their buildings.

Lessons Learned:

- **Original plans may change.** A lot of hard work and planning had gone into a certain type of wind turbine. After much research, it was determined that the turbine, which might work in some communities might not have been the best choice for St. George. Based on many factors, another system was selected.
- **Parts may not arrive on time.** Although the bulk of the wind system did arrive well before the projected timeline, there was a delay in the manufacturing and shipment of a key piece for the system. It is extremely important to communicate often with the equipment vendor. This may help speed up the process.
- **Bad weather happens – plan for it.** Extreme winter weather went well into the summer months. When developing a project timeline, consider possible weather delays.
- **Expect the unexpected.** In rural Alaska it’s not uncommon for one person to wear many hats, but a back-up person for the project might be a good idea. A boat, carrying 15,000 gallons of diesel fuel went adrift and grounded on the islands shore near sensitive habitats during the project. The Tribe, being one of the main government agencies in the community needed to step in and assist. This required a lot of time from the main project coordinator. Also, learn as much about your selected site as you can. Just before installation, it was realized that fiber optic cables ran under the selected wind-turbine site. This halted installation efforts for a couple months until someone was able to fly out and locate the cables.
- **Partners can be great.** A construction company working on the island agreed to mix & pour the cement for the turbine foundation with their cement mixer. This was a great opportunity but delays in their project caused delays in this project. Make sure to talk to partners about your specific needs and timeline in advance to ensure that they will be able to do it.
- **Keep granting agencies informed.** If project delays occur, contact your grant manager to talk about them.

* Final outcomes will be presented during future environmental conferences and will be available on the ANTHC and AERHO websites.

For more information:

St. George Island Traditional Council * Ph. 907-859-2205 * chris_merculief@yahoo.com

ANTHC project website: <http://www.anthc.org/chs/ces/hve/cedgr09.cfm>

ST. GEORGE TRADITIONAL COUNCIL

Small-scale Wind Energy



Funding provided by ANTHC through the Community Environmental Demonstration Grant Program made possible with the Alaska Tribal Multi-Media Grant from the US EPA.



Work performed before February 1, 2009

- * The Tribal Council determined that seeking renewable energy technology was a priority.
- * Measured wind with an anemometer to determine if it was a viable source.
- * Researched various types of small wind turbines.
- * Selected wind turbine location and planned logistics.
- * Researched, prepared and submitted CEDP grant in December 2008.

* PROJECT TIMELINE *

St. George's 2009 Community Environmental Demonstration Project Grant



Received CEDP funding and attended grant orientation during the Alaska Forum.

Communicated with the local Fish & Wildlife Service to ensure that the tower location would not interfere with migratory bird paths. Received their approval.

Researched data loggers that would be compatible with the system.

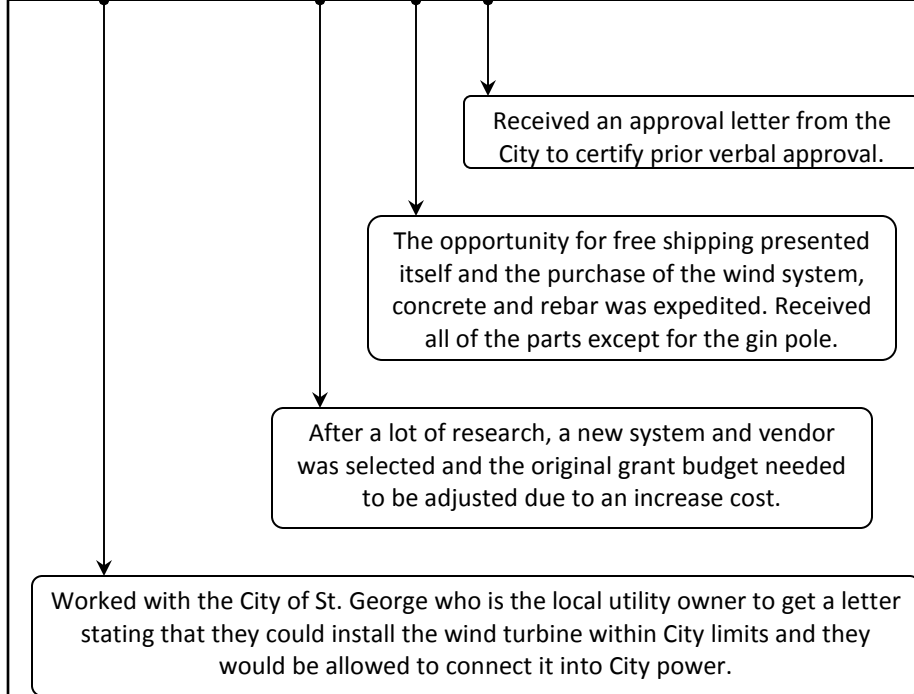
Site was prepared for the wind system. Old satellite dishes and concrete blocks were removed. It was realized that there were fiber optic lines located under the selected site that needed to be located before a trench could be dug and cement poured. Contacted the telephone company and put in a work order.

The fiber optic cables were located, trench was dug and ready for cement.

A construction crew that was on island working on another project agreed to use their cement truck to mix and pour the cement for the foundation but it would have to wait until they were ready to pour their own cement in January or February 2010.



Ordered data logger.



Received gin pole that had been delayed since March. This important part allows the system to be lowered for maintenance and/or extreme weather events.



System Purchased

- Kestrel e220i
- 800W, 200V system
- 30ft. tower
- 50ft. Gin Pole
- 1800W Wind Inverter
- Other system supplies
- Total cost \$12,505.00

Due to project delays, a no cost grant period extension was requested. A three month extension was approved by ANTHC and EPA.

- Will be done by 4/30/2010**
- Pour Concrete for foundation.
 - Set up & raise the wind system.
 - Install the electrical system from the wind turbine to the building and into the City utility grid.
 - Install the data logger.
 - Begin collecting usage data.

