



Alaska Village Electric Cooperative, Inc. Renewables in Remote Locations

Alaska Village Electric Cooperative (AVEC) was established as a non-profit member-owned cooperative in 1968 to bring central station electric service to rural Alaska villages that had hitherto lacked such service. Using loans from the Rural Electrification Administration (now Rural Utilities Service, a division of USDA) the cooperative built rudimentary systems to energize villages. AVEC now serves 53 villages.

Until recently, AVEC used federal loans and member equity to finance construction of generation and distribution assets. AVEC was named an Energy Partner of the Denali Commission in 2001, which allowed access to federal funds for the upgrade and reconstruction of bulk fuel tank farms and generation facilities in the villages served by AVEC. Using member equity to leverage Denali Commission funds, AVEC has also won several grants from the RUS High Energy Cost Grant Program and, in the last year, has received grant awards from the State of Alaska as well.

Starting in 2003, AVEC has developed successful wind-diesel systems in several villages. In 2008, AVEC was recognized as Wind Cooperative of the Year by the National Rural Electric Cooperative Association and US Department of Energy. AVEC now has wind generation in nine villages (serving 12 interconnected villages) and is constructing three others. As funding permits, AVEC hopes to have wind generation supplementing its diesel generation in as many as 75% of its communities.

Wind generation in rural Alaska is expensive to install - \$6,000 to \$10,000 a kilowatt. For larger installations, as in the Lower-48, costs are \$2,000 to \$2,500. The challenges are enormous – with the most significant being the complexity of foundations. Difficult logistics, lack of heavy equipment, no roads, weather, transportation and environmental issues contribute to project challenges. Hydroelectric or photovoltaics can be \$20,000 or more per kilowatt.

The intermittency of wind means that, even in excellent wind regimes, at best 30–40% of diesel can be displaced. As a result, AVEC gives diesel efficiency improvements the highest priority and has doubled its generating efficiencies over time. AVEC believes that interconnecting villages is imperative for multiple reasons: consolidated loads render renewable resources more effective; reducing generation plant reduces operating costs and oil-spill potential; larger generators yield higher efficiencies.

AVEC has adopted very aggressive board goals to reduce the quantity of diesel burned (currently 5,000,000 gallons) by 25% and the number of generation plants by 50%.