



**ENERGY COMMITTEE AGENDA - Amended  
Regular Meeting  
Monday, April 17, 2017 6:00 pm  
City Hall Council Chambers, Bethel, AK**

**Members**

Jody Drew  
*Chair*  
Jody\_drew@yahoo.com

Shari Neth  
*Vice-Chair*  
Shari\_neth@lksd.org

Richard Robb  
*Council Representative*  
rrobb@cityofbethel.net

Jeff Sanders  
Jeeeco2004@yahoo.com

Juan Delgado  
Juandel@gci.net

Alternative Members:

Need Two

**Ex-Officio Member**

John Sargent  
Recorder  
543-1386  
[jsargent@cityofbethel.net](mailto:jsargent@cityofbethel.net)

- I. CALL TO ORDER**
- II. ROLL CALL**
- III. PEOPLE TO BE HEARD** – Fifteen minutes per person
- IV. APPROVAL OF AGENDA**
- V. APPROVAL OF MEETING MINUTES**
  - a. Regular Energy Committee Meeting- March 2017
- VI. OLD BUSINESS**
  - a. Alternative Energy Report Update
  - b. Water-applied coating to pool as energy saver and update on meeting with Parks, Recreation, Aquatic Health and Safety Center Committee
  - c. Review and discussion of conditional use permit for dry toilets
  - d. Energy audit report for city buildings
- VII. NEW BUSINESS**
  - a. City of Bethel UPS or battery back-up systems (Juan)
  - b. YK Fitness Center wind turbine purchase
  - c. Energy Ideas for YK Fitness Center and Other City Buildings
- VIII. COMMITTEE MEMBER COMMENTS**
- IX. ADJOURNMENT**

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# City of Bethel

## Energy Committee

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March 20, 2017

Regular Meeting

Bethel, Alaska

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### I. CALL TO ORDER

A regular meeting of the Energy Committee was held on March 20, 2017 at 6:00 pm in the City Hall Council Chambers, in Bethel, Alaska.

Chair Jody Drew called the meeting to order at 6:07 pm.

### II. ROLL CALL

Compromising a quorum of the Committee, the following members were present for roll call:

Jody Drew  
Shari Neth  
Rick Robb  
Juan DelGado  
Jeff Sanders  
John Sargent (Ex-Officio)

### III. PEOPLE TO BE HEARD

None

### IV. APPROVAL OF AGENDA

<b>MOVED:</b>	Rick	Approve Agenda as presented.
<b>SECONDED:</b>	Shari	
<b>VOTE ON MAIN MOTION</b>	All in favor Motion passes; 4 and 0 opposed.	

### V. APPROVAL OF MEETING MINUTES

- a. Regular Energy Committee Meeting, January 16, 2017

<b>MOVED:</b>	Jeff	Approve Meeting Minutes of January 16, 2017 with one change: Take out part about "Jeff to call company."
<b>SECONDED:</b>	Rick	
<b>VOTE ON MAIN MOTION</b>	All in favor or Motion passes; 4 and 0 opposed.	

### VI. OLD BUSINESS

- a. Alternative Energy Report Update  
Update on what members knew about energy projects. It was stated that AVEC's new EW 900 kw wind turbine is coming on the first barge to Bethel. Recovered heat is still an easy project for the City to investigate and promote. YKHC heats the PATC building until the new PATC building comes online. The PATC building had recovered heat to it.

John to get info. From YKHC on their recovered heat contract; find out the formula for charges that AVEC is using. How much will engineer costs be to assess what it takes to reconnect to waste heat?

Does Public Works Department need Energy Committee's help to implement the City building energy audit improvements?

- b. Water Applied Coating to Pool as Energy Saver  
Brian Lefferts was supposed to make some calls and gather information on nano coating. Jeff to discuss with Brian what Brian found out.
- c. Review and discussion of conditional use permit for dry toilets  
Jody met with City Planner Ted Meyer and Attorney Patty Burley. A sample sanitation permit was found for Burnett County, WI.

A draft of sanitation permit was handed out by Jody. The use of dry toilets is a proven technology; it's not experimental anymore. Council may want to consider dry toilets a pilot project or demonstration project and then to revise the City ordinance to accommodate dry toilet inclusion.

A joint Planning Commission/ONC meeting to be held at Log Cabin on March 30, 2017. Jody to address the Commission and explain the use of sanitation permits to those present.

Plan is to implement the sanitation permit without the need for an ordinance change. Idea is that an individual can take a completed application for a sanitation permit to the Public Works Committee during one of their meetings and get their approval for the use of an "innovative technique."

Dry toilets cost about \$925 each.

- d. Energy Audit Report for Buildings  
John needs to send City building energy audits to all members again and give them a hard copy.

## **VII. NEW BUSINESS**

- a. City of Bethel UPS or battery back-up systems (Juan)  
Juan tried a few times, but was not successful, in getting with City Maintenance Foreman Gary Poe to access City buildings so that he could look at electric panels.
- b. Energy Ideas  
No new ideas expressed.

## **VI. COMMITTEE MEMBER COMMENTS**

Comments of note: There are new solid state lithium batteries that run in cold weather. These can be helpful for the City to use.

**VII. ADJOURNMENT**

<b>MOVED:</b>	Shari	Adjourn meeting.
<b>SECONDED:</b>	Jeff	
<b>VOTE ON MAIN MOTION</b>	Motion passes; 5 and 0 opposed. Meeting adjourned.	

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Jody Drew, Chair

ATTEST:

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John Sargent, Recorder

**City of Bethel  
Energy Committee  
Renewable/Alternative Power Options  
Updated April 17, 2017**

<b>Project</b>	<b>Description</b>	<b>State of Development (Timeline)</b>	<b>Pros</b>	<b>Cons</b>
1. <b>Wind</b> Energy Construction Project (AEA & Denali Commission funding)	AVEC to spend \$5 million+ to buy two EWT 900 kw wind turbines, for Bethel and St. Mary's.	Turbines ordered. Will be here for 2018 installation. F&W said, "No" to White Alice site. Negotiating with BNC for another BIA Rd. location.	Potential to lower the increase of electricity cost; demonstrates use of 900 kw or larger turbine in rural Alaska; will allow more alt. energy to be connected to grid.	More telephone poles have to be installed near BIA Road site to get electricity from production to grid (cost);
2. <b>Recovered Heat</b>	About \$450,000 spent of \$675,000 study money. City requested that study engineers evaluate City buildings to determine what improvements have to be made to make City buildings able to accept recovered heat.	Conceptual Design Report completed (35%). Considering the use of steel pipe over HDPE.	Savings over exclusive use of heating oil; AVEC has ability to recover exhaust and turn it into water heat to sell; City given rate it would be charged: 30% below heating fuel cost for PCE buildings and 50% below heating fuel cost for non-PCE buildings.	Price of recovered heat has risen over the years, lowering the benefit; heat may not be hot enough to heat building effectively with other demands on the system; cost of equipment and installation on City side of pipes.

<b>Project</b>	<b>Description</b>	<b>State of Development (Timeline)</b>	<b>Pros</b>	<b>Cons</b>
<b>3. Gasification</b> unit to power public works building, power aerators at sewage lagoon, or work in conjunction with wind farm run by AVEC.	Burn municipal solid waste in super-hot incinerator (gasification unit) to create electricity and get rid of waste.	Planning stage.	Electricity may be cheaper; solid waste reduced to 5% ash; can provide power to a City building; If located at landfill, close to PW bldg. or potential wind turbines behind recycle center.	Potential high costs: air monitoring, heating oil to fire it, City manpower and resources to operate it.
<b>4. Kinetic Energy</b> from Kuskokwim River	Turbines placed on old barge and sunk to bottom where the river movement generates electricity or turbines on underside of floating barge. Barge can be taken out for winter and inserted every spring.	UAF did a study 4 years ago on the Kuskokwim in Bethel. Need a copy of that study.	Potential for cheap source of power; Power lines emanating from the river need a place for power to go: into grid/buildings; may work under ice perfectly with little disturbance from above.	Shallow river may not lend itself to ideal locations for sunken barges; maintenance costs unknown; may be river navigation hazard; may have to remove for winter.
<b>5. Sewer System Operation/Ordinance Energy Saving Measures</b>	Change ordinances; recommend energy saving measures in the way the City provides sewer services or the way residents live.	Committee to work with Planner to develop sanitation permit for dry toilets.	Residents who purchase and manage qualified dry toilets can save the City energy by NOT having City evac. at all or evac. less often.	Hard to regulate; questions about waste product, DEC disposal rules; can't go to dumpsters; must be buried on-site.
<b>6. City Building Improvements</b> , per 3 energy audits.	City Hall, City Shop, and Courthouse Energy Audits have recommendations and costs.	Public Works Shop has all new LEDs.	Electricity cost savings; bite off small pieces within budget and purchase/install with Prop. Maint. Division.	Source of money for the larger items; Long term outlook might need short-term sacrifices.
<b>7. High Voltage Direct Current</b>	Construct natural gas power plant on north slope and run high voltage power lines to communities in Alaska.	No traction on this project. Meera Koehler of AVEC was pushing this idea around the State.	Easier to generate power in one place near the source for that power and send it around the state with high-tech lines that reduce line-loss.	Expensive to fund and build power plant; ownership? Need for state-wide plan; a lot of players need to be involved.



**Aldrighetti, Bill**

John,

I am not sure what you are looking for as far as supporting info with regard to technological upgrades don't to the turbine.

Your understanding of STGs bulk purchase is correct but it is important to understand there are not major technological differences between the 100B (Bethel owns 1) and the 100C (NPS newest model). Both turbines utilize the same generator and power converter technology utilizing many of the same parts between the platforms. The major difference is the rotor diameter. The 100C turbine utilizes a 24M Rotor, this rotor is available for the 100B turbine as well. The unit that STG sold to BSI was a new (not used) turbine. I am not privy to the details with regard to the sale of the turbine, storage of the turbine or any other ancillary details related to the financial transaction that took place between BSI and STG. I can tell you the 100C turbine was not available for public sale at the time BSI purchased the unit from STG. The 100C platform was released for public sale in 10-2014, the Bethel pool was commissioned 6-30-2014.

Please let me know if further clarification is required

- The turbine installed at the Bethel pool was indeed a new unit
- There was not 100C (newer model) turbine available when the transaction was completed
- Northern Power Systems was at that time an OEM only, not a developer

Please let me know if a call is required to help you better understand.

Respectfully,

**Bill Aldrighetti**  
**Customer Operations Manager**  
**Americas/Asia**  
**Northern Power Systems**  
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**29 Pitman Road**  
**Barre, VT 05641**  
**USA**

Bill, would you please provide me with a timeline for the technological upgrades done to you Northwind 100 wind turbines from 2013 to present. I would love to have the energy efficiency improvement outcomes as a result of each technology improvement also, if you have it.

I have come to understand that STG bought a large quantity of wind turbines from you in advance and kept them in their yard, waiting for installation and purchase contracts. Along comes the Bethel pool project and we have Project Development Associates serving as our project managers. We hire BSI (Bethel Services, Inc.) to be the contractor and construct the pool facility that included the purchase and installation of one 100 kw wind turbine. STG was hired as a subcontractor to BSI.

In brief, we understand that instead of ordering the newer, better, more energy-efficient model of NW 100 wind turbine, STG used one of the ones laying in their yard for three years and installed it in Bethel. We got the older technology turbine, NOT the newer technology turbine.

Our new pool facility did NOT get a new wind turbine. We got an older, outdated model.