

Town of La Pointe
Alternative Energy Committee
June 17, 2015

Members present: Larry Bean, Chair; Tom Banner and Glenn Carlson; Burke Henry by speaker phone.

Members absent: Carl Frederickson

Present by speaker phone:

John Carroll, [Illinois Propane Education and Research Council \(IPERC\)](#); Scott Robinson, Chippewa Valley Alternative Energy (CVAE), Mike BeBeau, Xcel Energy and Deb Irwin from Xcel Energy, Madison representative.

Public present:

1. Call to order.

The Alternative Energy Committee meeting called to order by Chair Larry Bean on Wednesday, June 17, 2015 at 1:03 pm at the Town Hall. A quorum of the committee is present as reflected in the members listed above.

2. Regulatory and Infrastructure Considerations:

Conference Call with John Carroll, Mike BeBeau of Excel Energy and Chippewa Valley Alternative Energy.

Larry said the purpose of this conference call is to discuss with Xcel Energy some of the issues we might face as we move ahead with the project. At the conference call held on Wednesday, June 12, 2015 we discussed refining the project down to just the facilities from the Materials Recovery Facility (MRF) to the Emergency Services Building (EMS) to the Winter Transportation building (WT) to the Town Hall as possibly being one separate microgrid with a solar installation on the closed landfill cap, a wood gasifier near the EMS and a solar array behind the Town Hall. Across the street, separate and not connected to the first microgrid would be the Library, Medical Center and School. The Library has expressed interest, and Larry met with the Medical Clinic Board and staff this morning and they are supportive, but they acknowledged that their building is owned by the Town so the decision would have to be made by the Town. The School was recently added and is not included in the materials provided by CVAE. The reason the Bayfield School is being added is because the school is designated as an emergency shelter. The School, Medical Clinic and Library all share a well. To be noted, the school is a separate customer, part of the Bayfield School District and not the Town. The committee also suggested deleting or delaying several areas CVAE included in their study: 4kW at the Town Park, 30kW at the Airport, a 4kW pump the area by the Town Dock. Also included in the delete/delay is the 100kW Madeline Sanitary District. The Sanitary District is a separate customer.

Looking at John's diagram labeled Phase 1 Microgrid Controller Locations the 35kW solar in the center of the map is not planned to be there unless the array at the landfill is not efficient. Also, the diagram shows a 26kW solar array at the lower left hand side that would serve the Library and Medical Clinic. The School is now added to that. There is also a connection shown that we want to discuss.

John asked that the diagram with the blue lines and yellow points is the diagram where the 35kW solar would not be included? Larry said that is correct. John asked if the 60kW solar array

would be available to the microgrid as well as the 80kW biomass generator. Larry said the 60kW solar array would be available. The committee is discussing the 80kW biomass as we are not sure this is sized the way we want it and we are also concerned about fuel availability and cost.

John asked if the biomass generator would go away or just be smaller in size. Larry said both options are on the table.

John asked about the 166 Combined Heat & Power. Larry said that is the biomass wood gasifier which is the combined heat and power unit which would be located closer to the EMS building, near the 35kW solar array as shown on John's diagram. There would be no other combined heat and power at the windsled building other than the wood gasifier that appears to have been identified twice from our perspective on John's diagram.

John asked about the 21kW and 27kW solar arrays. Larry said the 21kW would stay but the 26kW would be twice the size, about 52kW if the School became part of the project. If just the Library and Medical Clinic were involved, that would be a 26kW system. To be noted, we just started talking to the Bayfield School District because the Town has designated the school gym as an emergency shelter area; one of the ancillary benefits of this project is security, reliability and emergency preparedness. The Superintendent of the school agrees that the School should be included and gave Larry the name of a point person who has not responded to his emails. There is nothing on the site now but there is a 17kW propane backup generator behind the Medical Clinic. There are no solar arrays on the Island at all. We have been discussing putting in place a solar array with microgrid capability.

Scott, CVAE said if the 35kW wood gasifier were 460volts you could go to 40kW and that can easily be coupled to a 35kW UPS so it could automatically start recharging batteries, if you wanted that to be tied into John's switch gear. It will automatically start the fire to charge the batteries when they reach a certain amount of discharge and you could heat the building at the same time.

John asked about available generators. Larry said there is an unused, unhooked up 17kW propane generator behind the Town Hall; two 25kW generators at the EMS and WT buildings which are very close to one another and a 17kW propane generator that is used and hooked up at the Medical Clinic. All are run by propane. John asked about the availability of propane. Larry said the propane has to come across on the ferry. There are two vendors on the Island that the Town is not currently purchasing propane from. Last year the Town brought in a new off Island vendor, Midland and that required new tanks. Do not know if the Town purchased the tanks or if the tanks are leased from the Midland. With the new tanks there should be enough storage for when the propane cannot come over by ferry in the winter.

John said he needs the types of building that are in the project and the maximum load at each building. Need to find the peak load. Mike BeBeau, Xcel Energy said that data is only possible if the customer is a peak demand customer which the Town is not. Scott said he checked and found out the meters are not capable of registering peak loads.

John asked about the landfill. Larry said the MRF, or landfill has a large load that includes compactors, balers, glass crusher and aluminum. The MRF is open to the public 4 days a week in the summer and 3 days a week in winter. The machinery also runs on some of the days the MRF is closed.

John said the list of the intended loads includes the Library, Medical Center, WTC, Town Hall, MRF and possibly the School. Larry said there is also EMS that is a big building with 5 large doors for the fire trucks, ambulance, and offices. The WT and EMS buildings each have

hydronic floor tubing in the floor, that is unused which is why we want the combined heat and water instead of propane for those buildings.

John said when he comes for the site visit he would like to see the load for each building, see the generation, and look at the planned solar array location and, if possible, identify the max load that each building draws. The reason for this is because with a microgrid you need to ensure that there is available generation for the critical load that you identified. That is why that value is important. Once we know the total load of the microgrid then we can ask the question: do we have enough generation?

Glenn said to be noted is that the Library is in the process of installing central air. The Library has high usage in summer but on the other side is the School is out in summer so this could perhaps balance the increased usage for central air at the Library. Larry said the figures do not reflect the insulating that has been done at the Library. Glenn said the Library is putting a new roof on this year. John asked, in the case of an emergency, and the microgrid had to spring into action, how critical is central air to the Library? Agreement by the committee that central air would not be essential.

Larry said he will have the sq footage of all the buildings when John comes to the Island. Glenn said Xcel pointed out to us is how striking it was that Xcel did not see the peak summer use on the Island as elsewhere and how several people have remarked at how level our consumption graph is year around.

John will do some research, look at the spreadsheets Larry has sent to see if he can find some max peak loads for the buildings and put together a quick spreadsheet that shows the load generation. Next week he will look at each building with the Town Foreman and rough out a budgetary price, which includes financing, calculated payback, etc. This project is not dissimilar to thousands of communities around the country. Solar planning is very common.

Larry asked if we did the Library, Medical Clinic and School as a separate microgrid would there be any tie to the utility? John said there could be. We need to find out where the utility lines are and assumes that each building has a distribution map so there is a utility grid there. During an installation we have to make sure we totally isolate properly from Xcel's grid so there is no backfeed for safety reasons. That is very important. Have ensure those three buildings end and reconnect to their grid properly and safely. What happens is that our controls would sense the loss of the utility grid and immediately the controls would look to the generation that is available or brought online. Once that generation is available, the controls would begin to sequentially step through each of the isolating breakers, transfer switches, etc to ensure that we are properly isolating around those three buildings until the microgrid itself began the generation inside itself. The microgrid would continue to operate that way with that fuel source until the Xcel grid comes back. Then the controls would sense that the grid is back and would monitor to access the stability of the grid, voltage, etc and then would reverse the order until the final transfer switch back to the grid.

Larry asked about excess production. John said without knowing the size of the load you might have excess generation. Do not know if you could sell back the excess. If you do not need the excess you have be properly balance load vs generation so will need to look at the loads and the generation so as to not generate excess capacity. Another thing you could do is put in storage. Glenn asked if a microgrid would allow us to do net metering as a microgrid sounds like it is on/off power but his assumption was that was that financially we were going to make this viable in part by selling back power to the utility when we do not need it.

Deb, from Xcel said net metering needs more discussion. In general you would be able to net meter a particular installation, against a specific load. Basically add a signal feeder point and you under our tariffs you would get credit for that generation at that installation at that resale rate equivalent up to that load's annual amount. There was one reference to an ability to overgenerate by 20% and get credit for that at the resale rate but that is not actually the case. It is 100% that you would get credit at that resale rate equivalent and that is for a specific load at a specific resale meter served by Xcel Energy. From the discussion it seems like you are thinking about combining a couple of loads for a signal installation such as the Medical Clinic and School. With those being separate loads on separate meters you would not be able to have a singular installation that would be serving both of those and getting credit for those at two separate locations.

Scott said the Town owns the land so if you had an installation that happened to be physically touching or close together but the wires off the solar array were separated into two loads and the wire runs over to the meter socket at the school, for an example. So each meter socket would have its own solar array. Deb said she could see that essentially working but would not know how or who would own the installations. The net metering is applied to the school as a customer if they wanted to own a net metering installation, or the medical clinic if they, as a customer would want to own the installation so it would be the case some other entity like the Town who could own the installation, and be another player in that because the net metering tariff is for the customers to offset their own usage. Glenn said we need to sift through the tariffs and ownership structure. Do not see that being a huge burden as long as the technological ability exists to do this.

Thank you to Deb for this information.

Larry said he thought of the microgrid as a standalone, no longer connected to the utility, so thank you for clarifying this, John. Also, we have a lot of meters on our facilities is there anyway would can combine meters? Deb said she does not know the structure of our meters. Larry said, as an example, the Medical Clinic and Library are both Town properties and are right beside the other. Could there be one meter? Mike said he would have to follow up as he does not know if our tariff says that an individual building has to have a standalone meter or not. Deb said there is language in the tariff that talks about the customer offsetting use at the same site and depending on how physically separate these sites are might not mean they are the same site. Larry said the buildings are about 50ft apart and do not cross the road. The Town pays the electric bill for both buildings. Glenn said only the Town's name is on the bill with a sub line for each facility. Mike said there could be costs involved at the Town's end because the two facilities would have to be tied together where right now they are not. Deb does not know if the cost of that would justify one meter. Mike said the switch gear could be a cost savings.

John said ownership is a big question. In some places towns are permitted ownership, in others, not. Is there any sense of ownership here? Larry said no, we have been operating under the assumption that the Town would own it. Scott said there are different tariffs such as crossing roads. He understands you cannot cross the road with solar power. If you are a generator, you can cross the road. There are many different tariffs. That was what happened at the Town dock. If the Town was the generator the Town could do it, if the Town was not the generator we could not cross the road. Deb said net metering is not the only tariff we have. Net metering allows you to offset the usage in real time; other tariffs would have you as a generator selling the output to Xcel Energy and those would have different configurations and requirements – you would run into problems with siting, biomass generators and trying to serve a load in another place that is

not in close proximity. If you are selling the output to Xcel, that is pretty straight forward but you would have to look at pricing for that. Scott said the law just changed by the PSC on the rate went from 3.5 cents to 2.5 cents if you were trying to sell excess generation. Deb said there is a tariff where you can sell excess energy at a rate that is based on the market wholesale energy rate which is updated every year. Market prices change.

Scott asked if the Town ran the wood gasification unit in the winter because of the heat value generated at night, this would be a non metered scenario and with the microgrid capability could we just switch off the grid and only generate power for the Town with no intent to sell back any excess with the microgrid. Deb said in theory this sounds doable. If you do not intend to sell to Xcel, you can use the excess yourself on that site at that generator using the appropriate controls. Larry said that is the image he has of the this project. We would produce our own power with no intent to sell the excess. Deb said in general you can generate your own power and offset your own usage. That requires management, controls, etc. Scott said if we start the project out by putting the solar in and net meter and we were able to actually reduce the amount of electricity from an outside source would we be able to switch back and forth under these requirements, a hybrid system. We start out with net metering with the capability of switching off the grid, because we have the ability to provide power especially for manmade or natural disasters, or in the winter months in order to reduce the propane consumption if heating the WT and EMS buildings, there could be a case where we were producing a little more power but do not want to sell it back, we just want to switch off the grid. Is there a tariff that deals with a hybrid, where, with a microgrid, you could switch off the grid for a couple of buildings to save power, or, in the case of an emergency? Deb is pretty sure that there are no tariffs that deal with this scenario. You would have to demonstrate that your controls would do what you say they would do. There are no tariffs established for a microgrid at this time. That would have to be worked through.

John said we need to discuss terms of ownership, also.

Any more questions? None.

Larry said John will be here Monday afternoon and on Tuesday there will be a building site survey. Scott said in regards to peak loads, MRF would be the highest. They could clamp on and see what peak amps are when the glass crusher and compactor run. Larry will talk to the Foreman and see if we might have that option. John asked if there is a map of the installations that show switch gears, etc. Deb said Xcel might not be able to provide that because of the critical infrastructure sensitivity. Mike will see what he has. The Island is connected to the mainland with new submarine cable from the Bayfield substation which is served by separate meters but he is not sure of what he can provide.

3. Set next meeting and agenda. No discussion.

4. Adjourn.

Motion to adjourn by Glenn, second Tom Banner. All in favor, all aye. Motion carried.

Thank you to all for participating.

Meeting adjourned at approximately 2:15pm

Minutes taken from recorder and respectfully submitted by Kathy Erickson, Clerical Assistant

Minutes approved as presented August 27, 2015