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ST. MARY'S GETS A MET TOWER

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by Amy Murphy

In late October I traveled to St. Mary's to help install a MET (meteorological) tower that will collect wind speed data to learn if the wind regime will support wind generation. I looked forward to the trip as it was my first overnight visit to one of our communities and I felt it would be a great learning experience in many ways.

To the amazement of some of our field personnel who see me sit behind my computer most of the day, I did actual field work and even "turned wrenches." Plus I got lots of photos and first-hand information to pass on to the members of our cooperative who are extremely interested in wind generation projects that could help reduce the impact of increasingly high diesel fuel costs on their electric bills.

AVEC originally planned to install two MET towers in St. Mary's and one in nearby Mountain Village to see which area had the best wind regime. Unfortunately, due to various complications, including uncooperative weather, only one MET tower installation was completed.

The MET tower is 40 meters high (as tall as a 12-story building!) with anemometer sensors at 20, 30 and 40 meters. Due to rime ice conditions expected at this site, a heated sensor and heated vane were also installed, along with a red light on top of the tower to provide a warning to aircraft.

The heated sensor and warning light required running new electric power out to the site, which created additional complications. "Towers that don't need power are normally installed in two days, not four days like this job required," said Doug Vaught of V3 Energy, the contractor hired to oversee these projects.

Two of AVEC's linemen, David Johnson and Justin Billings, were dispatched to run the power from the road out to the work site. They installed a meter, transformer, power box, breaker and ran line 1,050' out to the site.

The 34-year-old power line was twisted and extremely stubborn about being inserted into Cor-flo, a protective covering. David, Justin and Harry George, a multi-talented local laborer, struggled mightily to get the Cor-flo installed. As I watched their chagrined expressions and strained exertions, especially going uphill, I felt sorry for them. After saying some unprintable words, David said "I hope I get to come back after the MET tower is demobilized so I can personally remove and cut up this heavy, unwieldy wire!"

Installing this MET tower is just one small piece of the puzzle encountered when trying to install wind turbine projects. Wind data is collected for at least one year by AVEC plant operators or other individuals in the community who change out and mail data cards into our wind resource consultant every month.

The raw data is then fed into a modeling program that will reduce it into a more manageable and comprehensive data set that averages the wind speed and direction for the entire year based on ten-minute intervals. This data is then run through a series of equations that provide monthly estimates of wind strength, direction, and shear at various heights above ground. It is this data that helps AVEC determine the type, size, and orientation of wind turbines for that location.

If wind data shows wind turbines are feasible, AVEC prepares a draft project design and pursues grant funding to help pay for the wind turbines. Additional siting concerns must deal with possible bird or archeology issues, the challenge of providing access routes and erecting tall towers in permafrost conditions.

AVEC has invested in some wind monitoring equipment but doesn't have the financial resources required to pay for the high, up-front capital costs for these projects. So far we have been successful at getting funding from the Denali Commission, Coastal Villages Region Fund and other entities. Let's all hope we keep getting financial assistance so more communities can reap the benefits of renewable energy!

This trip was indeed an educational and interesting experience that gave me a greater understanding of village life and the challenging conditions and problems our field personnel face, including traveling with hundreds of pounds of tools, equipment and food. I made the comment that in comparison, all I have to carry with me to go to work is my purse.

Justin and Dave took problems that cropped up in stride as they have become used to the logistical challenges they face. They evaluate a problem situation and attempt to find a solution, working well together as a team and exchanging lots of humorous wisecracks. One of Justin's favorite comments is, "It's just another day in paradise," and he truly means it. He and Dave both said they highly prefer being out in the field instead of sitting in an office. However, after spending four days working out in the field in "mild" (but still cold and windy) winter conditions, I developed a greater appreciation for my normal working environment: a warm office with indoor toilets!

Although I didn't have the opportunity to meet many of St. Mary's residents, I enjoyed returning waves from friendly folks riding around on their ATVs and snowmobiles and didn't miss Anchorage's hectic traffic and noisy crowds. It was interesting talking with laborers Harry George and Morgan Joe and the heavy equipment operator George George to learn about their lives. And I thoroughly relished the too-short opportunity to become immersed in the quiet peacefulness and scenic views of this beautiful Yukon River area. Quyanana.

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