

SPECIAL TOWN BOARD MEETING

BIODIGESTER

JUNE 5, 2013

Minutes of a Special Town Board Meeting held on the above date beginning at 2:00 pm in the meeting room of the North Elba Town Hall, 2693 Main Street, Lake Placid, New York.

Members Present: Supervisor Politi, Councilman Miller, and Councilman Doty

Members Absent: Councilman Favro, Councilman Rand

Others Present: Larry Straight, Shannon Porter, Tammy Morgan, Zywia Wojnar, Ryan Davies, Bill Meyer, Christine McKiernan, Sean Morgan, Michael Morrison

Supervisor Politi opened the Special Town Board meeting at 2:00 pm by asking everyone to stand for the Pledge of Allegiance.

Supervisor Politi asked Laurie Dudley to read the public notice which was properly published and posted.

PUBLIC NOTICE

Please take notice that the Town of North Elba will hold a special meeting on June 5, 2013 at 3:00 pm at the North Elba Town Hall, 2693 Main Street, Lake Placid, New York, for the purpose of discussing the biodigester.

Councilman Miller – Tammy Morgan is here to speak to us about plans for the biodigester. They are further along in the process and to see if the Town is on board. It's all you, Tammy.

Tammy Morgan – Christine should be here momentarily. I just spoke with her and she is in route. She is from Bioferm so she can answer a lot of the questions that may come up during the conversation. It is important to recognize the stakeholders that we are bringing to the table. We have the Town Board, Larry Straight and Shannon Porter from the Transfer Station, Zywia Wojnar who is representing Cornell University, Ryan Davies who did the assessment of the land application piece of the project representing Earth Science and Engineering, and Bill Meyer from Casella. It is important to note that I am an independent researcher. I have no ties with any businesses or any Town affiliation per say. I am bringing the stakeholders together because this project has a lot of meat to it but it needs to have some authority behind it. The purpose of this meeting is to create authority or at least get that conversation going. I hope everyone got a copy of the handout. This started off as a project that was presented to me as an intern. I was presented with the idea to find something that bothers you about your community and try to fix it. There were two things combined; one, working with the local farmer I noticed that there was no way to get potting soil or fertilizer locally on a large scale. The small time person that wants potting soil has to go to Vermont to get it. Secondly, we could be making a lot of it and farmers make some of it but not enough for their needs. We could be making it if we looked at what we are throwing away. We are throwing away a lot of food waste especially in this region because we have so many restaurants in the tourism industry. We also have prisons that are producing a lot of organic waste. In putting those two together I started looking at how could we take all of our organic material and turn it into a marketable product? The two options are compost and anaerobic digestion. The advantage of the anaerobic digestion is the fact that you can digest anything: fats, oils, greases, meat, cheeses. Whereas compost in a cold region you are going to have to apply a lot of energy by heating up the pile and adding oxygen to it. You are going to be imputing a lot of energy to create something from your product if you are doing compost. If you are doing anaerobic digestion, it does just the opposite. It actually produces energy. To me, that is much more efficient especially in a cold region. That became what I focused on. I tried to determine whether or not it would be economically feasible to do that. I have a complete feasibility study available if anybody wants to read through it. I can provide anyone with specific information about where my numbers came from and how I developed them. That is available for further discussion. For today, we have a little bit of time and a lot to do so I really want to talk about what the project looks like in my eyes, the best most efficient way to take this organic material and turn it into something profitable. Part of the rational for this is the fact that our organic material goes with our garbage which gets trucked very large distances away from the Park because in 1998 that was the last closure of an active landfill in the Park. That was our Essex County Landfill. Ours is being trucked, for the most part, to the Franklin County Landfill which is quite a distance. We are spending a lot of money trucking that and then and we are

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outsourcing that valuable product from the region. We currently pay over \$55/ton. The 2011 is low compared to a lot of other regions across the country. The \$55/ton is very low compared to what they are paying in Vermont which is \$90/ton. The average in Maine is \$100/ton. The graph is showing you the trend line of what is happening to tipping fees across the nation. As you can see, tipping fees are increasing as transportation costs increase as well. I am expecting that \$55 to go up in the future.

Zywia Wojnar – That landfill is closing sometime soon, isn't it?

Tammy Morgan – As of right now, Franklin and Clinton both are permitted by the DEC to receive waste. The permit from Franklin County, where most of our goes and you can correct me if I'm wrong, is up in six years. They are talking about buying more land. Nothing has been applied for by the DEC at this point. It could be in that many years it will close down. Bill could probably speak to the landfill situation much better than I could. If something like that happened, we are at a loss as what we are going to do with it. That could increase the cost of tipping fees for Essex County and for North Elba dramatically.

Supervisor Politi – I think Essex County just signed a long term contract with Franklin for \$54/ton.

Tammy Morgan – Define long term.

Supervisor Politi – It's a 10 to 15 years.

Bill Meyer – It's upwards to 15 years.

Tammy Morgan – Assuming their DEC permits are updated.

Supervisor Politi – I think that's the case. This represented no increase in tipping fees for the last 15 years. There won't be a change in tipping fees for over a period of 30 years.

Tammy Morgan – I am just showing national averages and what is typically happening. On the next page are the goals of this particular project. This does not focus on household garbage, it could potentially. I am using information that comes from institutions and businesses, large sources of organic material. The high school is an example. We switched to Casella this year. We are doing a great job of decreasing the amount of garbage that is going out with recycling. The largest proponent of our waste is that organic material. We are still paying what we paid last year because of the small increase in tipping fees. We are still paying more this year because of that increase. If we could do something with that organic material, that would be really great for those kinds of institutions. If they could get a small dollar amount off per pound that would make a difference to small places like that. A lot of the restaurants I have spoken to are very open and excited about being able to do something with their organic material as well.

Councilman Miller – Why are they excited?

Tammy Morgan – The possibility for paying less for garbage.

Councilman Miller – Wouldn't they still have to go over the scales to the biodigester? We would need that in order to pay for it.

Tammy Morgan – That is something that needs to be established in a business arrangement. It is going to be separate from the garbage. What is the rate per pound right now?

Shannon Porter – Up to 80 lbs. is .07¢ and anything over 100 lbs is .08¢.

Tammy Morgan – For the school, that .08¢ was up from last year and that is why we are paying a lot more this year.

Superintendent Larry Straight – It's only a penny.

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Tammy Morgan – A penny ends up being thousands of dollars for us when we talk about the number of pounds.

Supervisor Politi – It would have to be a huge number.

Tammy Morgan – When we compared our waste last year to what we were paying this year, it was definitely large. I can get those figures for you.

Shannon Porter – Are you including any metal or tires? All the things that would go over your scale are not just garbage. It is not necessarily your food waste. You throw out a lot of metal desks. I know what you've thrown out in the last year. You would have to do a breakdown of each ticket to find out what actually was thrown out.

Tammy Morgan – I do know that it's combined. I was just saying a one cent increase in tipping fees meant a lot of money.

Supervisor Politi – You would have to increase a lot. Even if you increased 100,000 pounds it's \$1,000. 100,000 lbs is a lot of garbage.

Tammy Morgan – Regardless, 900 tons of organic material is coming from data that represents only institutions and businesses in the North Elba Region. For the sake of this study it includes Saranac Lake, Lake Placid, Keene, Bloomingdale and Ray Brook. That is estimated at 30% of total pounds disposed from institutions.

Shannon Porter – You spoke to these restaurants?

Tammy Morgan – No, this data comes from Casella and these are numbers representing only Casella's customers. It is a low estimate and does not represent all restaurants. It is a sample size. The 30% come from the EPA estimates. It is higher than 30% for restaurants.

Zywia Wojnar – 30% is consistent with a lot of feedstock calculations.

Tammy Morgan – Is it feasible to convert 900 tons into marketable product and create a balanced budget. That was the goal. Generate income by producing marketable products, Create green jobs field of bioenergy, make Lake Placid/North Elba region a model for other communities by bringing in conventions, visitors, and green tourism, which we already have a huge convention going on over the next two days. The last goal is to provide a sustainable (long-term) solution to the large portion of our solid waste generated in the region. The definitions are listed. You can run the biogas through a generator and produce electricity, which is what I am proposing in this plan. We will talk about what the best use of this digestate would be for this region. When looking at the facts, 900 tons could provide enough electricity to run a 35kw generator which is enough electricity to power 27 homes. Using the Lake Placid Municipal Electric rates you could make an estimated \$23,240 a year from the generator.

Supervisor Politi – Are they required to take it?

Councilman Doty – I don't know if it applies to municipal companies, but I am sure in this case that they would certainly take the return.

Supervisor Politi – I once talked to them about wind energy on the Loj Rd and they said if it was generated they wouldn't take it. I think that is something we have to find out.

Zywia Wojnar – They have to approve the connection.

Supervisor Politi – It is great if it could generate that money but that is only if they will take it. Otherwise we will have to run our own facilities.

Councilman Doty – We could use that power onsite as well.

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Tammy Morgan – They did tell me that the lines there right now could handle the load going out without any new infrastructure. Kelly Carter spoke with Peter Kroha about that. The digestate is the other part that comes out. It's a solid mixed with a liquid. The easiest way to take the solids out is to run it through a squeeze press. I have seen many across the state. I was nervous about that being a big expensive piece of equipment but it is actually small. The one from Candor, NY was purchased in 2001 and runs 24/7 and has never had a problem. It was less than \$2,000. The liquids go one way and the solids to another side which goes into a dump truck for compost. Based on 900 tons, if we sold the compost at their price it would estimate \$6,000. The liquid digestate would need to go into a holding tank and then could be sprayed onto a nearby field. Ryan Davies did the analysis of the soil on the field.

Ryan Davies – There was a sandy gravelly soil, based on analysis and the total square foot area the fields could definitely accept 100,000 gallons of water per year. It is a good substitute to fertilizer.

Councilman Miller – There were no issues with the APA or the DEC?

Ryan Davies – There would probably be some environmental study that needs to be preformed.

Tammy Morgan – It is not regulated right now because digestate is new. It is being applied on the fields everywhere. There are food quality ingredients go into the digester so it is considered food quality ingredients going out. According to him, he didn't think that there was going to be any issues with that. Right now, there is nothing on the books that does regulate it.

Councilman Doty – The concentration of nitrates would change depending on the mixture. Before it goes on the field, you want to know what is being put down. The river runs right on the other side of our athletic fields. We should know if we are putting down 40 % nitrogen with the sandy soil.

Supervisor Politi – What is the effect on humans? We have kids there.

Mike Morrison – It is all organic material.

Councilman Miller – Can you imagine what we are putting on that now.

Tammy Morgan – We are spending a lot of money for fertilizers for those fields.

Zywia Wojnar – If there really was a concern; it would be with the Health Department and not the APA. They don't allow the waste from the wastewater plant to be distributed on the fields for health reasons.

Supervisor Politi – We distribute all of the waste water on to the Lake Placid Club Golf Course. They have a permit and they take a tremendous volume.

Tammy Morgan – The analysis would have to be done because the amount of nitrogen in there is going to vary at any given time and the length of time that it sits will vary as well. It is a source of irrigation water for those fields that would be readily available. If we had a 90,000 holding tank then you would be able to hold all of the water that is produced during the winter. With 900 tons we should produce about 180,000 gallons of liquid. Last year we used 100,000 gallons of municipal water to irrigate those fields. That was actually a wet year.

Councilman Miller – The size of the tank is going to be a visual issue.

Councilman Doty – Dig a hole in the ground. We just paid \$365,000 for one that takes C&D.

Tammy Morgan – If we look at the 900 tons of waste and how much that is in tipping fees that we are currently paying to send to Franklin County, that is \$49,500 in tipping fees that we would not have to pay. That would be the biggest saving in this whole project.

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Councilman Doty – That is assuming no tipping fees for organic. We collect the fee yet we don't have to ship it.

Supervisor Politi – We don't pay any tipping fees. The consumer pays. It is not a savings to the Town.

Councilman Miller – This is \$49,500 we would not have to pay to get rid of it to the County.

Supervisor Politi – There is no cost to us on that. It is offset by the cost of one going in and one going out.

Councilman Miller – If they pay to come over the scale with it and we don't have to ship it out, we save \$49,500. They are still paying but we don't have to pay to get rid of it.

Councilman Doty – Then we sell the byproduct to boot!

Shannon Porter – The Town cannot sell the byproduct. We cannot take away from a business like Hurley Brothers because they are an individual company.

Larry Straight – We are using their tax money to compete with them.

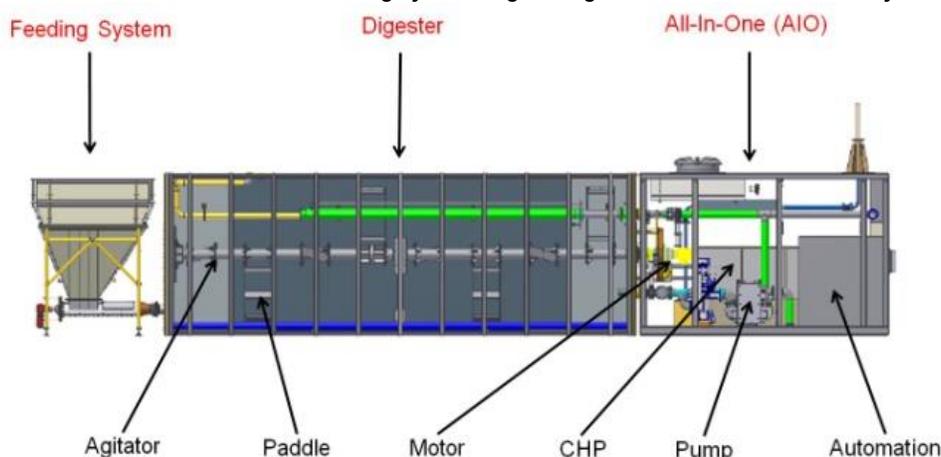
Councilman Miller – I don't agree with that.

Supervisor Politi – I don't want to get bogged down with that. It is the same argument that we shouldn't have a golf course. We can go down that road another time.

Tammy Morgan introduced Christine McKiernan who is the representative from Bioferm who can answer technical engineering questions.

Tammy Morgan – The Transfer Station site is something that Derek mentioned would be the best place to place something like this. I like it because of the proximity to the athletic fields that you will be irrigating. There are 20 acres of capped landfill. A large portion of that is marginal land. I looked at whether we could grow energy crops on it. A shallow root system crop like Jerusalem artichoke wouldn't dig down into the soil. You then have another organic source that you can add to your system. There are times of the year that you would want a steady stream of organic material and we have a lot and months that we don't have as much. Low months could be supplemented with the energy crop that could sit in silage until you were ready to add it.

Bioferm Modular Unit Includes feeding system, digester, generator and heat transfer system



Tammy Morgan - The Bioferm modular unit comes in a trailer ready to go with the feeding system attached. The Generator and the CHP unit are right there as well. At this point Christine could talk a little bit more about the system.

Christine McKiernan – As Tammy was describing in the picture, it is required that materials need to be loaded into the hopper at least once a day. Once loaded you don't have to do anything. It is all automated. The unit it is 50ft long and does not include the hopper. It enters the digester and takes about 20 days to convert from waste to gas. It achieves about a 60% conversion rate

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which varies depending on what you put in. The gas produced is going to CHP which will go to an engine, burn and make electricity. The gas can be burned in a boiler or used as C&G for tractors and vehicles. It is a small amount. The C&G doesn't pay. The electrical reversion is probably the best one unless there is a boiler requirement. The other application is biomass drying which doesn't apply to you. The picture shows that it leaves the Biodigester and is going into a container that has the CHP in it. This requires electrical code clearance. There are some states in which that won't be allowed. There would be a physical separation of 15ft in which the CHP would be in a separate container. That would be one change to this picture. The gaskets need to be cleaned in terms of water removal, particulate removal and hydrogen sulfide reduction. When gas isn't being burned, it needs to be flared. This is a small amount of gas which requires review with the state as to whether or not they would want you to have a flare. With large amounts of gas there is no option. You must flare when not burning. Once the digestate leaves the digester you can use a very simplistic mechanical separator with a screw press. The material would go through the screw press, solid materials drop out, liquid goes to a temporary storage tank until you use it. The liquid can be further separated for more particle removal to produce a "cleaner" liquid. You may not need it. Once that liquid is produced and ready to put on the fields, you will need to make sure the equipment you use to apply the liquid can handle the percent of solids present. It is not water. It still has stuff in it so you have to make sure you don't clog the nozzles. That is something to keep in mind. After the 20 days, the solids look like peat moss. They have a non detectible odor as opposed to what you put in it. The solids can be composted or dried. The generator uses some of the heat but you will have spare heat as well.

Supervisor Politi – How employee friendly is it?

Christine McKiernan – I don't have pictures with me of the one that is commissioned in Wisconsin. It is fully automated and there is a panel running that controls everything. There is a user friendly screen that lets you make decisions to stop feeding, feed faster, and so on.

Supervisor Politi – Does it require one person to know what they are doing?

Christine McKiernan – We train everybody. This particular unit is on a dairy farm. He has been trained and goes over and looks at it for about 15 minutes a day and walks away. It is not going to be that simple. Someone may drop something into the feeder and the auger stops.

Supervisor Politi – You are telling me somebody doesn't have to be here every minute. How do you feed the system?

Christine McKiernan – Picture a truck rolling up with grocery waste. The hopper can be built so the truck can dump right into the hopper and drive away. A more labor intensive option is the truck driving up and dropping it on a pad and then has to be scooped up with a front end loader and dump it into the hopper.

Supervisor Politi – Does everything that comes in now come in a bag? I have never been there when a restaurant comes.

Christine McKiernan – If they are going to bag it, it would require manual operation. You can use a biodegradable bag or you have to shred them. They would go into a pre-unit and the bags would be completely shredded open, contents spilled and everything goes through the feeder. If you don't want the bag in there then you need something done upfront.

Supervisor Politi – It is something that I would love to see us do but I don't want it to be so complicated that somebody is throwing the wrong stuff in there.

Christine McKiernan – The only thing that is going to stop the auger is if someone decides to toss in a microwave.

Michael Morrison – It is basically like your digestive system. Keeping the bacteria happy, it goes through automatically.

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Christine McKiernan – For the bags, it would be best to put the ripper first and then go into the feeder and continue on.

Zywia Wojnar – Doesn't everything in the hopper normally get chopped up.

Christine McKiernan – The hopper is not only the storage for the day but is meant to cut up food into pieces.

Supervisor Politi – Are they typically utilized by farms or landfills?

Christine McKiernan – The answer is both. The one we are working on now is on a farm but will also accept other wastes. We do not currently have one at a landfill. They are receiving municipal waste with the shredder option in a facility in Germany.

Supervisor Politi – I am concerned about what is thrown in there. Somebody really paying attention to make sure what goes in the hopper should go in the hopper. I am nervous that someone puts a battery in a bag and you have a problem. That is an employee issue.

Shannon Porter – This system is run by itself and is not monitored?

Christine McKiernan – If you want it to be monitored then you are going to have to monitor it. The purpose of this project was not to have to watch garbage go by. The problems you are bringing up are pretty typical. How honest will those people be that didn't throw something like their hairbrush in the garbage?

Supervisor Politi- Whoever uses that machine is using it for the right purposes. The guy that drives up in a truck who picks up the garbage at some restaurant can care less what he dumps.

Tammy Morgan – This is a change in mindset and an educational issue. The Wild Center couldn't be here tonight but have expressed the interest in creating a documentary on this whole process. The reason I chose restaurants and institutions is because there is more quality control. If there is a financial incentive, and they are throwing away rubber gloves that are clogging up our system, we are going to have to cut them off. This is a change of mindset at the source.

Supervisor Politi – I agree with that. We put into effect that each restaurant had to have a grease trap. You would think that would be a great idea. They fought it. After time we checked them and found they were bypassing it. I don't have a problem offering a lower rate because it is not costing us anything. I am concerned that people thinking they would save money so they would put things that in that don't belong.

Councilman Doty – I have an operational question. This system is a 20 day process. I will throw numbers out and then you can react to it. I believe that 50% of our organic waste is produced in 3 months. The 900 tons would come from June, July August and September. If that is a 200 yard container and the hopper is three yards but it takes 20 days with the hopper full to produce, we only have 6 sessions that it can take stuff. We are going to have a mountain of organics that we can't get to until November.

Christine McKiernan – You feed it every day. Picture the apple; I throw an apple in everyday. The first apple is making its way along. In the meantime there are other apples following. It has to be continuously fed. The volume of this reactor allows that individual apple to have lived in there for 20 days.

Councilman Miller – Can this machine handle the kind of inpute it might have during our busy summer months?

Christine McKiernan – This system was designed to a certain impute but has buffer room to a typical month and then a buffer use. The short answer is yes. We are not worried about this system being too small for what you are talking about. You would make more electricity in your boom time. Where it would go if your engine is not big enough is another story.

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Zywia Wojnar – What do you do with the liquid digestate in the winter when the fields don't need that?

Christine McKiernan – That is what the storage tank is for. Everybody in this climate stores it.

Supervisor Politi – Does the liquid come out at a certain temperature? Does it freeze?

Christine McKiernan – It is 100°F on the inside of the tank. As long as the storage tank has insulated walls it will sit there quite happily. That is the same problem for dairies. The tanks can be underground. You are going to need that storage tank.

Councilman Doty – Bacteria is still working.

Tammy Morgan – The 90,000 gallon size is half of the volume for the year.

Zywia Wojnar – I have a question about the 60% conversion rate. Is that of the amount of food scraps that is converted to gas?

Christine McKiernan – Picture the food scraps as an organic load. Typically 60% of that load will be converted to gas. 40% remains in the liquid and solid portion.

Supervisor Politi- You spoke about using the liquid state to irrigate a field. Do you have to have specific size of spray nozzles? Is it complete liquid or there solid particles?

Christine McKiernan – It will have solids. The farms store as well. They churn up their tanks to mix in the nutrients and then they go out.

Supervisor Politi – Do they filter?

Christine McKiernan – No, they spread 4%-5% solids.

Councilman Miller – We would have guns.

Councilman Doty – We could lay it down too with a very big whole sprayer. We can make a homemade sprayer.

Zywia Wojnar – Is there an odor?

Christine McKiernan – There is no odor for the liquids. It goes in as rotting smelly food and coming out as peat moss. If you are the one to spray the liquid you may smell something but houses nearby wouldn't know you did it. It's a 1,000 times better than when a dairy spreads.

Tammy Morgan – The end product doesn't have an odor issue. The incoming does.

Councilman Miller – Are we getting ahead of ourselves if we are to figure out how we are going to pay for it?

Tammy Morgan – Using the cost analysis and looking at the savings from tipping fees, electrical production, compost and savings from fertilizers and subtract out the operating cost, which came from Bioferm, the annual value could be greater than \$68,000. These numbers come from restaurants and institutions in the area. You would be able to hire another employee for what you will be making here. If this was successful and households wanted to get involved, an additional 300 tons which could mean you might need another digester down the line. There is potential for growth. I don't think electricity is the most efficient use of the energy value. A combined source of on sight heat and electricity would be the best solution for that. If this was up and running and you had a successful model, a next step would be to open up a greenhouse operation.

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Cost analysis:

Capital investment	Estimate
Site preparation (Bioferm)	\$142,000
Effluent tank and irrigation system	\$150,000
Digester	\$185,000
Feeder	\$ 32,800
Technical container	\$355,000
Gas storage	\$ 9,500
Other (power hookups, screw press)	\$ 10,000
Total	\$884,300
Total + 20%	\$1,061,160

Annual Budget

Annual Revenue and Savings	
Savings from tipping fees	\$49,500
Electricity production	\$23,240
Compost	\$ 6,000
Liquid fertilizer savings	\$ 2,000
Annual operating costs	\$12,375
Net Annual Income	\$68,365

Supervisor Politi – You spoke some time ago about composting and a greenhouse.

Tammy Morgan – It would have to come after the system was running and you knew exactly how much electricity and compost is produced. That would be a completely separate business that could be economically feasible if you had a cheap source of power. The heat piece would be huge for that. Phase II would be using the heat and the electricity for greenhouse operation. It wouldn't have to be a hydroponic green house. Finger Lakes Fresh is a hydroponic facility that has 5-9 employees with annual revenue of \$1 to \$2 million. They grow only three different types of lettuce. I found out about it because I bought it at Price Chopper. They have two professors from NYSERTA to put this together. It has been in operation for over ten years. It could be copied on this location especially with the heat and electricity source. To me, that is an exciting piece of the whole project. Let's look at the funding; Garrett Dague apologized for not being here. We on online for this and all we need to do is apply for the funding. The money is there but the process to get the money is not. It should be available very soon.

He sent the following email:

I think the project may be a good candidate for NYSERDA Cleaner Greener Phase II funding, which will be part of the upcoming Consolidate Funding application (CFA) process thru NYS and the Regional Economic Development Council.

We are anticipating the on-line application forms to be available mid to late June, with a grant deadline in September.

The project is included in the North Country Homegrown Sustainability Plan (Cleaner Greener Phase I) list of potential projects eligible for funding.

I plan on attending the upcoming Clean Energy Conference this Friday to learn more about biodigesters.

Garrett Dague
Deputy County Planner
Essex Co. Office of Community Resources
PO Box 217
Elizabethtown, NY 12932
ph. 518.873.3452
fx. 518.873.3751



Zywia Wojnar – I would anticipate that it will probably be later than September. The state just closed an RFP for hiring an Implementation Contractor. They are planning to hire that contractor later than the original schedule. They can then put in place receiving

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applications from the regions. The deadline was May 30th. Realistically, it will probably happen in the fall at the earliest.

Shannon Porter – With the restaurants and such, how are you going to secure that you will have adequate amount to keep it running? To say that you want to plant on the field that is going to take time to grow. We have challenges just trying to get people to recycle and to do it correctly. I am curious how you are going to get these people to bring it in, not just because it will save them money. A lot of people don't recycle because they don't want to separate. Are they going to do this?

Supervisor Politi – It's part of the education process.

Tammy Morgan – We did a surveyed over 30 restaurants in the area and the response was extremely positive. It is a marketing piece to that as well.

Shannon Porter – Are we not going to add horse manure or animal fesses. Are you going to make sure that won't get in there?

Tammy Morgan – We are going to take advantage of all local sources of organic material. Absolutely we would accept horse manure from the horseshow grounds and from local small farms. It is very hard to transport big amounts of manure. That's why it is usually composed onsite.

Supervisor Politi – We have lots of manure from the horseshow grounds.

Shannon Porter – We're composting it now and make really good soil out of it.

Tammy Morgan – All of the organic material would definitely be added to the system.

Zywia Wojnar – How well does the digester handle the mixed wastes during the winter season and during the peaked season? What is the minimum load that the digester can take?

Christine McKiernan – The minimum load can be zero and you get no gas. Not to be facetious but what if you drop this to 20% of its input. It will still keep going but it won't be enough to actually fire your generator. The key is to get to 15 KW in energy value to keep the engine running.

Shannon Porter – If you are just keeping it running it won't produce anything.

Christine McKiernan – Let's say your target is to always want to make electricity. You then work backwards and say you need to have feedstock of this amount minimum to keep the CHP on all the time. When you go below that, it will still make gas but the CHP might not be able to run anymore.

Councilman Doty – Is the digester insulated? What if a low amount is going in and it's 30° below zero?

Christine McKiernan – The digester is insulated and heated. It uses waste heat from the CHP and uses a portion of that heat to run through a hot water loop on the digester.

Supervisor Politi—Bill, you are here today. Casella must have some type of an interest in what is going on. I am curious as to how you would handle this in terms of your clients and so forth. Is it going to work for you? How are you going to handle it? Is there going to be cooperation?

Bill Meyer – From the company's standpoint, we have had a little bit of experience. We have a division that is dedicated to organics. We have a digester on a farm out in Rutland, MA. Our sister division in Burlington collects the wet waste from the restaurants and

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local businesses. I've been educating myself. There is an upside to it. We would be looking to be out there offering the service to get it to and from.

Supervisor Politi – For you in some ways it is negative revenue.

Bill Meyer – There is some information that I still need to digest and go back and look at. (No pun intended of course) We have models where it works. Whether it will work here or not, I am optimistic it would. Especially with the trends that we are seeing in each individual states whether it be VT or the mandates that MA is talking about. This is not becoming an option. Whether it is simple recycling or organics, folks are seeing that there is a benefit.

Supervisor Politi – From a promotional standpoint, Casella has done a wonderful job on television with all of your zero-sort and propane vehicles. I think it is a real positive for you.

Bill Meyer – I certainly want to be a part of it. Every time I have spoken with Tammy about this it is a matter of “when” it is going to be here and not “if”. This looks like a cookie cut situation that might be the best fit.

Councilman Doty – Bill and Tammy, you brought this up at one of our earlier meetings, is there still legislation on the table where NY wants to mandate separation of organics from trash.

Tammy Morgan – The wording is in the Solid Waste Management Plan for counties. At this point they have to have some organic program.

Councilman Doty – That could seal the deal for us to know that there is some kind of mandate.

Councilman Miller – We would be a good solution to the County's problem.

Supervisor Politi – Essex County, I think, is going out of the waste business.

Councilman Miller – We could sell our service to our neighboring towns as a solution to their problem.

Zywia Wojnar – There is the equation of trucking their waste to this facility.

Councilman Miller – I still want to know how we are going to pay for the machine. What kind of grant money is out there?

Tammy Morgan – The state money is probably the best option. There is federal REAP grants. The USDA grants that this would apply to is available up to \$200,000 in grants with \$1 million in guaranteed loans.

Councilman Miller – Is there the potential that the whole thing can be paid for by grants?

Tammy Morgan – If you combined the two, potentially. I don't know what the numbers would look like. I think Garrett can answer that question a lot better.

Zywia Wojnar – I was looking at the payback on this. You are making \$70,000 a year and it is going to cost a million. Theoretically, you would be getting money from somebody. The state will not only look at money but the benefit. The reduction in carbon admissions is going to be a huge plus.

Councilman Miller – What do you need from us to move forward to see if we can afford to do this?

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Tammy Morgan – As I mentioned before, I am a teacher and completely independent of all of the organizations that are represented here. What needs to happen as soon as possible, if you are going to apply for the state funding, is to set up or identify an organization that has the ability to apply for grants to implement this system to write checks and have contractual power. I don't have that ability.

Councilman Miller – I am assuming you are talking about the Town.

Tammy Morgan – I am not necessarily talking about the Town. I could be talking about a partnership or creating a ghost organization made up of members of all of the stakeholders that are being represented here. At this point it will not go any further without something larger.

Supervisor Politi – We have a department in E-town who just does this type of thing. They have done very well.

Councilman Miller – She is working with Garrett at the county. Mike and Garrett are working together.

Tammy Morgan – The grant applications are asking for how much your organization makes. The piece that is missing is the organization that is sponsoring this whole project.

Councilman Miller- If we were to be that organization and are ready to move forward to apply for these grants and then we see this is a million dollar project and we are only getting \$200,000 in grants we cannot go any further like the bike path?

Supervisor Politi – This just happened with the grant we received for the reclaiming the landfill. We got a \$440,000 grant. \$300,000 was in escalation. You get the grant and you decide you don't want to go forward with it then you don't get the money. It goes elsewhere. That is not an issue. If you take the money and you utilize it and you don't do it, you have to pay it back. There is no harm moving forward but it would have to be the Town of North Elba because in all of these grants. They don't give the money to a municipality unless you own the property.

Councilman Doty – Without naming specifics, we have all the players here to put a team together. If both counties are looking at trying to satisfy DEC in the next 5 to 6 years, we could become our own independent deal. Whether we talk to Bill or whoever, we have the players to share in these responsibilities.

Supervisor Politi – A problem we have here is that we have grant money for the soccer fields and then there is potential for a digester. Frankly, I don't think they are necessarily a good marriage. I would almost rather have a digester than the soccer fields in that reclaimed area. The problem with the soccer fields is that the reclamation still has 10 years to go. It has only been 20 years since it has been capped. There is a 30 year requirement and Saranac Lake has the same problem. The state immediately asked if the DEC is going to sign off on it if there is still time to go on the reclamation. I am worried about that type of thing. To me, this is a landfill situation that make a lot of sense if we can get it to work. It all fits. The soccer fields don't fit and I think Shannon feels the same way. You hate to have people come down to the fields and the landfill is open and it smells. Not necessarily a pleasant setting.

Zywia Wojnar – Do you have a need for soccer fields?

Supervisor Politi- We have a need for all kinds of fields. We don't necessarily need them in this particular location. I would love to have a digester system and a greenhouse. I would love to have a compost situation because I think people are into it. It makes sense not only for an energy situation but from the standpoint that it is the right thing to be doing.

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Shannon Porter – I have a question about the monitoring. Does it have to be monitored for 24 hours?

Christine McKiernan – It is all remote. Folks can look on any day. It will send alarms.

Supervisor Politi – We discussed this already.

Shannon Porter – I must have been out of the room.

Supervisor Politi – Somebody has to monitor it at least 15 minutes a day.

Christine McKiernan - If it is midnight and the auger stopped or the gas was locked for some reason. There will be an alarm call out and you would designate who would get the call. He may need help from Bioferm if it is a problem they don't know what to do with. One of our guys would respond.

Supervisor Politi – Bill, have you had any problems with your digester and how much hands-on, maintenance and upkeep and knowledge does it require?

Bill Meyer – It is very similar; minimal as far as maintenance, no more than one person and a back-up person. The challenge is getting it there from a transportation standpoint. Collecting the stuff out there to get it back is one of the severe challenges from hauling division. I went to Burlington to see it firsthand and it certainly takes a special individual in July to do it. You try to get them to bag it but by the time you get it from container to truck that bag might as well not be here.

Councilman Miller – Why don't they take regular garbage pails and put them in the back of the truck?

Bill Meyer – It is very similar to what you put out right now for containers. You put the 32, 64 or 96 gallon plastic carts out and they are wheeled to a different type of truck. They are picked up and dumped into a sealed box on the truck. That contains it and it is then taken to the facility.

Supervisor Politi – You don't know what is in there because your truck picks it up and throws it in.

Bill Meyer – When you pick that lid up your only going to see what is on top.

Supervisor Politi- A farmer knows exactly what he is putting in there.

Councilman Miller- It is probably less of an issue for the restaurants than for the regular homeowner.

Bill Meyer – We have only handled the commercial piece and it has been fairly successful.

Supervisor Politi – The homeowners may be more of a problem than the restaurants because the restaurants know and the homeowners may throw everything in because of the cost savings.

Shannon Porter – What happens with the product if something does get in there?

Tammy Morgan – They will go through the system and come out the other end. As you are going through the compost and there may be a plastic fork or a metal something you can pull it out.

Supervisor Politi –Glass or a battery might hurt it.

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Christine McKiernan – A real life example, we had a facility where someone decided that after finishing a large painting project got rid of about 20 gallons of paint with cans. Nobody knew. Within six hours the gas starts to decrease. It is just like feeding your system poison. They don't die. They just stop eating. Now that it is contaminated you have to get rid of it in a different way because it's hazardous waste. When the system goes back online it takes anywhere from 1 to 4 weeks depending on how bad it was. In this case it was 4 weeks. That is a real life example. They tracked them down and they were fined.

Councilman Doty – Does the digester have a sediment bowl to draw-off something like that?

Christine McKiernan – No, this is going in one side and coming out the other side. Pump in. Pump out.

Shannon Porter – I went to a biodigester conference last year and they were talking about pockets where there is a mud like substance. I don't know what they were talking about.

Tammy Morgan – Maybe the sludge that builds up.

Christine McKiernan – Remember it is taking the apple and converting it to gas and there is something leftover. Over time, and you are talking about years and years, there begins to be a buildup of sludge. After the five year mark you may want to draw some off. It is actually just organic sludge. The design of the digester he is talking about is a circular tank that has a different type of mixer system in it. This one is horizontal with big paddles that turn horizontally. The intention is that everything stays up and moving. Regardless, after 5 to 7 years the layers start to build. It's organic and gets pulled out and is used like your fertilizer. You pump it out like a septic tank with something like a mud sucker.

Zywia Wojnar – It's usable.

Christine McKiernan – It is very useable provided there is no paint in it. It's fertilizer.

Zywia Wojnar – Someone had asked about nitrogen depending on what the feed going in is.

Christine McKiernan – If you want to put it on the field you need to know how much nitrogen, phosphorus and potassium you can put on the field that supports grass growth. Exceeding that amount will burn your grass like you would in your house. Everything gets tested before you apply it. If it were too high, you would put less of it on, find more land to put it on or it has to be diluted. From experience, what you put in your digester will not produce the ammonia levels that would be bad for the grass. If you were only going to take chicken stock then we would have a problem.

Supervisor Politi – What changes did they put into effect after the paint incident to make sure it didn't happen again?

Christine McKiernan – That is a really good question. Nobody thought anybody would do such a thing. I work for a German company and they like to use German technology. Their reaction was so intense that they have scanning electric eyes and magnetic removal. Everything went into place. That's extreme. They could have hired another person and have different shifts.

Superintendent Straight – You said when the system became contaminated it shut down. What do you do with the product when it is not working?

Christine McKiernan – We had the benefit of bringing that product to two places; composting and a sister plant. You wouldn't have a sister plant so you would have to route it to composting.

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Zywia Wojnar – I'm coming back to the conversion rate of 60%. You have 60% of what you put into it comes out as biogas. That is a mixture of gasses too. Are all those gasses feeding the engine?

Christine McKiernan – The engine is receiving methane and CO₂ and then there is a small amount of water vapor. There is H₂S present and gets scrubbed out to acceptable levels for the engine. The engine will burn with 45% to 55% methane.

Supervisor Politi- What is the technical container?

Christine McKiernan – In the picture, the technical container is considered the entire long box, everything but the hopper feeder.

Michael Morrison – What is made out of?

Christine McKiernan – It is made of carbon steel panels. The mixer is mounted on a middle shaft on the inside. The outside is coated with insulating and vertical clad.

Supervisor Politi – Are they normally sold to farms?

Christine McKiernan – So far they have been sold to three farms and three cities.

Supervisor Politi – What cities?

Christine McKiernan – They are all in Germany. Right now our manufacturing is in Poland, but we are setting up manufacturing in Wisconsin.

Councilman Miller – They are biodigesting in Canada. This is a system that is downsized from the original thoughts when this all started.

Zywia Wojnar – The reason I ask where it is manufactured is because some federal grants might not want to provide funds for something that is not manufactured in the USA.

Christine McKiernan – We are aware of that which is why we are setting up manufacturing in Wisconsin.

Larry Straight – Is the hopper insulated?

Christine McKiernan – The hopper is not insulated. The hopper is in constant motion. The auger is constantly moving. We don't have worries about below zero conditions.

Shannon Porter – Is there a chance that anything in the system breaks down and the hopper won't rotate. What is the chance of getting that fixed? You are out of Germany. What is the length of time to get the parts here to get it fixed? If it is the dead of winter and it's not moving.

Christine McKiernan – That is why we chose to set up manufacturing in Wisconsin which is where our office is based. That was a number one concern for us as well. If the seals are shot, I am not going to overnight them from Germany. I can do it if it is in Wisconsin. It was a big issue for us as well. If you said you wanted to put one in tomorrow, I would need about a week and a half to get you parts. This is unacceptable. From Wisconsin is the right way to do it.

Councilman Miller – What about technicians to do the work?

Christine – There are technicians that go out right now. Your operator has to be trained as well as your backup.

Michael Morrison – Wouldn't the engine be the only thing that would need it because the rest is done naturally?

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Christine McKiernan – There are moving parts. The mixer is moving and does require lube and gear oil. The hopper needs greasing as well. It's very simple. The engine has its own specific maintenance plan. We use the engine provider and they have their techs that will come out and service it. It is through the same plan.

Supervisor Politi – Is there a warrantee on these machines? All of this equipment is only as good as the company that stands behind it. I know that German manufacturing is phenomenal but it may be Wisconsin labor.

Christine McKiernan – There is an 18 month warrantee standard. After that there is a warrantee plan.

Supervisor Politi – How long has the company been in business?

Christine McKiernan – Since 1919; old Mr. Viesmann started as a plumber and made boilers in his basement. We have good hopes for our product and it is the right fit for a lot of people.

Michael Morrison – For the Town to buy it in the first place, can you possibly give them a lower rate since they are a municipality and getting started.

Supervisor Politi – That is a good question and a good point. It would be the first one on the East Coast. I'm going to give you an "A"!

Christine McKiernan – We have considered that and have come up with two possible options; another entity in the United States who would like to rent one temporarily and if we can complete that arrangement with then you would be just about in the same frame for you to have it. The second option, we are working with another entity in Vermont that has offered a significant level of interest to finance the project. Meaning we would own it. We would want some portion to recover our investment and negotiate the other returns to you.

Supervisor Politi –The revenues and the grants are going to be sticky situations in terms of the grant.

Christine McKiernan – We want to help figure out how to get it in there or a city like you because it would be great for us too. To your point, we would like it to be less money than it is.

Zywia Wojnar – Of the \$1 million for the capital investment, not all of that is not from you. The part that is not German can maybe be funded through grants and the remainder negotiated with you?

Christine McKiernan – On the diagram you have "Digester" which is us. The feeder and the tank and the CHP are you. We can provide the rest of the components but it is up to you. The CHP provider could also provide funding.

Larry Straight – Does this price include the 90,000 gallon holding tank?

Zywia Wojnar – Tammy was telling us that the CHP may need to be outside of the system for local code. There is a lot of funding for the CHP system.

Christine McKiernan – You would have the hopper and the digester container and then the Part that says, "All-in-One" is 15 feet away. The expense for that is \$10,000 to \$12,000. Every state has a different code.

Councilman Doty – To wrap up Bob's question, in order for us to sponsor it would be conditional on funding.

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Councilman Miller – There is no harm in applying for grants.

Zywia Wojnar – If you get the money, they will want to see a plan in place. Who is going to run this and who is going to install and maintain it. Who is going to be signing contracts?

Supervisor Politi – That would be the process afterwards. We would take responsibility and if Tammy would work with Mike Mascarenas and Garrett at the County. They will seek the funding.

Tammy Morgan – Will you have to first pass something at a meeting?

Supervisor Politi – A resolution is not needed. We have already had a vote on this to move forward. If you want as a part of this special meeting to offer a resolution of support and willingness to seek grant funding for this program you certainly can but I might talk to Shannon and Larry before I did that.

Councilman Doty – The next public session will be next Tuesday. We can do that then.

Michael Morrison – Can we get an actual amount you would give off a unit?

Supervisor Politi – I doubt they are going to do that at this stage. It is a good question and the point was made. They said they would consider some kind of a cost reduction that would benefit their company, but I don't think you are going to get her to commit to any kind of specific number.

The decision was made to wait until next Tuesday to pass a resolution supporting the Biodigester. Councilman Miller will call Tammy Morgan on Wednesday. Supervisor Politi will speak to Mike Mascarenas and have him get a hold of Garrett.

Councilman Doty – Tammy, this is long past your internship. You have done a remarkable job.

Councilman Miller – I am curious how the relationship with Casella would play out.

Supervisor Politi – Bill wouldn't be here unless he wanted to be involved.

Bill Meyer – That is a resounding yes.

Councilman Miller – It's exciting.

Supervisor Politi Thanked all involved.

ADJOURNMENT

There being no further discussion regarding the Biodigester, Councilman Doty moved and Councilman Miller seconded the motion to adjourn the meeting at 4:40 pm.

Respectfully Submitted,

Laurie C. Dudley, Town Clerk