Dillingham, Alaska
Power Generation Upgrade Project

Nushagak Electric & Telephone Cooperative

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For Western Bristol Bay,
2004 - 2010

Dillingham, Alaska

Nushagak Electric & Telephone Cooperative Inc., (NETC), generates and distributes electric power for Dillingham, Alaska and the surrounding area including Kanakanak and Aleknagik. Since 2004 Nushagak Cooperative has combined funds from several sources to complete its $5.5 million dollar Power Generation Upgrade project. Those funds were a combination of:

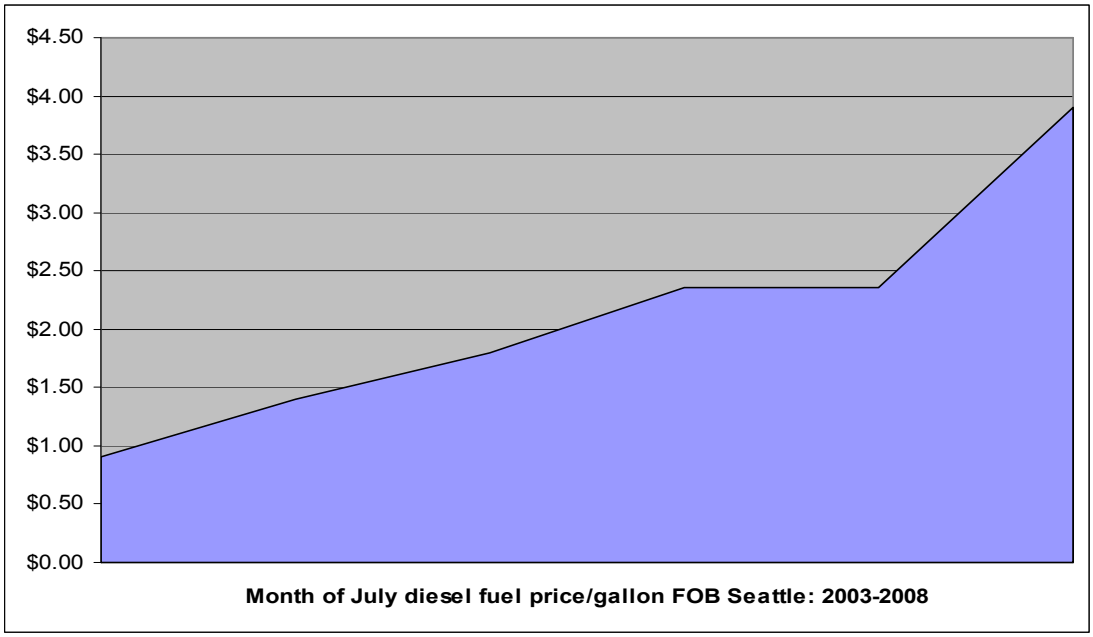
- a direct Federal earmark of $942,400,
- a Denali Commission grant $ 1,368,627,
- State of Alaska grant funding of $1,000,000,
- and a USDA/RUS High Energy Cost Grant of $1,600,000,
- that have been supplemented with $476,881.00 to date of utility funds and in-kind contributions.

Five new "dual fuel" diesel gen-sets were purchased and placed into service between 2005 and 2009. Those units are designed to burn the new ultra-low sulfur diesel fuel mandated for use by 2011. They also have the lowest emissions possible and they have measurably improved the overall fuel efficiency of Nushagak's power plant.

Other aspects of the Power Generation Upgrade Project involved improvements to the supplemental (hot water) heat delivery system; including insulated piping and new BTU meters on customer's premises. Additionally, the project scope included refurbishment of the bulk fuel plant storage and containment and its associated underground piping.

With those items completed the construction of a vehicle storage facility with room to house Nushagak's construction and maintenance crews was the next priority. At the same time some additional improvements to the distribution grid and other existing facilities were implemented.

Several issues were brought to the attention of the Cooperative's Board that instigated this project and chief among them was the looming increase in diesel fuel prices.



In tandem with those increasing fuel costs was the ultra-low sulfur diesel fuel requirements scheduled to be in effect by 2011. Additionally, the utility was operating two old generators on environmental emission waivers and three other, very old generators, that were obsolete, inefficient to run, and difficult and expensive to maintain.

Unit #3: installed in 1962, it was de-commissioned in 2009.

Upgrades to Nushagak's diesel plant included an expansion of the radiator bank. That new flexibility allows any selection of generators to be run simultaneously in any combination in order to closely match the amount of electricity generated with the electric demand thereby maximizing the efficiency of the plant.

New radiators under installation at Nushagak Cooperative.

Project upgrades to the underground supplemental heat (hot water) system (to State offices and school buildings) included new insulated pipes, new BTU meters (heat transfer meters for billing purposes), and some new heat exchangers.

Hot water heat for South West Region School District Headquarters.

When Nushagak's bulk fuel storage passed inspection it was re-certified for another twenty years of use. A major piece of that upgrade was the refurbishment of the liner inside the fuel spill containment area.

Nushagak's Power House Crew
re-lining the fuel tank farm containment dike.

Nushagak was glad to see old generating units like # 5 go:

And they were very glad to see new units like these being installed.

The last big piece of the upgrade project was the garage and crew rooms. For forty years Nushagak cooperative parked its vehicles, equipment, and all material outside in the weather.

Until this spring, Nushagak's construction crew reported to work in the portable building on the right. Now they enjoy a work place with running water, a break room, and modern restroom facilities. And, the garage will provide maintenance, time, and expense savings from now on.

The new Operations building includes office space for the Cooperative's construction crew and the telephone crew along with the CATV and IT departments. The garage has three double ended bays and a space heater fueled with the used oil from the power plant.

By doing as much of the work for this large project as could be managed in-house Nushagak Cooperative was able to keep some of the costs below the original estimates.

First safety meeting in the new building for the Nushagak crew.

The question most often asked of Nushagak during this process was; what are you going to do for the future? Now, thanks to the success of this project, Nushagak has an opportunity to plan and prepare for a better future. The grant funded generators allow the company to go forward without incurring additional long term debt to service. And the new building allows the cooperative to keep maintenance and operational costs down while reducing long term capital costs. Those improvements free up Nushagak's financial capability and will allow the utility to contribute significantly to the funding of a replacement generation facility.

Current plans for future replacement generation involve the possible construction of a clean and renewable hydro power source. For the Cooperative, a very important benefit of using hydro power would be the separation of generation costs from the extreme variability of oil prices. The development of the proposed Lake Elva and Grant Lake hydro sites would enable the utility to relegate its diesel engines to back-up and peak demand periods while eliminating the price of oil as the main determinant of their electric rate. As we study the feasibility of that project we are mindful that those reduced electric costs, along with the substantial benefits to the environment, will extend far into the future. Here at Nushagak Cooperative we are excited about that future and our plans to make a big difference for the future of Dillingham and our part of Bristol Bay.

The Cooperative and the community we serve sincerely thank the Denali Commission, Senator Stevens, the USDA/RUS, and the State of Alaska for their support of this valuable project.