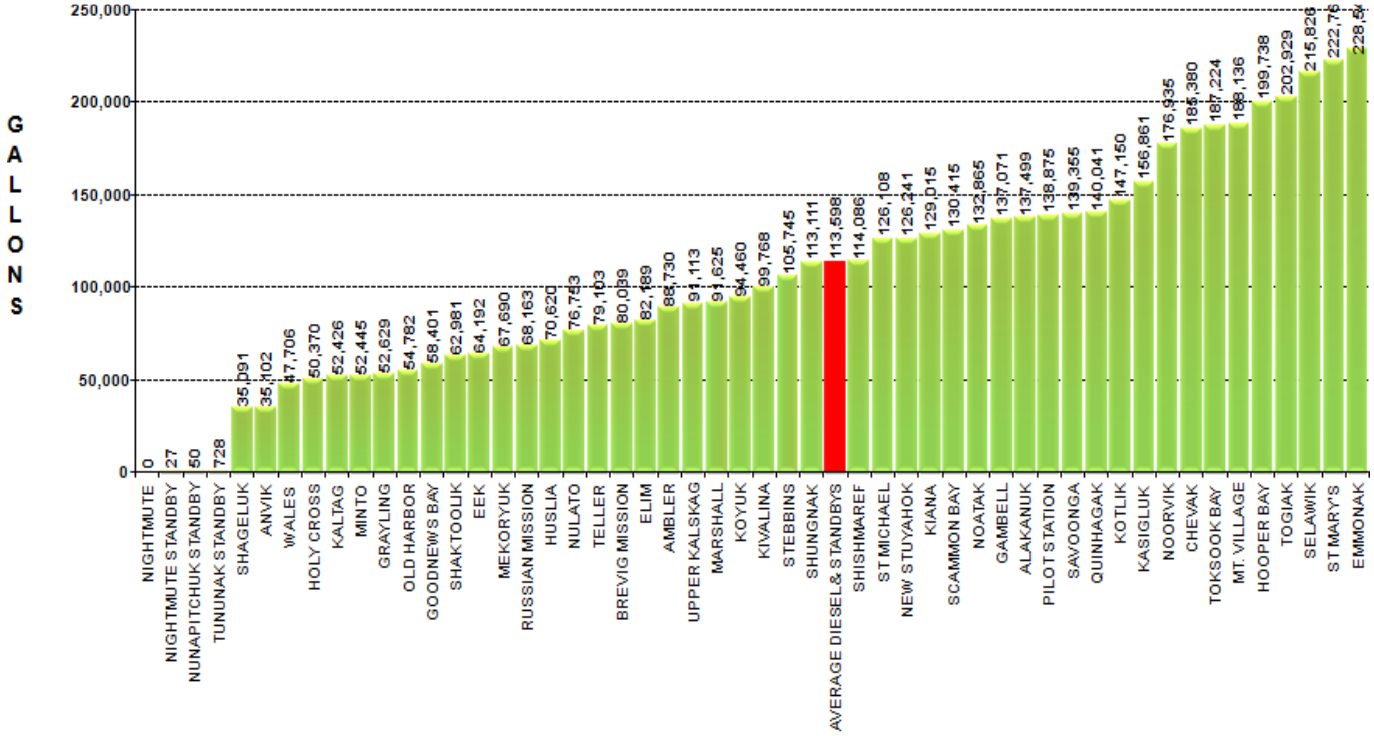
COMMONWEALTH NORTH
Illuminating Alaska's Issues

RURAL AND ALTERNATIVE ENERGY STUDY GROUP
MAY 27, 2011
CIRI
MINUTES

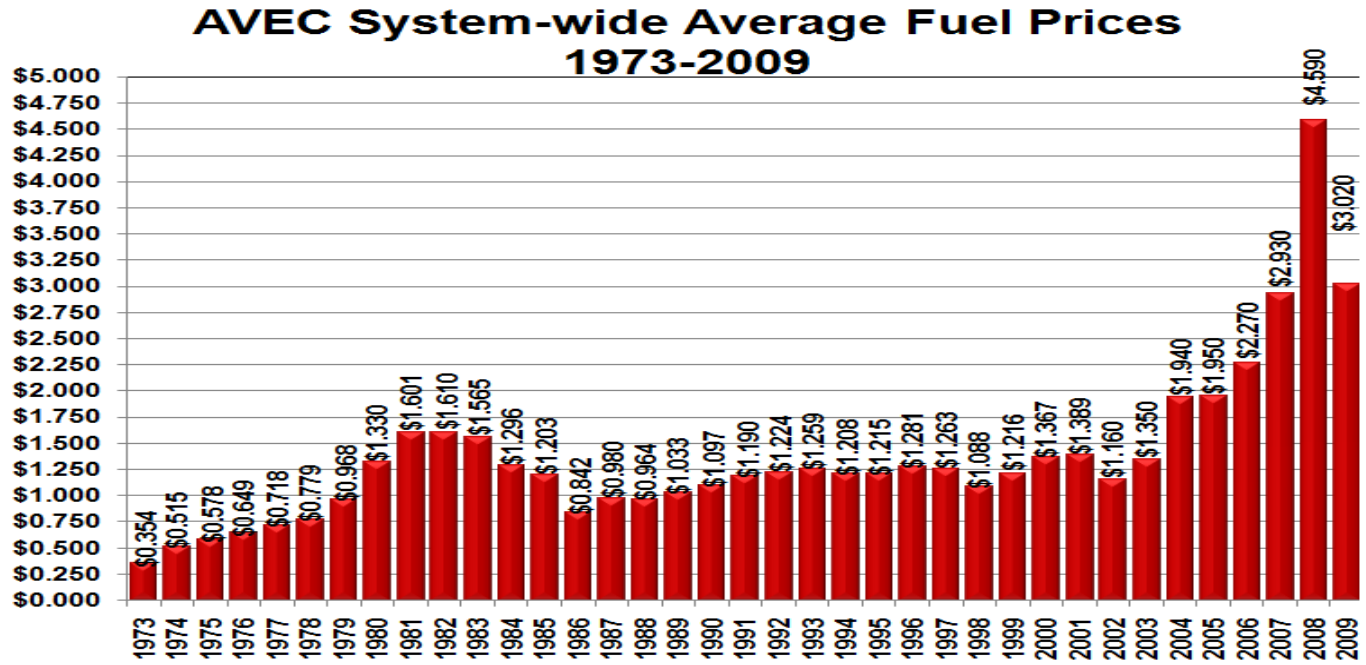
1. **CALL TO ORDER:** Meeting called to order at 12:04pm by Co-chairs Meera Kohler & Ethan Schutt

2. **A Cooperative Approach to Locally Owned Electric Utilities – Meera Kohler, President & CEO, Alaska Village Electric Cooperative (AVEC)**
   - AVEC – A non-profit member owned utility
     - AVEC services 53 villages (22,500 population - 94% Alaska Native) which would be the 4th largest city in Alaska after Anchorage, Fairbanks and Juneau
     - AVEC has 48 power plants, 9 wind systems serving 12 villages, 160+ diesel generators, 500+ fuel tanks, and burns 5 million+ gallons of fuel
     - AVEC has 80 Anchorage-based employees and 95 village technicians
   - AVEC's overarching goal is to improving operational efficiencies and reducing the cost of fuel for its members.
     - AVEC's 2008 Board Goals
       - **Reduce diesel use by 25% (1,250,000 gallons) in 10 years**
         - Install new fuel efficient power plants
         - Utilize wind generation in available locations
           - AVEC needs to install 80, 100 KW, wind machines to displace 1,250,000 gallons of fuel
       - **Reduce power plants by 50% in 10 years**
         - Interconnect another 24 villages
       - **Reduce non-fuel costs by 10% (Already Completed)**
     - The average AVEC village uses 113,000 gallons of fuel a year[1]

[1] Meera Kohler Presentation, 5/27/11, Slide "AVEC 2009 Fuel Use by Village"



- The average cost of fuel in rural communities has grown dramatically over the last 10 years[2]



- Wind Energy Potential
  - Current Challenges to Wind Development
    - Inconstant power generation
    - Small electric loads
    - Remote locations

[2] Meera Kohler Presentation, 5/27/11, Slide 5 "AVEC's Delivered Fuel Cost"

        - Complex logistics
        - Difficult environmental conditions
        - Poor soils in many rural Alaska communities
        - Complex foundations
            - Foundations are hard to construct especially on permafrost
        - Turbulence
        - Low temperatures/Icing
        - Limited turbine options for remote villages
    - Future AVEC Wind Projects
        - Meteorological towers are collecting information in several locations
        - Evaluation of sites for future funding in several more western Alaskan village sites is underway
    - Funding Difficulties
        - Denali Commission and RUS funding is declining
        - State funding is competitive and challenging to administer
    - Cost of installing a wind turbine is about $1 million dollars
        - $350,000 for the turbine
        - $100,000 for transportation
        - The remainder ($450,000) is essentially installation and integration costs
    - Turbine maintenance costs have been significantly less per kWh than diesel generators but AVEC's experience with wind turbines is only 5 years old
- Interconnecting Communities
    - Individual local utilities are having difficulties lowering energy costs for users
    - Benefits of an intertie
        - A lot of logistical advantages
        - The main power plant can be built to power multiple villages
        - A modular standby power plant in a connected village can power both villages during outages, if necessary
        - Makes possible the use of larger renewable and alternative energies
        - Lower fuel costs
            - Larger tank farms = lower storage cost per gallon
            - Lower maintenance and operating costs per gallon
        - New power plants are typically up to 35% more fuel efficient than most current plants
            - Less diesel fuel consumed = lower fuel cost charges
        - Fewer Fuel deliveries
            - Deliveries made to one location instead of two
            - Safer environment because fewer opportunities for fuel spills
        - Quiet villages
        - Telephone service could be more easily extended to individuals along the route by attachment to the poles
        - Availability of electric service along the route could increase the land value
    - Intertie Difficulties & Overcoming Negative Perceptions
        - Loss of jobs in community such as the power plant operator
        - Opening selves up to infiltration from other communities
        - Dry villages connecting to wet villages
- AVEC Barges

    - When Crowley bought out Yukon Fuel in 2005, the Attorney General mandated divestiture of three barge sets to a competitor in order to forestall a monopoly situation.
        - The competitor has not been robust, giving Crowley a virtual monopoly
    - AVEC decided to commission their own barges and contracted with a new entrant, Vitus Marine, to construct two costal/river barges that will be operational this summer
- Conclusions
    - Currently wind, small hydro, and diesel are the only viable energy sources that work in rural Alaska; all the others are either speculative, emerging or unaffordable
    - We must connect communities, improve efficiencies, harness renewables, train local people, use less diesel fuel, and each use less energy

3. **Adjourned: 1:00pm**

4. **Upcoming Meetings (12-1pm, CIRI)**
    - **Thursday, June 2**, Sara Fisher-Goad, Executive Director, Alaska Energy Authority - Overview of the current rural power statistics