

**HAINES BOROUGH**  
**Energy and Sustainability Commission**  
**October 21, 2008**

**1. Roll Call – 6:00 pm**

Members present: Melissa **ARONSON**, Danny **GONCE**, Scott **HANSEN**, Andy **HEDDEN**, Frank **HOLMES**, Gary **LIDHOLM** (late due to rockslide on Lutak Road), Tom **MOODY**

Members absent and excused: Leonard **DUBBER**, Dan **WACKERMAN**

Staff present: Steve **VICK** (Borough Assembly liaison), Stephanie **SCOTT** (Haines Borough Energy & Sustainability Coordinator)

Visitors present: Roger **MAYNARD**, Mike **MACKOWIAK**, Pam **RANGLES**, Jessica **EDWARDS**, Fred **GRAY**, Dan **HARRINGTON**

**2. Approval of Agenda**

**M/S MOODY/HEDDEN** to approve the agenda as amended

Motion carried unanimously.

**3. Approval of Minutes**

**a. September 30, 2008**

**M/S MOODY/HEDDEN** to approve the minutes as submitted.

Motion carried unanimously.

**4. Public Comment**

Pam **RANGLES** stated her interest in a biological sewage treatment system for the municipal system. She said the system is clean and low maintenance.

Jessica **EDWARDS** asked about how AP&T determines “peak” rates when figuring costs for running a generator when Goat Lake is low. **GONCE** said that Goat Lake has a maximum capacity of 4MW, which is the upper limit before the **diesel** generator is used for “peak” levels, unless lake volumes are low. “Peak” energy use is generally predictable but specifically unpredictable. “Peak” happens particularly when the weather is very cold, which freezes more water in **Goat Lake** **run of the river projects, like SEI’s 10 Mile Hydro and AP&Ts’ Lutak and Kasidaya Hydros**, not allowing it for use to generate hydropower. “Peak” also results in higher consumer power demands for heat **during times of cold**. High use times are typically between 4pm and 7pm. **Maybe an interjection for clarification: “Peaking” is when the car’s engine does not have sufficient horsepower to carry the load: the hydro generator does not have the horsepower**

to carry the load: over capacity of the generator or turbine. "Makeup" diesel is like the car that runs out of fuel: there isn't enough water in the lake / stream to turn the turbine: 'overcapacity of the stream / lake or of the grid system'. If diesel generators are used to support higher power demands to ensure that power is available, then power rates are increased to cover that fuel cost. **ARONSON** noted that if users want to diminish peak costs they should use less energy.

## 5. Commissioners' Reports

**MOODY** expressed his interest in researching and reporting on hydroelectric and solar energy topics. **GONCE** expressed interest in hydroelectric, wind, and hydrokinetic energy. **HEDDEN** showed interest in low-emission transportation.

**GONCE** said that AP&T's retail electric rates are changing. High energy users and commercial rates are improving. Users with the PCE will likely see little change.

**ARONSON** noted that she heard AEA director Steve Haagenson on a radio program. Haagenson said that community suggestions for renewable energy projects taken throughout the state, including Haines, will be compiled, and a report will be published in mid-December. This energy report will form the basis for energy project funding recommendations for communities. Technology makes many forms of energy production possible, but practicality limits those options, and communities should benefit from the state's narrowed field recommendations for viable energy projects.

### a. Wind

**HOLMES** spoke of his research on bird mortalities from wind strikes. He concluded that birds die in a variety of ways, particularly birds with nesting sites in close proximity to wind generators. They nest or rest on towers and then take off, ignorant of spinning blades. Although it is estimated that residential bay windows kill as many birds as windmills, it is wise to locate windmills in locations without high concentrations of birds to avoid kills.

**HANSEN** noted that the wind industry is mature and growing, evidenced by recent large wind farms to small, residential power generators. Initial costs are high per kilowatt, but when the unit is in place its operation typically requires minor maintenance. Variable wind areas produce variable power output, so the operator must compensate for variable power levels and storage. Wind power is often coupled with diesel power generation or another more consistent power source.

### b. Biomass

**HANSEN** said that many options for creating and using biomass fuels exist, involving a variety of sources (fish, wood, grains, etc.) and a variety of

high-level industrial processes, but several reasonable options exist locally involving wood: pellets, chips, and cordwood.

Pellets are manufactured largely for residential heat. They require a considerable amount of sawdust, typically taken from a sawmill site. Pellets involve chipping and grinding to prepare the material for hydraulic compression. Pellets are safe, simple, and uniform in size and moisture content, which makes them a desirable fuel source to handle. A number of local landowners in town use pellet stoves. Pellets are available through local stores, and it is possible to get them in higher volume along the road system from Alaska or Canada.

Wood chips are typically used in larger facilities such as schools or in manufacturing, and dozens have been situated on the east coast for years, so wood chip boilers exist with a positive track record. Wood chips can have uniform size, but moisture content varies greatly, and boiler performance and power output are dependent on regular moisture content. Finding wood chips involve chipping and its associated power costs, unless one coordinates with a local sawmill.

Cordwood is a safe fuel and possibly the simplest, least-processed fuel source available – hence its ongoing popularity in residential applications. Cordwood has been recommended for the school project, and the Chilkoot Indian Association has plans for a cordwood-based district heating system. High-efficiency boiler designs solve emissions problems when those products are used. The EPA has condemned low-efficiency, locally-sold, Outdoor Wood Boilers (OWB), and several states have banned them. Alaska is not one of those states. Cordwood also involves a high level of maintenance and handling, and it is not conducive to automatic fuel feed systems.

#### **c. Hydrokinetic**

**HANSEN** reported that hydrokinetic power generation involves water motion, which happens wherever there is moving water. An interesting landmark project was in Ruby, where a vertical-shaft, hydrokinetic, in-stream application produced power in summer 2008. It was installed in the Yukon River, cabled and connected electrically to the bank to keep it from floating downriver. Although the project experienced significant speed bumps along the way they were able to produce dependable power for a short amount of time, becoming the first Alaska hydrokinetic in-river power production application. Few other states have done this. The Ruby project presenters said that the largest obstacles to overcome were site-specific logistical concerns such as anchoring, deadhead logs, and river ice. There is little data on effects to fish – agencies are coordinating with inventors to document what they find. In some applications monitoring is being installed on these projects to establish benchmarks.

**GONCE** noted that AP&T is on the way toward an anchored, subsurface, 100kW system in Eagle. **HOLMES** noted that the Federal Energy Regulatory Commission (FERC) reviews all major and most minor power producing projects, and he has a list of those permittees online.

#### **d. Tidal/Wave**

**HANSEN** said that a number of tidal applications exist throughout the world, mostly outside the United States. The industry is not yet mature, so most projects involve prototypes. Some projects involve wave action based on the beach, wave action out in deeper water, permanently fixed tidal turbines of various designs, and many other ingenious options. **HOLMES** said that many designs break, but the information is being used to strengthen the technology.

**e. Geothermal**

No report given.

**f. Hydrogen**

**HANSEN** reported that hydrogen is a practically unused industry except for the industrial/scientific sector. The Public is unfamiliar with the light, flammable gas. It is a simple element and produces no appreciable toxic output from internal combustion engines - it is a virtually perfect clean combustion fuel because it is molecularly simple, compared to fairly complex petroleum molecules. It can be used in internal combustion engines with fuel delivery and timing systems alterations, much like LP gas. Hydrogen fuel cells allow hydrogen to be stored more stably within a hydride. It is available globally, extracted from water using electrolysis process (electrodes immersed in water and then having high voltage applied to the electrodes), and units are available off-the shelf. Meteorologists and other scientific industries have been generating hydrogen for research for decades. It is still a rather mysterious gas, having an invisible flame and small molecular size, which can pass through some fitting connections. Scams exist where unwarranted claims are made as to its properties, so spurious products exist for sale today. It is definitely a viable source of energy, but as a popularly used fuel it has to make up some distance before being a widespread energy source.

**g. Hydro**

**HANSEN** reported the hydroelectric industry is mature. Haines electricity comes from hydroelectric, a rich resource in Southeast Alaska. Components are modular, designed by engineers using head of pressure and streamflow readings. Picohydros are 1kW-5kW, and microhydros are up to 100kW. He noted that he is currently installing a microhydro system on private property, having in the hours before the meeting set the turbine unit in place. Large hydroelectric has provided electricity for the nation for decades. The power-carrying capacity of falling water is tremendous and worth using if available. Power generation costs are typically between \$1,000 and \$4,000 per kW.

**h. Solar**

**HOLMES** reported that they have operated entirely on solar power for four years. In that time they have used 47 gallons of diesel for the backup generator. This is greatly due to their conservative use of energy. They use both the sun's thermal properties for air/water heat and its electrical generation

properties. He said that typically private projects use solar energy. Sunlight can be focused to increase power output using parabolic reflectors. He uses a bank of deep cycle batteries, and they have to be treated like babies. They need a water check and equalization 5-6 times/year. Their typical life is 7-10 years, with extended times if good care is taken of the batteries.

**i. Low Emission Transportation:**

**HEDDEN** reported on his experience with Chilkat Guides' electric vehicle. Theirs has a 25-40 mile range. They typically operate at low speeds, and some highway speed regulations mandate high-speed vehicles. There is no heat in electric vehicles. Batteries are a weak link and must be managed carefully. Chilkat Guides has had battery issues with their vehicle. Hybrid vehicles exist, though their cost is high compared to standard gas engines. However, some people appreciate contributing to technology instead recouping their costs through energy savings. Chilkat Guides also has propane-powered buses which have been dependable vehicles over the years. Current costs for operating propane vehicles seem about the same as other fuels.

**6. Coordinator's Report**

**SCOTT** said that her points would be discussed under Old Business.

**7. Old Business**

**a. AEA Anemometer Loan Program: Chilkat River sites**

**SCOTT** reported the Chilkat Bald Eagle Preserve (CBEP) Advisory Board's response to wind power generation. Though Pat Philpott's property is not within CBEP boundaries they oppose the placing of windmills on his property outside their boundaries to ensure that eagles and other birds are not endangered.

**GONCE** noted that the FAA reviews tower structures like windmills, and airports very tightly regulate towers placed anywhere close. It is likely that the Valley of the Eagles and Sawmill Hill will not be acceptable sites. Landowners should check out FAA regulations for tower placement to see if their application would pass FAA scrutiny. He recommended other locations than those close to the airport.

**VICK** suggested the Ripinsky ridge near town.

It was also noted from the map provided by Parks that Pyramid Harbor has a documented eagle nesting tree, which would discourage tower placement.

**GONCE** noted that there is a waiting list for anemometer applicants, and some communities are entirely dependent on diesel fuel and are in high wind areas – should the Commission ask to have Haines placed before

those applicants in the waiting list? **SCOTT** said that if the AEA is flooded with requests for anemometer loans they might pour more money into the program – the request should be made to the state. **ARONSON** noted that Commission wind researchers should study potential locations, making sure that practical issues are anticipated. **HANSEN, WACKERMAN,** and **GONCE** are in the wind group.

With general concurrence **ARONSON** agreed to work with **SCOTT** to send a letter to the CBEP agreeing with their concerns regarding windmill dangers to the eagle population.

**b. Wood Heat Feasibility Renewable Energy Fund application**

**SCOTT** reported that the Borough's Wood Heat Feasibility study grant application was submitted and is on AEA's list of applicants, along with the Haines Assisted Living Facility (geothermal) and the Chilkoot Indian Association (district wood heat). Funding notification will be made in mid-December.

**c. Skagway Hydro Project**

**SCOTT** reported that Skagway is interested in an intertie with Canada. **GONCE** said that the Skagway Borough is concerned about pollution brought in by cruise ships and wants to install a hydro on West Creek, requiring the ships to connect as part of their docking agreement to fix the problem. He said that they generate about 7MW while in port, and that figure doubles when they are underway. This means that they could power Haines or Skagway handily while in port. West Creek can handle about 25MW, mostly in summer. Canada has said they have an extra 30MW with summer flows, so an intertie seems feasible.

**SCOTT** said that Haines may be part of a political equation and recommended that the Mayor be involved with Skagway instead of the Commission making a recommendation.

**d. Connelly Lake**

**SCOTT** reported that Stan Selmer was not available for this meeting but may be able to attend in November. She said that AP&T has submitted a Coastal Project Questionnaire (CPQ) to the state Ocean and Coastal Resource Management office. The CPQ is a permitting document for a proposed Connelly Lake hydro. **HANSEN** noted that a 50-day public process is part of the permit application. **GONCE** noted that Selmer is out for health reasons.

7:35 Recessed

7:45 Reconvened

**e. Logo, slogan for press releases, tips**

**LIDHOLM** asked for basic comments regarding a Commission logo for public relations. Brainstorming brought the following topics: wood, water, solar, local, options, green, renewable, unifying, community, community-based,

saves \$, work for everyone, atomic, independent, self-reliant, lightning bolt picture, “working toward a sustainable future”, “Renewing the future,” independent, reliable, secure, vision for the future. **VICK** indicated that he has training in graphic design and would be willing to participate in crafting a logo to bring back to the Commission.

**f. Weekly KHNS “Energy Talk,” 8:45-9:00 Mondays**

**SCOTT** reported that an energy talk has been scheduled for the radio. Topics include: understanding power, power measurements, understanding payback –“cost/benefits for appliances, energy wasters, Compact Fluorescent Lights, large users, reductions in the kitchen/laundry/bathroom.

**HANSEN** suggested that listeners might enjoy hearing testimonies of their renewable energy generation experiences on the radio.

**M/S HEDDEN/MOODY** that the Commission approve an “Energy Talk” on KHNS once a week.

The Outreach Committee was called upon to propose a draft schedule for the next meeting.

Motion carried unanimously.

**g. Energy Consumption Charts**

**SCOTT** complimented Borough staff on well-organized, accessible records. She expressed her frustrations with entities leasing Borough facilities because they haven’t been able to or willing to provide energy data going several years back. She suggested that those facilities be removed from cost calculations.

In 2007 \$750,000.00 was spent on energy by the Borough for public buildings. Electricity costs are conveniently arranged in monthly statements, but oil fillups are not monthly, and staff is still trying to compensate for the inconsistent records.

It was generally agreed that monthly comparative cost pie charts, showing several individual years side-by-side, were effective in showing increases in facility consumption between years.

It was also generally agreed that yearly depictions showing overall costs were helpful.

**SCOTT** suggested a chart showing projected goals so that as the months go by those goals could be compared against the actual numbers. Numbers also showed that school costs have increased since construction of the new facility, including not using the elementary or primary schools.

## **8. New Business**

### **a. Emergency Plan to conserve Fuel 30%**

Discussion revolved around obtaining energy data from facilities not managed by but still owned by the Borough. **SCOTT** suggested that, since lessees finance all costs associated with the facilities and the Borough is free of those costs, the buildings shouldn't be counted in the overall energy analysis.

**M/S MOODY/HOLMES** to ask Assembly liaison **VICK** to request to the Assembly to allow the following facilities currently not managed by the Borough to be exempt from statistical analysis and energy reduction goals of the Commission: Senior Center, Klehini Valley Firehall (KVFD), Human Resources (HR) Building, and the Haines Airport building currently operated by Wings of Alaska.

**SCOTT** noted that data is not forthcoming from them, the Borough doesn't have control over energy consumption habits, and the Borough has no control over the energy budget for those facilities. **GONCE** recommended the need to oversee the HR building. **HANSEN** said that the Borough is liable for all the buildings and should have an accurate understanding of the condition and energy needs of the buildings. **SCOTT** said that lessees aren't putting much energy into producing past consumption figures for the Commission. Also, KVFD is operated by IPEC, who is having problems producing energy use figures. The Senior Center numbers have all come in. She noted that if operators can be made to produce the data, perhaps with a letter from the Assembly, it might work.

Motion carried unanimously.

**SCOTT** reported that she'd been working with the Haines Emergency Local Planning (HELP) committee to see how energy consumption is affected by local emergencies, such as a severed submarine cable. They suggested that the Commission offer recommendations for a checklist for the HELP committee. using two books: Saving Oil in a Hurry and Saving Electricity in a Hurry. **GONCE** and **MOODY** expressed interest in assisting the HELP committee.

**M/S HANSEN/HEDDEN** to form an Energy Plan Subcommittee to draft Emergency Energy Plan recommendations for the HELP committee.

Motion carried unanimously.

### **b. Collaboration with High School Science Teacher Mark Fontenot's Chemistry Class to prepare an Energy Audit for the School District and a Conservation and Efficiency Plan**

**SCOTT** reported that she'd been talking with public school superintendent Byer regarding the audit of school facilities and would be open to Commission participation in the effort to teach schoolchildren about energy principles, conservation, and auditing processes. **ARONSON** and **HOLMES** volunteered to be involved with the seven-week process. Meeting dates to be announced.

**c. Municipal Employee Energy Saver Recognition**

**SCOTT** announced that Borough administration employee Cathy Keller had identified electrical charge bookkeeping errors that led to a savings of almost \$10,000.00 for the Borough. There were areas, including the sewer plant, that were supposed to have a PCE credit but did not. **SCOTT** recommended some sort of positive recognition.

**M/S MOODY/HEDDEN** to send a certificate of recognition to Cathy Keller for recognizing and correcting such significant energy cost savings for the Haines Borough.

Motion carried unanimously.

**d. Pickens Pledge/Plan**

**M/S GONCE/HEDDEN** to table the issue until the next meeting.

Motion carried unanimously.

**e. Energy Fair**

**SCOTT** mentioned that January is probably the best time for an energy fair. **HANSEN, ARONSON,** and **LIDHOLM** volunteered to join **SCOTT** to help organize the schedule.

**f. Haines Sewer Treatment Plant energy consumption**

**ARONSON** encouraged the Commission to consider Gershon Cohen in his search for support for a project to derive energy from sewer gas in the municipal sewer facility. **HANSEN** asked if Cohen has information to share with the Commission regarding the system, rather than bringing a new presentation at the meeting. Typically a public body reviews ideas before committing them to an agenda. **SCOTT** said she's endorsing the project. **LIDHOLM** asked if he was bringing the same proposal for a solar aquatics project that the Borough dropped a couple years ago. **VICK** encouraged the Commission to at least hear any possible renewable energy proposal. **ARONSON** noted that Cohen would be on the agenda of a future meeting.

**9. Public Comment**

Fred **GRAY** thanked the Commission for dealing with so many issues. He noted that Delta Western would be supplementing a portion of the fuel in their delivery truck tanks with biodiesel as a pilot project. He also expressed his objection to an article appearing in the Commission packet from Lynn Canal Conservation's (LCC) newsletter opposing a mine project. **ARONSON** said that though the development project referenced in the LCC article did not pertain to meeting business the Commission is interested in exposure from a variety of entities.

Dan **HARRINGTON** thanked the Commission for good work. He recommended that 2-3 Commission members closely follow the Connelly Lake hydro project. He said that hydro is the best energy generation source for

Southeast. The overall impacts are comparatively low, and the amount of power generated is such that very few projects need be developed, compared to the number of other low-power sources required to link together the same amount of power. He said that if the Commission takes an active look at Connelly Lake then misinformation that typically comes can be countered with reasoned understanding.

Roger **MAYNARD** thanked the Commission for hard work and recommended that they become a driving force in Haines by endorsing the best energy-producing projects. He recommended the Commission endorse the Connelly Lake hydro project as good news. He said that much energy can be spent on conservation, but future energy needs will need the right energy production solution. There will be more population and more need for energy, which is naturally filled with hydro in Southeast. He said that small alternative energy projects added together make up more work than one larger hydro project.

**10. Commission Comments**

**11. Next Meetings:**

- a. **Commission** - Tuesday, November 18, 6:00pm in the Assembly Chambers.

**12. Adjourn**

**M/S GONCE/HOLMES** to adjourn.

Motion carried unanimously at 9:20pm.

Respectfully submitted,

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Scott **HANSEN**, Recorder