

**Stephanie L. Sloman
387 Courthouse Lane
Pascoag, RI 02859**

July 26, 2016

RI EFSB
89 Jefferson Blvd.
Warwick, RI 02888

RE: Invenergy Thermal Development LLC – Clear River Energy Center
Docket No. SB-2015-06

Dear Siting Board Members,

Please find below my second written comment report concerning Docket No. SB-2015-06 (Invenergy Thermal Development LLC – Clear River Energy Center).

I submitted this to the Burrillville Planning Board on July 11, 2016 at a Planning Board meeting.

Thank you.

Respectfully submitted,

Stephanie L. Sloman

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387 Courthouse Lane
Pascoag, RI 02859**

July 11, 2016

Burrillville Planning Board
Harrisville, RI 02830

RE: Invenergy's Proposed Power Plant

Dear Planning Board,

Please find attached my scientific report which I wrote after reading the 10th, 11th, 12th, & 13th data request responses from Invenergy through the RIEFSB process, the Burrillville Comprehensive Plan, and the Burrillville's experts' reports.

PLEASE NOTE: The 471 page report on the Burrillville's website as well as the one on the RIEFSB's website does not include Invenergy's "Air Dispersion Modeling Report – Combined-Cycle Electric Generating Facility", prepared by ESS Group, Inc. on October 30, 2015 and submitted to Mr. Doug McVay, RI DEM Office of Air Resources on October 30, 2015 AND does not include Invenergy's "Health Risk Assessment Protocol – Combined-Cycle Electric Generating Facility", prepared by ESS Group, Inc. on June 26, 2015 and submitted to Ms. Barbara Morin, RI DEM Office of Air Resources on June 26, 2015. I FOUND THESE TWO REPORTS AS INVENERGY'S RESPONSES TO THE CONSERVATION LAW FOUNDATION'S FIRST DATA REQUESTS (which, by the way, Invenergy had objected two times before they gave responses via the RI EFSB process).

Thank you.

Respectfully submitted,

Stephanie L. Sloman

Before I begin this report, I want to give you my opinion. After reading all the facts contained in Invenergy's application, other reports which I discovered in the Conservation Law Foundation's data request #1 (Invenergy's responses), other reports sited in Invenergy's application, the RI DEM regulations, Burrillville's Comprehensive Plan, all the data requests' (from Burrillville, DEM, CLF, etc.) responses (Invenergy), Burrillville's experts' reports, and, lastly, attending the last Planning Board meeting on June 20 (listening to all the experts – Burrillville's and Invenergy's), my opinion is this:

Invenergy's proposed power plant is an experimental project and Burrillville is the canary.

The following are the facts formulating my opinion:

FACT #1: There are no other power plants which use contaminated groundwater to cool their systems. Therefore, there is nothing to which comparison is possible.

FACT #2: There are no other power plants (at least in New England) which are sited amongst wetland and management/conservation areas to this degree.

FACT #3: There are no other power plants in New England that uses pressurized hydrogen gas to cool their generators (that I could find).

FACT #4: There are no other power plants in New England that will have the capacity for 900 – 1000 MW.

FACT #5: There is no guarantee that the MTBE (and other gasoline additives) will be 100% removed from the groundwater using GAC.

FACT #6: Invenergy wants the Pascoag Utility District to take full responsibility and liability for the GAC groundwater treatment system at the well head as well as for the piping from the wellhead's treatment system to the proposed facility.

FACT #7: Invenergy claims that the MTBE concentration "estimate" for discharge into the Burrillville Wastewater Treatment system will be 200 ppb (ug/liter) and, further, the WWT facility does not have the capability to treat MTBE or other gasoline additives (before its effluent discharges into the Clear River just before it flows into the Branch River in Oakland). [I will explain why the discharge "estimate" concentration of MTBE is stated as 200 ppb later in this report.]

FACT #8: The Burrillville Wastewater Treatment effluent will not be part of the recharge of the Clear River sub basin as the effluent flows at the end of Clear River which flows directly into the Branch River (and into the Branch River sub basin).

FACT #9: Invenergy's application is full of estimates, potentials, approximations, and assumptions. Especially concerning to me (and should be to you) is the small print on the bottom of the air emission tables which continually state: "[air emission levels are] based on preliminary project equipment specifications and emission estimates" and further state: "Equipment vendor selection, equipment, specifications, and emission rates are subject to change as the project design advances."

BURRILLVILLE'S COMPREHENSIVE PLAN:

You all know the following information as it came straight from the Comprehensive Plan, but I feel that it is important to include in this report—especially at the beginning of the report.

In Chapter 1, page 3, the Plan states: “The Comprehensive Plan is a broad-based policy document which presents the Town’s intentions for its future development as defined by the citizens of the community, and adopted by the Planning Board and Town Council.” A survey was completed by the residents before the Plan was published and it was found that 70% of those surveyed mentioned that they loved Burrillville’s “rural character” and “country charm”. Also, 14% mentioned “the quiet and peaceful nature of the community”.

As you know, there is a total of 36,379 acres in Burrillville. There is a total of 1,500 acres of wetlands. There is a total of 1,225 acres of major water bodies. There is a total of 6000+ acres of management areas. The Boy Scouts own close to 1,100 acres in the Wallam Lake area. There are several conservation areas as well. In the Plan, it states: “Wetlands and the land immediately surrounding them are often left in their natural state and provide another valuable type of wildlife habitat.” It continues: “The safe movement of wildlife throughout the Town is of concern, especially as the outlying areas become more developed.” After reading the Plan, it is obvious to me and anyone else who reads it that the Town of Burrillville (Planning Board, anyway) cares very much about the wetlands, surface waters, management areas and wildlife. This is why people move into Burrillville and this is why people stay.

The Town of Burrillville understands that importance of the groundwater. In Chapter 10 of the Plan, it states: “Burrillville is one of 14 Rhode Island communities which depend entirely upon groundwater for its drinking water source.” As far as the town of Burrillville is concerned the groundwater is GOLD!!!! (You cannot drink money!) (And you cannot breathe money!)

NATURAL GAS AVAILABILITY & ULSD:

As I reported in my first report submitted to the Planning Board, Invenergy’s application states that the Project will use natural gas as long as it is “economically feasible” and/or “available”. In the application (tables of emissions), it states that each unit (turbine) will use ULSD for 30 days. Since there are two turbines (units), this equals 60 days of ULSD use. In the written application (not in the tables), it states that Invenergy expects to only use ULSD for 5 days per year. However, when Burrillville asked via data request set #7, Invenergy’s response states: “Invenergy is not proposing an annual limit on the number of days of combustion turbine ULSD usage per year nor is Invenergy proposing individual ULSD usage limits for each turbine. Invenergy is proposing to limit total ULSD usage by both combustion turbines to the equivalent usage of 60 days at base load.” Notice that it says “at base load”. I did much research on this phrase, “at base load”, and I discovered that it is not the capacity output of the power plant; instead it is the amount of electric generation that ISO-NE tells Invenergy to put out. In other words, if Invenergy’s capacity is 900 MW (meaning that it can generate 900 MW/hour) but ISO-NE tells them that the grid needs only 300 MW, Invenergy will run at 300 MW, and this is “at base load”. So I believe (and maybe I am wrong) that every time Invenergy states “at base load” this “base load” may fluctuate depending on what is needed by the grid as determined by ISO-NE. And as the “base load” changes, so does the air emissions, water usage, and wastewater discharge. And if Invenergy uses ULSD in both turbines, the air emission levels will increase substantially. (See my first report to Planning Board dated June 20, 2016.)

One other point that I wish to convey. Ultra-Low Sulfur Diesel has a shelf-life. According to articles, mostly diesel oil company web sites, the shelf life of ULSD is under 12 months. There are stabilizing chemicals that can be added to extend the shelf life. I do not know where Invenergy will purchase the ULSD. Invenergy’s response to Burrillville’s data request #5-14 states: “The oil supply will be provided by truck from a nearby oil storage and transport company. There are several of these companies in Rhode Island and the oil will likely come from one of them.” Notice the phrase “will likely come from one of them”. Invenergy (John Niland, in this case) is NOT committing to purchasing the ULSD from Rhode Island. But getting back to the storage issue, I would be remiss if I did not ask the question: Will the ULSD already have a stabilizer in it to extend the life of the oil? If the ULSD has a shelf life of less than 12 months and assuming that the 12-month clock starts when the diesel is at the proposed facility, then it follows that Invenergy will have to use that

2,000,000 gallons of diesel within that time frame. Therefore, Invenergy’s response to Burrillville’s data request #5-15 which states concerning the use of ULSD (“As an example, this past winter there would have been zero days of operation on oil.”), cannot be true.

And remember that 2,000,000 gallons of ULSD will last 3 days. If Invenergy needs to use the diesel for 60 days per year, it will need to fill up that tank 20 times. That is 40,000,000 gallons of diesel in 60 days. If Invenergy’s diesel transporter uses 10,000-gallon capacity tankers, there will be 4000 tankers in those 60 days trying to keep up with the usage. That means that there will be approximately 66 tankers per day during those 60 days traveling through downtown Pascoag and Chepachet during the winter. That also means that there will be approximately 2 – 3 tankers per hour (24 hours a day) going to (full) and from (empty) the proposed site. Now, I do not know how long it takes to pump 10,000 gallons from a tanker into a storage tank, but I remember the days that Ocean State Power used tankers to fill up its storage basin off of Route 102. The traffic was unbelievable. There were tankers lined up and police had to direct the traffic for days and nights.

I must say this: I believe that if the natural gas is curtailed in any way, Invenergy will run over the “allotted” 60 days regardless of their DEM application. If this was not the case, Invenergy would have revised their application to say that they would ONLY run the turbines with diesel for a maximum of 60 days per year. They did not revise their application.

CLEAR WATER SUB BASIN:

One of my biggest concerns is the withdrawal capacity from the Clear River sub basin. I wrote about this at length in my first report to the Planning Board under RI EFSB report section (pages 25 -27). Before the last Planning Board meeting I read Burrillville’s Comprehensive Plan. I was disturbed in that it’s population projections were so different from the ones that Invenergy used in its discussion of the capacity of the Clear Water sub basin and its conclusion that the sub basin’s capacity could easily take on the added withdrawal needs of Invenergy’s proposed power plant. And keep in mind that the Burrillville Wastewater Treatment facility’s effluent discharges into the end of the Clear River, only approximately 1 mile before it flows into the Branch River. This discharge does not recharge the Clear River sub basin. It recharges the Branch River sub basin.

Year	Projected Population of Burrillville	
	<u>Invenergy’s Projected Population</u>	<u>Comprehensive Plan Projected Population</u>
2020	15,713	17,439
2025	15,813	17,876
2030	15,860	18,195

As you can see, Invenergy’s projected populations (from “RI Population Projections 2010 – 2040”, written by the RI Division of Planning, with adjustments made per report) stay the same; whereas Burrillville’s Comprehensive Plan’s projected populations increase. (Invenergy’s projected population figures are also found in Table 6.2-5 on page 53 of their application.) Invenergy based its Clear Water sub basin withdrawal capacity on the assumption that Burrillville’s population would not increase. They also did not take into account the increase in populations of Uxbridge, Douglas and Glocester (the sections of which withdraw from the Clear Water sub basin as well). They did, however, include Uxbridge, Douglas and Glocester water withdrawals from the sub basin. The total withdrawals per year was 1.093 Million gpd. Because the withdrawal of water from the sub basin is proportionate to the increase in population, the withdrawal capacity that Invenergy says is there is NOT. (For example, on page 53 of their application in Table 6.2-5, Invenergy states that Burrillville’s projected population for 2015 is 15,757. According to the census, Burrillville’s population (not projected) in 2016 is 16,455. This is a difference of 698! The census did in fact state that Burrillville’s population in 2010 was 15,955 (which is in Invenergy’s table stated above). However, what is most important is the fact that the population of Burrillville (via the Planning Board’s hard work and the Burrillville’s Comprehensive Plan) is increasing every year.

Another concern that I have with the calculations of Clear Water sub basin capacity is the “estimated” water needs/usage of Invenergy’s proposed project. If the proposed plant is approved and its water consumption increases by 30% (from their estimate of 220,000 gpd to 286,000 gpd) and the population is indeed 17,439 (10.98% higher than Invenergy’s projection), there will be a “surplus” withdrawal rate of 1,000 gpd for further growth in Burrillville. Again, this does not take into consideration the population growth of

Glocester, Uxbridge, and Douglas (the populations that withdraw from the sub basin). (This whole streamflow methodology is documented in my last report to you.) As you can see, the estimates and assumptions that Invenergy makes in its application skew the safe withdrawal capacity of the sub basin. (According to Burrillville's Comprehensive Plan [Chapter 3, page 19] it states: "Based on current water usage patterns, the anticipated future water demand estimate for 2021 is an average daily demand of 480,000 gpd and a Maximum Daily Demand of 1.15 Million gpd.")

Also, in Burrillville's Comprehensive Plan, it states in Chapter 3 that according to the A.D. Little 1989 Report, "Water Supply Analysis for the State of Rhode Island", "projects the future population for the Harrisville and Pascoag Fire Districts water supply systems and observes that Harrisville needs to develop a water conservation program." It further states: "The report finds that the northwestern Rhode Island area is likely to experience water shortages or overdraft situations requiring more water than supply and demand management initiatives can save."

MTBE CONTAMINATED GROUNDWATER / PUD WELL #3A:

I attended the last Planning Board meeting on June 20, 2016. I wish to address a couple of things that I heard during this meeting.

One of the experts (Burrillville's or Invenergy's) stated that Well #3A had the capacity to pump 600 gpm before it was shut down due to the MTBE contamination. Burrillville's Comprehensive Plan (Chapter 2, page 11) states that wells 3 and 3A together had the capacity of 600 gpm. To quote: "The Pascoag Fire District also has two wells in the Clear River Aquifer that are currently not able to yield potable [water] due to MTBE (gasoline additive) contamination in the groundwater. These wells are capable of yields up to 600 gpm JOINTLY." So, Well #3 and #3A JOINTLY were able to yield up to 600 gpm---not just Well #3A. Further, in its application, Invenergy states that during the winter months when the plant is firing ULSD, the project will need approximately (there's that estimation word again) approximately 925,000 gpd or 642 gpm. So, not only can't Well #3A deliver 600 gpm, even if it could, that capacity would still not be enough to satisfy the need of the project during winter months firing ULSD.

Throughout Invenergy's application concerning groundwater usage, the PUD Well #3A is mentioned. However, I attended the last PUD meeting and found out that there was a letter of intent signed by the PUD (Mr. Kirkwood) and Invenergy stating that the responsibility and liability would be the PUD's. At the meeting, the PUD's attorney explained that it did not bind the PUD into an agreement, but only that there would be more discussing. The reason I want to bring this up is because after I read the "Letter of Intent", I realized that throughout the letter it stated "Well #3A" except for one place where it stated "well(s)". This disturbs me in that I believe that Invenergy realizes that Well #3A will not be able to meet the needs of the project. I believe that the company intends to utilize another well---perhaps PUD's Well #3 or perhaps use the well that is already on the project site area (the one is discussed in Burrillville's data request #5-19 which asks: "Exactly where will the facility obtain potable water for human consumption?". Invenergy's response states: "The CREC will obtain potable water for human consumption from an on-site well, which will require approval from the Rhode Island Department of Health." Has anyone checked this out? I thought the RI DEM had to approve such a change not the DOH. Has Invenergy submitted an application to use that well? (And I am assuming it is a well that the employees of Spectra/Algonquin use.) This would certainly take care of Invenergy's project's water needs.

Another thing that I heard at the Planning Board meeting was again from one of the MTBE experts. It was asked about whether or not the Clear River would protect the Harrisville wells from any MTBE that may be drawn back up into Well #3A. One of the experts said that he thought so. This is absolutely NOT true. The Clear River will not "protect" or "be a barrier" between the Harrisville wells and the PUD contaminated wells. Let me show you data. After the Pascoag wells were shut down, the Harrisville Fire District installed three new wells (#4, #5, and #6) in the fall of 2001. They were put into service January 2002. Per regulation, the groundwater from these wells were tested and according to the report by WHPA, "2008 Source Water Assessment – Harrisville Fire Districts Wells 1, 2, & 3 Wellhead Protection Area", these wells (#4, #5, & #6) did not show any MTBE levels. However, that changed in 2003. MTBE began showing up in these wells. The levels were well below the EPA's drinking water standards. Even well #2 (which does not supply Pascoag had an MTBE "blip" in 2001. The analyses follows:

Month/Year Tested	Harrisville well # 4	well #5	well #6	well #2
Sept. 2001		-	-	1.7 ppb
March 2003			4.1 ppb	
April 2003	3.4 ppb	4.9 ppb	3.6 ppb	
August 2003		1.0 ppb		
Sept. 2003			1.4 ppb	
Feb. 2004	2.3 ppb	1.1 ppb		
April 2004	2.8 ppb	1.8 ppb	1.4 ppb	
April 2005	1.5 ppb		1.0 ppb	
April 2006		1.0 ppb		
March 2007	2.8 ppb			
April 2007	1.0 ppb			

This report can be found at http://cels.uri.edu/rinemo/assessments/2006-2010/HarrisvilleSWAP_Final.pdf. The specific analyses data can be found on page 28.

As can be seen here, either there was MTBE in the aquifer the whole time or there was MTBE cross-river-contamination between PUD wells #3A/#3 and Harrisville Fire District's wells. To date, there has been no MTBE found in the Harrisville wells.

To me, this proves that the Clear River will not be a barrier nor will it "protect" the Harrisville wells or any other wells, for that matter, from any MTBE that may be drawn back toward the Well #3A wellhead during water pumping—be it during testing or actually using.

Another example to prove that the Clear River cannot possibly protect the Harrisville wells is the PFOA (perfluorooctamic acid) groundwater contamination problem in New Hampshire. The contamination event happened on one side of the Merrimack River and in less than one year the contamination had spread under the Merrimack River to the other side and is now contaminating private wells on this opposite side. (The Merrimack River has an average width of 35 feet and an average depth of 4 – 5 feet.) What is the average width and average depth of the Clear River? Also, the Clear River is part of the sub basin. They are intimately connected. If you withdraw a certain amount from the aquifer (sub basin), the level of the Clear River will drop.

I am concerned about Invenergy's "Request for Well Investigation for the Reactivation of Pascoag Utility District Well 3A", (DRAFT), prepared by Pare Corporation on June 8, 2016. This protocol will be finalized and given to the DEM for approval. The first thing about this protocol which disturbs me is the "Step-drawdown Test". Let me quote this section: "Prior to performing a step-drawdown pump test, the water level in Well 3A shall be monitored for a minimum of a 5 day period to establish static water level fluctuation trends. The step-drawdown test shall be conducted at 200, 400, 600, and 800 gpm. Each step will be sustained for a minimum of two hours. Aquifer response during both pumping and recovery will be monitored in the pumping well and the eight monitor wells identified in Table 2 using programmable electronic data loggers. The water level in Well 3A will be allowed to recover to at least 95% of the pre-pumping water level prior to the commencement of the maximum day flow rate pumping test. The data and information generated during the step-test shall be used to project if the well has the capacity to continue with the higher rate pumping test." My problem with this test is that the protocol will only test 8 water monitoring wells surrounding Well #3A. The company has no intention of testing for MTBE in any other of the 60 water monitoring wells dug by the DEM back in the early 2000's. If the MTBE plume starts to draw back to the wellhead (Well 3A), no one will know. The pump testing (step-drawdown test) will not give a clear picture of what is happening with the MTBE plume.

The next part of the protocol is called the "Maximum Day Flow Pump Test". Let me quote: "The target pumping rate for the maximum day flow rate pumping test will be 700 gpm pending the results of the step-drawdown test. The duration of the test will be a minimum of 24 ghdh hours. [Is the "ghdfhdh" a typo?] The pumping rate will be recorded every 2 hours. A flow measuring device capable of providing instantaneous flow measurements accurate to within + or – 3% of the pumping rate will be used. All drawdown data collected using electronic data logging equipment will be corrected for barometric pressure." Once again, Invenergy seems only concerned about the gallons per minute capacity of the well and not so much about the concentrations of the MTBE and other gasoline additives (VOC's) that may be in the water. Once again, I must

stress that the only water monitoring wells are close to Well 3A. They will not look at the levels of the aquifer and the MTBE concentrations of the other water monitoring wells which already exist.

On page 6 of the protocol report, it states: "Due to the potential presence of MTBE in the aquifer and concern of drawing MTBE in to the well, a carbon treatment system is proposed on the discharge for both the step test and pump test. The treatment system will consist of three filter vessels, each with a 5,000 pound capacity of granular activated carbon. The filters will be operated in parallel to accommodate the high flow." There is no mention of any analysis of the water coming out of the GAC system prior to (on page 5) discharging. To quote: "It is expected that approximately 1,000,000 gallons will be discharged during the maximum day flow rate pumping test. The water will either infiltrate into the ground at the discharge area or flow to the Clear River." How long will the analyses take? Do they use test strips? The protocol also refers to Appendix A – D which are blank.

Well 3A is approximately 700 feet from the Clear River. Well 3 is approximately 284 feet SW of Well 3A.

Invenergy states as a response to Burrillville's data request #11-2: "Invenergy does not intend to perform any vapor intrusion assessments on the properties in the vicinity of PUD Well #3A at this time. RI DEM performed a Soil Vapor Intrusion Study in 2006 for this area and found no significant VOC this GAC treatment system as well as the same for the piping from the wellhead of 3A to the proposed project on Wallum Lake concentrations. Given the significant reductions in monitored groundwater concentrations following the performance of site cleanup activities by RI DEM and their subcontractors at the North Main Street Mobil site and considering the results of the 2006 RI DEM Study, additional vapor intrusion assessments are not warranted at this time." Should not the RI DEM make that determination? If that MTBE plume draws back to the wellhead and into the soils in the aquifer, a vapor intrusion assessment may indeed be necessary! In that RI DEM report, the DEM stated that the MTBE plume (without any pumping from Well 3A) was flowing in the North-northwest direction. They further stated that when the water was being pumped out, the plume came back toward the well.

I agree with most of Mr. James Jackson's (Burrillville's expert) recommendations concerning the MTBE and the well. I agree that other gasoline additives should be analyzed as well as the MTBE in all testing. He also recommends that Invenergy do a vapor intrusion assessment even though Invenergy does not think that it is necessary. Mr. Jackson goes on to say that in 2006, the RI DEM did an additional soil vapor intrusion assessment and they were found to contain MTBE as well as benzene toluene, ethyl benzene, and xylenes. Mr. Jackson states: "Based on the information presented above, the groundwater data from 2012, and improved sampling procedures and techniques, the potential for vapor intrusion exists and might be influenced by the reactivation of PUD Well #3A when pumped at full capacity."

However, I do not agree with his recommendation: "Based on the capacity of Well #3A, and the potential concerns related to the 7Q10 stream flow data for the Clear River, CREC should consider discharging a portion or the entirety of the spent process water into the Clear River, to recharge the river. This would likely require additional treatment and cooling at the power plant as well as piping to the Clear River or a tributary of the Clear River." There is no way that I or anyone else would trust Invenergy to make sure that the MTBE and other gasoline additives are completely removed from the water and discharge it to the river. OMG! (Sorry, a little emotion...) Also, I know why Invenergy is looking at another water supply, specifically Wallum Lake. Mr. Jackson states: "As a contingency we recommend that Invenergy identify alternative sources of process water that can supplement the water supplied by the PUD. This may become advantageous in the event that Well #3A has mechanical problem following reactivation." What? (oops, more emotion) Upon some investigation and research and conversations with RI DEM and MA DEP (via email), it seems that both MA and RI "own" the lake. It is doubtful that Invenergy will be able to use this pristine lake for a back-up water supply. I would suggest that Invenergy have a water supply company on stand-by.

Burrillville's data request #10-1 concerns the possible breakthrough of MTBE. Invenergy's response is: "Any untreated water supply to the Clear River Energy Center that contains MTBE will be mixed and diluted in CREC's raw water tank." WHAT? Diluting wastewater to make it less hazardous is illegal. Someone should call Invenergy out on that one!!!!

One more comment in Mr. Jackson's report that bothers me is: "In their response to Data Request 10-1 Invenergy explains that no MTBE will be released with the plant emissions, any MTBE that did reach the turbines would be destroyed by the high temperature combustion process." What bothers me is that Mr. Jackson does not say that he knows this to be true. I believe that some water with MTBE will turn to steam

and volatilize before it gets to the combustion process. Someone should find out about this. Don't make me learn even more about natural gas combined cycle power plants using pressurized hydrogen gas for cooling, 19% aqueous ammonia for reducing NOx, two 1-million gallon tanks of ULSD, etc.

Burrillville, in one of their data requests, asked Invenergy what would happen with the used and contaminated GAC. Invenergy did not specify (nor was it asked by Burrillville) whether this GAC contaminated by MTBE and other hazardous VOC's would be considered "hazardous waste". I believe that it would be considered hazardous waste. It is no wonder why Invenergy wants the Pascoag Utility District to take charge of that system. The PUD would have to be a hazardous waste generator under the EPA regulations. A whole other kettle of worms. Someone should check on this before the PUD actually signs a legal document locking them into taking responsibility and liability of Rd.

MTBE DISCHARGE TO BURRILLVILLE'S WWTF:

I am very worried about the possibility of MTBE in Invenergy's discharge to the Burrillville WWTF. The discharge from Invenergy will have higher levels of MTBE because of their water purity systems (reverse osmosis and electro-deionization) before entering the boiler systems. These purity systems basically "push out" (reverse osmosis) the VOC's that are found in the raw water. If these levels are too high, the MTBE will destroy the membranes of the reverse osmosis system. But my concern is not Invenergy's systems; my concern is for the people of Burrillville and the environment. If the MTBE is indeed 200 ppb or greater at discharge into the sewer system at Wallum Lake Road, this MTBE will be diluted by the other wastewaters until it reaches the plant. However, if the MTBE levels going into the raw water of the project are higher than Invenergy's "estimates", it will indeed cause a problem with the WWTF. The Burrillville WWTF does not have the capability to remove MTBE or any other VOC out of the waste stream and as a matter of fact, the VOC level could be high enough and toxic enough to kill the bacteria that actually metabolize the human waste at the facility. If that should happen, the Burrillville WWTF would not work and its effluent (discharge) into the Clear River in Oakland would violate all RIPDES permit limits. The Town of Burrillville would have to pay substantial fines to the RI DEM and enter into ANOTHER consent order to deal with the MTBE and VOC problem. (Remember that the WWTF is already under a consent order to deal with high levels of Phosphorus and Copper. The town of Burrillville has already spent millions of dollars in order to upgrade the WWTF to remove the Phosphorus and Copper. They will have a new RIPDES permit which will become effective on July 1, 2017.)

Another concern is the age of the sewer line under Wallum Lake Rd. Councilman Rawson told me that the sewer was put in around 1970. This puts the sewer line at 46 years old. Invenergy states that it will intermittently force pump their industrial wastewater into the sewer. Question #1: Will the sewer line be able to handle the volume/pressure? Question #2: What will be the volume & pressure? What will be the HP of the pump? Question #3: Will the WWTF be notified before the discharge is force pumped into to the sewer? And if so, how long will the notice be? I believe that someone should do a study to see if the sewer system will be able to handle the flow (whatever it may be) and make sure that the flow does not cause a problem with back-ups in the residents who are already hooked up to the sewer system along Church St. and beyond.

INVENERGY'S WATER STORAGE TANKS:

Invenergy has listed in its application several water storage tanks: "Fire Water / Service Water Storage Tank" (800,000 gallon tank); "Demineralization Water Storage Tank" (1,000,000 gallon tank); and "Wastewater Storage Tank" (160,000 gallon tank). My concern here is basically, once again, the possible presence of MTBE and other VOC's from the contaminated Well #3A. First I will assume (and perhaps I should not) that the "Demineralization Water Storage Tank" has already been demineralized and gone through the reverse osmosis which should remove any MTBE and VOC's. So, two other tanks are left. One will definitely have some amounts of MTBE and other VOC's and that would be the "Wastewater Storage Tank". The last tank, "Fire Water/Service Water Storage Tank", will probably have some amounts of VOC's from the contaminated well in that the water will come straight from the GAC treatment system/Wellhead #3A. Should not these two tanks be covered/sealed? Should not these two tanks have secondary containment? If these tanks leak or overflow into the environment and they contain even small amounts of MTBE and other VOC's, the result will be negative to the wetlands and groundwater below the proposed site.

NOISE:

Much has been said about the noise situation. I wrote about it at length in my first report to the Planning Board, dated June 20, 2016 (but emailed via attachment to Mr. Kravitz, Mr. Pacheco, and Mr. Wood on June 7, 2016). I don't have much to add except that the Spectra/Algonquin compressor station is loud. People have been complaining to the Town Council and some have called the Burrillville Police Dept. No one seems to be able to do anything about the rise in noise coming from this station. It is obviously emitting noise higher than its permit limit. Also, I want to say that the same thing is going on with Ocean State Power. Not only are Burrillville residents complaining, but Uxbridge residents are complaining. And, once again, nothing is being done.

So.... I can only assume that if the proposed project is approved and built and it violates its noise limits and people complain, these complaints will be ignored as well.

What is interesting about Burrillville's noise expert's (Mr. Hessler's) report is that he used 5 out of 6 of the same places (State of NJ; State of IL; Fairfax County, VA; Portland, OR; Appleton, WI) to compare the Octave Band Noise Ordinance Limits with Burrillville's. I know that Mr. Hessler works primarily with power plants. Is there a book of noise ordinances that both Invenergy's consultants and Mr. Hessler used? I think so. By comparing these 2 states, 1 county, and 2 cities with Burrillville is ridiculous. Burrillville is a rural town. PERIOD. Mr. Hessler agrees with Invenergy's Noise consultant. Mr. Hessler, in his report, states: "This level [43 dBA] is unusually low and restrictive because essentially all known State and local ordinances and regulations do not go below a limit of 45 dBA at night." He goes on to state: "This overall limit of 43 dBA fully serves the purpose of limiting the project's noise to an acceptable level in the community. Invenergy has repeatedly argued that it is not feasible to meet the lower octave band limits and they have asked for a waiver on the octave-band requirements. This is a legitimate assertion and a legitimate request. We would agree that it is probably technically impractical – and would add that it would do nothing to reduce the subjective audibility of the plant if it were."

However, at the Planning Board meeting on June 20, 2016, both experts (Burrillville's and Invenergy's) agreed that Invenergy could/would meet the 43 dBA (Burrillville's ordinance level). What? What changed? Well, I think I know what changed. But that is my opinion so I will not go there.

The Conservation Law Foundation's data request #4-1 to Invenergy through the RI EFSB process asks about the fact that in Invenergy's application it states: "Although achieving the broadband portion of the code (43 dBA) was feasible with extensive controls, including placing the combustion turbines within buildings, attaining the unusually restrictive octave-band limits was found to require extraordinary mitigation measures commercially untenable and even beyond engineering feasibility." Specifically, the CLF asks about what the "extensive controls" and "extraordinary mitigation measures" were. Invenergy's response was to list them and to state: 1) "Compliance with the broadband portion of the code (43 dBA) during normal operation can be achieved using "extensive controls"...."; 2) "Compliance with the broadband portion of the code (43 dBA) for transient operations such as startup and shutdown can be achieved using all "extensive controls..."; 3) "Compliance with the octave band portion of the code was found to require "extraordinary mitigation measures..."; and 4) "Invenergy, through its EPC Contractor, proposes to implement the controls necessary to achieve 43 dBA during normal, startup, and shutdown operating conditions." Also, Invenergy stated that these extra noise control systems will cost \$7 - \$10 Million at a minimum.

In Mr. Hessler's report, he states that "we would fault the Applicant [Invenergy] for avoiding any mention of start-up noise in their initial noise study for the important reason that the plant will employ air-cooled condensers (ACC's)." At least Mr. Hessler states this fact. The application should have included this information originally. It should not have taken data requests in order for Burrillville to obtain this information. Mr. Hessler further states: "To their credit, when queried about this issue through the data request process, Invenergy did the right thing and commissioned an additional, detailed noise modeling study to evaluate the sound emissions from the facility specifically during start-up and steam turbine bypass." He goes on to state: "We have reviewed this new study and consider it competently done; however, the model inputs representing noise from steam turbine bypass into the condenser duct appear to be rather optimistic and much lower than we would realistically expect." So Burrillville's expert says that the model "appears to be rather optimistic"? I could go on, but the bottom line in Mr. Hessler's words: "In summary, then, it is our opinion that the CREC facility will have a minimal and generally acceptable noise impact on the community so long as the overall, A-

weighted nighttime Ordinance noise limit of 43 dBA or less is maintained during all normal, non-emergency operating modes at all of the nearest residences.”

If interested there is a table which shows the addition of dB's when you add two noise sources together. This table can be found at: www.ccohs.ca/oshanswers/phys_agents/noise_basic.html. This is how you calculate the noise “addition”: “Sound pressure levels in decibels (dB) or A-weighted decibels (dBA) are based on a logarithmic scale. They cannot be added or subtracted in the usual arithmetical way.” Here is the table:

<u>Numerical difference between two noise levels (dBA)</u>	<u>Amount to be added to the higher of the two</u>
0	3.0
0.1 – 0.9	2.5
1.0 – 2.4	2.0
2.5 – 4.0	1.5
4.1 – 6.0	1.0
6.1 – 10	0.5
10+	0.0

Directions: Step 1: “The numerical difference between the two levels using the first row.”
 Step 2: “Look at the second row and note the amount to be added to the higher.”
 Step 3: “Add the number in the second row (which corresponds to the first row) to the higher of the two levels.”

Interestingly enough, in Invenergy’s response to Burrillville’s data request question # 6-8, they determined the noise increase wrong. Invenergy states that the compressor station’s noise levels are estimated to be “between 43 to about 51 dBA depending on load conditions”. Then they state that CREC will not exceed 43 dBA. They state that the corresponding combined noise level will be 52 dBA. This is not quite correct. If you look at the table that I provided, the difference between 52 and 43 is 8 dBA. The corresponding number to be added to the higher of the two is 0.5 not 1. The noise level would be 51.5 dBA. Yes, I know that this is a very small mistake, but it is ANOTHER mistake. Let’s look at this scenario: Spectra compressor station is at 55 dBA and Invenergy is at 55 dBA. The difference between those two levels = 0. The corresponding number to be added to the highest level = 3 dBA. So the two combined noise levels would be $55 + 3 = 58$ dBA. And what if the compressor station is at 58 dBA and Invenergy is at 57 dBA? $58 - 57 = 1$; 1 corresponds with 2 (in the second column); the highest level is 58 so add the 2 with the 58 = 60 dBA. This does not include the intermittent “blow-offs” from the compressor station and the louder levels when Invenergy starts up and shuts down. The combined noise can be intermittently so much higher.

I have decided to give you my opinion. Sorry. I believe that Invenergy will agree to anything and sign any agreement in order to have their proposed project approved. In this case, they will agree to everything possible to keep within Burrillville’s noise ordinance level of 43 dBA even though I believe that it will not be possible, regardless of how much noise reduction that they invest in. Why? Because they know that if they go over Burrillville’s ordinance, no one will do anything about it. They know that people have been complaining about the Spectra/Algonquin compressor station and Ocean State Power noise. They KNOW that no one is doing anything about these two existing facilities. So why would anyone do something about their Project violations of noise ordinances?

19% AQUEOUS AMMONIA:

I also included this subject in my first report to the Planning Board; however, after attending the June 20, 2016 Planning Board meeting, it became apparent to me that something must be said. Invenergy’s and Burrillville’s experts talked about the possibility of an “accidental release” of the aqueous ammonia. They focused ONLY on the air emissions or the ammonia gas that would volatilize if such a release would occur. However, aqueous ammonia is a liquid. (“Aqueous” means liquid.) No one talked about the negative impacts to the environment that such a release would cause. Even a small amount of aqueous ammonia entering a wetland area would cause a terrible problem. The pH of the aqueous ammonia is >12 . As I stated in my first report, Invenergy is using this percent of aqueous ammonia so as not to deal with EPA regulations 40 CFR 68

(the EPA's risk management regulations). However, Invenergy infers by this fact (that 19% is not included in their risk management regulations) that the EPA does not consider this a hazardous substance. Although ammonia is not listed on the EPA's "Non-Criteria Pollutants", the fact remains (in Invenergy's application, Table 2 of the Air Emissions section) that they anticipate an estimate of 81,240 lbs/year (40.62 tons/year) of ammonia emissions...and this is for normal operations and NOT an accidental release! This does not include any "normal" releases from the 40,000 gallon storage tank!

There are wetlands surrounding the proposed site as well as on the proposed site (which will be filled in). If there is an accidental release, there is a good chance that it will not be noticed in time for the ammonia to migrate into the wetland areas. There is also a chance that the ammonia seep into the ground and eventually get into the groundwater aquifer below the proposed site. I believe that a risk management study should also be done considering the release to be liquid.

I like the report completed by Mr. Jackson concerning the 19% aqueous ammonia. His recommendations are spot on. I would include an impact study for the environment considering that wetlands and wildlife abound in the proposed area. (I agree that human health is of the utmost importance, but the environment and wildlife was not even mentioned at the meeting.)

All I can further say is: "Thank goodness for the data request/response RI EFSB process!!!" If it were not for this system, we would not have known anything about the ammonia air monitors and other safety systems as this information was not included in the original application.

HYDROGEN TUBE TRAILERS:

Once again, I have mentioned this subject in the first report. However, since that report was completed, Burrillville's data requests saved the day! Data Request #9 (9-1 through 9-7) asked about the hydrogen tube trailers. Specifically, one of the questions mentioned the fact that "a typical tube trailer has the equivalent of 5,585 pounds of TNT". Invenergy did not even go there. Not one word about TNT. One mention of a possible explosion can be found in their response #9-2 where it states: "The generator [electric] is equipped with end shields that are designed to withstand a hydrogen explosion in the unlikely event of such a mishap and direct the blast away from possible occupied spaces around the perimeter of the generator." Hmmm...."direct the blast away from possible occupied spaces...". I am not feeling warm and cozy about this. Also, Invenergy's response in #9-2 states: "The hydrogen purity will be controlled to a level where an explosive mixture is not present, (i.e. 99.99 percent pure) which is greater than the explosive mixture range of hydrogen and oxygen, thus providing a measure of safety." Hmmm.... "a measure of safety".... I am still not feeling warm and cozy.... What if there is a power outage?

Now comes an interesting fact. Invenergy's response to Burrillville's data request 9-2 states: "To prevent mixing of hydrogen with oxygen in air that would create explosive mixtures, a control system is proved that purges the generator with an inert gas such as carbon dioxide before filling the generator with hydrogen. Similarly, when hydrogen is removed from the generator, it is once again purged with carbon dioxide. This control system allows safe and efficient filling and purging of hydrogen to avoid an explosive mixture in the generator." Okay now.... Invenergy just mentioned a new gas that will be obviously pressurized – carbon dioxide. How will this pressurized carbon dioxide be shipped and stored? Will they come in pressurized cylinders? How much do they anticipate that they will use per year? There is nothing mentioned about the carbon dioxide further other than it will be used to allow for "safe and efficient filling and purging of hydrogen to avoid an explosive mixture in the generator". Continuing with Invenergy's response to Burrillville's Data Request Set #9, there is so much more information concerning the venting and monitoring of the explosive hydrogen gas. Why was all of this NOT included in the application? What else is not in the application that people/experts/residents/scientists/engineers have not caught.... Yet? I totally understand why Invenergy only mentioned the hydrogen tube trailers in three small sentences in the 471-page application. But to hide it in order to gain approval by the RI EFSB is terrible....

Another thing that concerns me is Invenergy's response to Burrillville's Data Request #9-5. Burrillville's question concerns the frequency of replacing the hydrogen tube trailers. Invenergy's response is somewhat vague and seems like an "estimate". Invenergy states: "The frequency of tube truck deliveries will vary throughout the year. The frequency of deliveries when both units are operating is expected to range from four to nine weeks, assuming a 6-tube truck trailer configuration is providing the delivery." Another concern of mine is Invenergy's response to Burrillville's data request question #9-6. Invenergy states: "Guidelines provided in NFPA G.2(a) will also be followed, e.g. if the size of the hydrogen system is between 3,000 to 15,000 scf, the

containers will be located at least 50 feet from occupied areas of the plant.” So, even as of May 26, 2016, Invenergy does not know the scf of the hydrogen system?

EMISSION STACKS:

As I have said before, I attended the last Planning Board meeting on June 20, 2016. I heard Invenergy’s expert state that the air emission monitors in the emission stacks (two 200-foot high) would be calibrated once a year. I could not believe my ears. I know that if questioned about this, Invenergy will fall back on its stand-by statement: “It is recommended by the manufacturer or a manufacturer specification.” I hope that someone will ask Invenergy why the calibrations will only be done once a year in the 200-ft stacks. Also, if the calibrations will only be done once a year here, how often will the ammonia monitors and the hydrogen monitors and the VOC monitors (ULSD) be calibrated? Do you see my point?

The other concern with the two 200-foot emission stacks is the actual height. It states on page 32 of Invenergy’s Major Source Permit Application: “A GEP [Good Engineering Practice] stack height analysis has been performed in accordance with “Guideline for Determination of Good Engineering Practice Stack Height” (US EPA, 1985).” It continues to explain what that means and how to go about determining this “good engineering practice”. I looked up the report completed in 1985 and read most of it. I am not a building engineer and I do not trust Invenergy. There have been too many other “mistakes” made that have been found by the experts (mostly by Mr. Epner, Burrillville’s Air Quality expert & the Traffic expert, Mr. Jackson). I do know a couple of things that I think do play a role in this GEP of stack height. I understand why Invenergy does not want to have any stack higher than 200 feet. If that were the case, the FAA would have to be involved.

So that being said, I wish to share some facts with you. The proposed site is 570 feet above sea level. Buck Hill is 770 feet above sea level. That means that the top of the two 200-foot stacks will be level with the top of Buck Hill. This height (770 feet) does not include the trees nor the buildings that sit on top Buck Hill. The top of Buck Hill is approximately 1.5 miles from the proposed stacks’ locations. (Invenergy states that there is a terrain point which is 4,400 meters [2.73 miles] to the northwest of the proposed site. This cannot be Buck Hill or they made an error on their measurement from the proposed site to Buck Hill.) And of course, they want Buck Hill to “appear” farther away. Someone should check these numbers.

Also, the above measurement and the sentence that contains it (which states: “The closest terrain is located approximately 4,400 meters to the northwest of the Facility.”) is NOT in the original application. I found it as a response to the Conservation Law Foundation’s data request #1-1 which attaches as stated in the response: “A copy of the material transmitted by ESS Group on behalf of Invenergy on October 30, 2015 to Doug McVay, RI DEM, entitled ‘Air Dispersion Modeling Report – Clear River Energy Center – Burrillville, RI.’” There is more data in this report than is in Invenergy’s Major Source Permit Application portion of the original total 471-page application. Why is that?

I understand the basics of the stack height good engineering practice theory. However, I believe that because of the terrain (including Buck Hill) that exists surrounding the proposed facility, the “system” is a “complex” one. In other words, if the wind direction blows the emissions towards Buck Hill, the residents will be negatively impacted especially by the PM (particulate matter) from the stacks. (People with asthma and small children will be severely impacted.) On the other hand, if the wind blows from Buck Hill to the proposed plant, this could cause a downwash which refers to the stagnant and recirculating eddy of air emissions. Even though Buck Hill seems not to be “nearby”, I believe that this hill may cause a substantial problem.

I hope that someone will look at the stack height scenario. Perhaps Mr. Epner could take a long, hard look at this? [I have also read the following: www.cppwind.com/blogs/good-engineering-practice-gep-stack-height . To quote this article: “According to Environmental Protection Agency (EPA) regulations, GEP stack height is defined to be the **tallest** of the following: 1) 65 meters (213 feet), as measured from the ground-level elevation at the base of the stack; 2) 2.5H (for stacks in existence in January 12, 1979) or H+1.5L (for all other stacks), where H is the height of the building itself or any significant nearby structure or structures and L is the lesser of the projected height or width of the building in question; 3) the height demonstrated by an approved fluid model or a field study that ensures that the emissions from a stack do not result in excessive concentrations of any air pollutant as a result of atmospheric downwash, wakes, or eddy effects created by the source itself, nearby structures or nearby terrain features.” It continues: “The first criterion simply establishes a minimum stack height, while the second is clearly a very generic method that can’t possibly cover every situation. When stack height is a driving factor in building design, a custom approach can yield more accurate results.” I hope an expert will look at this closely.

Another reason that I am suspicious of the stack height is that I read Burrillville's Data Request Question #6-17: "How does the height of the "smokestack" affect emissions disbursement and, specifically, the abutting properties?" Invenergy's response includes three paragraphs. The last sentence of the first paragraph states: "A higher stack will result in a higher plume, which will travel a longer distance to reach the ground at a point further away from the stack, allowing more time for dilution and will result in lower ground level concentrations." At the end of the third paragraph, it states: "The proposed CREC turbine stack height (200 feet) was the height at which it was determined that air quality impacts and visual impacts to the surrounding community would be best balanced, while still achieving full compliance with all applicable air quality standards." I thought the EPA regulated the stack height by using the GEP method? It sounds like Invenergy ball-parked it to satisfy the DEM and the town of Burrillville.

On page 33 of Invenergy's Major Source Permit Application, it states: "The GEP formula height is based on the "nearby" buildings or build tiers that result in the greatest justifiable height." The word "justifiable" is not in the GEP guidelines from the EPA.

Again, someone (an expert) should definitely look into this. My opinion, and I am NOT an expert, is that the two stacks should be higher. According to the responses from Invenergy and the application, it seems that if the stacks were taller, the emissions would disperse faster (because of the greater air flow over the stack) and these emissions would fall, more diluted, farther from the proposed site. However, once again, Invenergy does not want to deal with the FAA and its regulations.

AIR EMISSIONS:

First, I want to talk about the ambient air situation; that is, the concentration of NO₂, CO, SO₂, PM (2.5), and PM (10). Invenergy did not take any ambient air measurements near the proposed site. According to the RI DEM Air regulations, Invenergy did what these regulations RECOMMEND to do. These are "background criteria pollutant air monitoring data for Modeling Rhode Island Sources", which are "based on 2012-2014 monitoring data, unless otherwise indicated". This specific list can be found at www.dem.ri.gov/programs/benviron/air/pdf/dispdata.pdf.

First of all, on Table 5 in Invenergy's Major Source Permit Application, Invenergy used two wrong concentrations, specifically for 1) SO₂ 1-hour concentration and 2) SO₂ 3-hour concentration. They used 123 ug/cubic meter instead of 36 ug/cubic meter for the 1-hour avg. for SO₂. They used 200 ug/cubic meter instead of 45 ug/cubic meter for the 3-hour avg. for SO₂. All this entailed was to copy from the data from the DEM pdf to their own table. When Invenergy responded to Burrillville's data request question #6-13, they found the correct concentration for the 3-hour SO₂, but the 1-hour avg. concentration of SO₂ was still 123 ug/cubic meter...still wrong.

I believe that Invenergy chose to use the RI DEM RECOMMENDED ambient air concentration data because they knew that the true ambient air concentrations of these "background criteria pollutants" would be much higher at the proposed site. I believe that Invenergy should be forced to do the ambient air monitoring at least for the 1-hour, 2-hour, 8-hour, and 24-hour average concentrations to see what the REAL concentrations are in comparison with the DEM recommended concentrations. (I understand that these DEM recommended concentrations are averages of 3 years – 2012 – 2014, but they are inaccurate for use in this case because of the 2 natural gas power plants in Bellingham, 1 in Blackstone, Ocean State Power, Spectra/Algonquin Compressor Station, and the natural gas power plant in Killingly, CT.) NOTE: Invenergy has been working on this project since 2014 and maybe even before that. In their application it is stated that they had ESS Group doing studies in July 2014. I am sure that if they had asked the RI DEM if they could begin to collect ambient air measurements in the proposed site in 2014, the RI DEM might have said "yes". The DEM knows that their recommended ambient air background concentrations do not reflect the "real" situation at the proposed site.

They used these recommended ambient concentrations in all of their air modeling scenarios.

I know that these mistakes that are found in Invenergy's application will not impact their modeling, however, my point here is that they are MISTAKES. And if someone had found them earlier, perhaps new air modeling could have been done. I do know that they will not change them now nor will they even entertain doing any background air monitoring to satisfy the town of Burrillville that the numbers they used are close to the "real" concentrations.

At the Planning Board meeting on June 20, 2016, we all heard Mr. Epner (Burrillville's expert on Air Quality) state that there were inconsistencies throughout Invenergy's application. Mr. Epner was very "nice" about this fact ... and it is a FACT. Frankly, I am amazed at the "inconsistencies" that I, myself, found, never

mind the ones that the experts found. In his report to Mr. Wood, Mr. Epner states: "In general, the reports contain numerous instances of conflicting information, not just between the three reports (which is to be expected, since the submittal timeframe spanned almost seven months), but also within the same report." You are very kind, Mr. Epner. Invenergy is proposing the biggest project in RI and has the capacity to so negatively impact Burrillville's residents, economy, and its environment! This is not their first rodeo. They have completed many, many applications before. This is not even their first "special" combined-cycle natural gas power plant. They just broke ground in Jessup, PA for the Lackawanna Energy Center in May 2016. That bad boy will have the capacity of 1500 MW!!!! So no: It is not "to be expected, since the submittal timeframe spanned almost seven months"!!!!

Mr. Epner's report goes on to note several other important mistakes in Invenergy's application and reports. He states that when Invenergy is "called out" on these mistakes, the response is that the plans have changed. And does Invenergy change the modeling because of these changes??? No. Specifically, Mr. Epner states on Page 3 of his report: "For example, all of the location data (coordinates) for on-site buildings and stack locations presented in Table 3 Modeling Input Parameters was different from the location data contained within the model files. When asked about the discrepancy (see Town Data Request 7-24), Invenergy responded that Table 3 'was not updated to reflect' the most recent information used in the model. Typically, when an applicant acknowledges an error affecting an entire table, a copy of an updated/corrected table is provided. No updated table was provided with Response 7-24." Further down Page 3, Mr. Epner states: "Typically, when an applicant acknowledges a change to a modeling parameter, such as stack locations or property line, the model input files are updated and a copy provided to the permitting agency along with a copy of the model output files demonstrating compliance is maintained with the change. No updated model files were provided with Response 7-22." And I am sure that no new model input files were sent to the DEM. Mr. Epner found so many errors..... Why didn't the DEM catch them?

Concerning Invenergy's "Health Risk Assessment Report", Mr. Epner states: "While the Health Risk Assessment Report indicates the project will conform and comply with all relevant standards, we find it difficult to verify the report's conclusions based on the issues we've identified with the reports in the absence of updated data/tables/figures/model files to correct the errors located to-date. While none of the issues appear to be significant enough on their own to necessarily change the compliance demonstration from pass to fail, we are simply not in a position to confirm that assumption since we are unable to evaluate the situation until all of the errors have been adequately addressed and presented in a consistent manner." Well, there it is. Mr. Epner cannot use his expertise to verify whether or not Invenergy's Health Risk Assessment Report is accurate.

Concerning the MTBE possible air emissions, Mr. Epner states: "Assuming the proposed treatment system for Well 3A performs as-designed and removes all MTBE from the groundwater, we don't anticipate any MTBE air emissions." He also wrote about Invenergy's response (or should I say non-response) concerning what fraction of a possible MTBE breakthrough (via water) would go to the Burrillville WWTF (Data Request 10-1). Mr. Epner states: "Unfortunately, the response from Invenergy did not contain any information related to the estimated fraction of MTBE expected to volatilize versus the estimated fraction expected to be discharged to the sewer."

The saddest part about this whole thing is that Invenergy's Major Source Permit Application, which was sent to the RI DEM on June 15, 2015, was "deemed administratively complete by the RIDEM on or about April 26, 2016." (This was in Mr. Epner's "Air Quality Permitting Summary" of his report to Mr. Wood, dated June 17, 2016.) What exactly does that mean—"deemed administratively complete"? Does that mean that all the errors cannot be corrected and that the Major Source Permit Application is or will be approved by the DEM soon? **Someone should contact the RI DEM Office of Air Resources and get to the bottom of this NOW!!!!**

OCEAN STATE POWER COMPARED TO INVENERGY'S PROPOSED PROJECT (EMISSIONS):

In Burrillville's Data Request 4-46, the question states: "What has been Ocean State Power's air emissions, by pollutant type as reported to the EPA, over the past ten years and how does that compare to what Invenergy projects for the CREC during its first ten years of operation?" Invenergy response is very clever. Their answer is in pounds per megawatt hour and not in tons per year. Like I said before, this is not their first rodeo. At first glance, Invenergy's answer that OSP (according to the EPA) has been 0.39 pounds per megawatt hour for NOx and 1,458 pounds per megawatt hour for carbon dioxide, sounds great compared

to Invenergy's projected 0.046 pounds per megawatt hour for NOx and 781 pounds per megawatt hour for carbon dioxide. Right? But upon further investigation and a little math, the truth can be found. What do we really want to know? We want to know the total number of tons of NOx and CO2 emitted per year. It is pretty easy to calculate. OSP I runs at approximately 247 MW and OSP II runs at approximately 247 MW for a combined total of 494 MW, which means that for every hour the two run, 494 MW of electricity are generated. So to calculate further: $494 \text{ MW} \times 0.39 \text{ lbs/megawatt hr} \times 24 \text{ hr/day} \times 365 \text{ days/yr} = 1687702 \text{ lbs of NOx}$ or 843.85 tons per year. Now for the carbon dioxide: $494 \text{ MW} \times 1458 \text{ lbs per megawatt hour} \times 24 \text{ hr/day} \times 365 \text{ days/yr} = 6309407500 \text{ lbs of CO2}$ or 3.15 million tons per year.

Now let's look at Invenergy's numbers: Invenergy's capacity is 1000 MW, which means for every hour it runs, 1000 MW of electricity is generated. $1000 \text{ MW} \times 0.046 \text{ lbs per megawatt hour (NOx)} \times 24 \text{ hr/day} \times 365 \text{ days/yr} = 402960 \text{ lbs}$ or 201.48 tons per year of NOx. That is indeed better than OSP. Now for the CO2: $1000 \text{ MW} \times 781 \text{ lbs per megawatt hour} \times 24 \text{ hr/day} \times 365 \text{ days/yr} = 6841560000 \text{ lbs}$ or 3.42 million tons per year. Not better.

However, Invenergy's combined cycle natural gas proposed power plant is indeed more efficient as Invenergy states. But keep in mind that Invenergy has a new system ("H-class") and OSP I has been running since 1990 ish and II started operations not much later. PLEASE NOTE: Ocean State Power does not use pressurized hydrogen gas for cooling and is not using a contaminated water source (GROUNDWATER) at usage rates that are "estimated".

PARTICULATE MATTER (PM) EMISSIONS:

Particulate Matter emissions are very dangerous. Unlike the carbon dioxide and other air gas emissions which will mostly go into the atmosphere (causing the increase in climate change), Particulate Matter (PM) will eventually fall downward rather quickly....depending on the size. There are basically two sizes that the DEM and the EPA are interested in – 2.5 micron size and 10 micron size. These particles are made of hydrocarbons that interact with the air and form particles and carbon particles. PM is dangerous because if it is breathed in, it can enter the lungs and if at the 2.5 micron size range, can actually enter the blood stream. People who have breathing problems should not be in the presence of the PM emissions. Also, older people and young children/babies are in the "risk" zone.

According to the EPA's report, "Particulate Matter (PM) Pollution – Health and Environmental Effects of Particulate Matter (PM)": "Exposure to such particles can affect both your lungs and your heart. Numerous scientific studies have linked particle pollution exposure to a variety of problems including premature deaths in people with heart or lung diseases, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms, such as irritation of the airways, coughing or difficulty breathing." Under the "Environmental Damage" section, this report states: "Particles can be carried over long distances by wind and then settle on ground or water. Depending on their chemical composition, the effects of this settling may include making lakes and streams acidic, changing the nutrient balance in coastal waters and large river basins, depleting the nutrients in soil, damaging sensitive forests and farm crops, affecting the diversity of ecosystems, and contributing to acid rain effects." None of this sounds good.

Invenergy projects that their "potential" PM emissions will be 196.81 tons/year, "based on preliminary project equipment specifications and emission estimates" and "equipment vendor selection, equipment specifications, and emission rates are subject to change as the project design advances". (These quotes are also for the estimated emissions for carbon dioxide, carbon monoxide, nitrogen oxides, sulfur dioxides, and Volatile organic compounds (VOC's) listed on Invenergy's Table 1 in their Major Source Permit application.)

Interesting to me is the difference between the use of ULSD and natural gas in the lbs/hr values for the PM. When ULSD is used, Invenergy's proposed project will emit 69.1 lbs/hr per turbine and when natural gas is used, the proposed project will emit 18 lbs/hr per turbine. You can do the math yourselves. That is a lot of PM's emitted to the atmosphere!

TRAFFIC:

What can I say about the traffic? Mr. Jackson (Burrillville's traffic expert) did a great job in reviewing Invenergy's traffic report and found many errors in it. There were 11 questions that were used in data requests for Burrillville. For example, data request question #13-2 asked: "Is Main Street really 62 feet wide?" Invenergy's response basically stated that there had been a mistake ("inadvertently described as 62 feet wide")

and that the real width was “32 feet with an eight-foot parking lane along the eastern side of the roadway”. So each lane is 12 feet each way and so the total “travelable” road width is 24 feet.

My concern is that Invenergy’s traffic study did not include the intersection of Church Street and High Street (across from CVS) in Pascoag. This intersection is terrible even for cars. I heard Mr. Jackson state that at the Planning Board meeting on June 20, 2016.

I am also concerned about the construction phase of the proposed plant regarding the number of trucks and wide loads coming through Pascoag and Chepachet. I am also concerned about the tankers carrying ULSD when the proposed plant is running on it. It will be in winter, travelling down the hill to the center of Pascoag.

ARCHEOLOGICAL SITE SURVEY:

My concern with the archeological site survey is the following. Invenergy hires Gray & Pape, Inc. to do a Phase I and a Phase II archeological site surveys. Gray & Pape, Inc. know that Invenergy wants to put their proposed power plant on the site. Before the company even begins to do their surveys, it is biased. The company does the Phase I site survey. It comes up with a few historical and Indian sites “of interest”. Then Gray & Pape, Inc. do a Phase II site survey—more detailed. Then they turn in their final report to the State of RI Historical Preservation & Heritage Commission. The executive director of the RIHPHC sends a response letter to Gray & Pape, Inc., specifically to Mr. Christopher Donta, stating that they agree with Gray & Pape, Inc.’s assessment “that the artifact scatters do not constitute significant cultural resources; no further archeological investigation of them is warranted.” The letter goes on with specifics. However, my point here is this: Gray & Pape, already biased, does their site surveys, sends the reports for Phase I and Phase II to the RIHPHC (who never stepped foot on the property in question), and then the RIHPHC just flat out agrees with Gray & Pape. Again, they agree with a company doing important site surveys, knowing full well that Invenergy wants there to be no “significant cultural resources” on the proposed site. I just don’t understand. If I were working for the RIHPHC, I would have sent out one of my archeologists to work alongside Gray & Pape’s team to verify their findings. I would not have depended on a written report with maps of dig holes.

WIND/SOLAR FARMS COMING ON LINE BY 2020:

In my first report that I submitted via attachment email to Mr. Kravitz on June 7, 2016, I wrote about what Invenergy stated concerning the 4200 MW of electricity from power plants that were due to shut down by 2019. I found (and wrote about in the first report) that 1922 MW of that 4200 MW were already shut down by 2014 – one year before Invenergy’s application was submitted to the RI DEM. I also found that most of the “at risk” power plants were really not “at risk”.

Interestingly, ISO-NE as well as Invenergy do not EVER talk about the new renewables that are coming on line in New England. They both only focus on the power plants that are shutting down and on the need of more “reliable” power generation systems.

Recently, upon more research on the web (specifically on ISO-NE’s web site), it was found that there are 6800 MW of wind “Active Projects” which will be on line by 2020 in New England (mostly in Maine)! Also, on the same site, it was found that there are 1347 MW of solar “Active Projects” which will be on line by 2020. It was also found that there are 1030 MW of hydro “Active Projects” which will be on line by 2020. This is a total of approximately 9200 MW of renewables on line in New England by 2020! Yes, Invenergy....”but what if the sun does not shine and the wind does not blow?” Well, the hydro will not stop flowing and that is your 1000 MW right there. That 1030 MW’s from hydro are “active projects” located in Maine, Vermont and New Hampshire. Also, there has been a tremendous improvement in the battery capabilities to store the electricity generated by solar and wind to be used when the “sun does not shine and the wind does not blow”.

If the total of 9200 MW’s of renewables do indeed go online by 2020 as predicted by ISO-NE, I guess, Invenergy and other natural gas power plants will not be needed. I think we can wait. I know we can wait... there are several “peaker” natural gas power plants on line. Peaker plants do not run all the time. They only start up when ISO-NE (here in New England) determines that more MW’s are needed. There are several located in MA and CT.

This data was found at:

www.iso-ne.com/static-assets/documents/2014/09/interconnection_request_queue.pdf .

OTHER CHEMICALS / MSDS's:

In Burrillville data request #4-24, the question related to Material Safety Data Sheets of all chemicals that may be on the proposed site. Invenergy listed several chemicals such as the ULSD, 19% aqueous ammonia, amine/Ammonia products, acid, caustic, anti-scalant, sodium bisulfite, lube oil and glycol. The response states: "Representative Material Safety Data Sheets for these products are provided as Exhibit 1." Exhibit 1 only included one MSDS—that of "base oil". Where are the other MSDS's? Also, other chemicals now known to be used at the proposed plant were not included such as hydrogen gas, carbon dioxide gas, others for demineralizing water and for cleaning the turbine equipment. Invenergy should already know exactly what chemicals they are going to use by now.... I would like to see the rest of the MSDS's from Invenergy.

WETLANDS:

My first report goes into much detail concerning the wetlands in the area of the proposed project. The only added comment that I would like to make here concerns Burrillville's data request question # 5-7 which asks: "Is Invenergy proposing to acquire conservation land? If so, please provide details." Invenergy's response states: "Invenergy, in coordination with RI DEM and ACOE, will develop a Wetlands Mitigation Plan to compensate for all unavoidable direct, indirect, and secondary wetland impacts from the CREC, as is required by the ACOE. The plan will include one or more of the following within the affected watershed in the required compensatory mitigation ratios: proposed wetland restoration, creation, enhancement, and/or additional land procurement for preservation." Invenergy does not quite answer the question. At this stage of the process, Invenergy should have all "its ducks in a row". I would like someone (an expert perhaps) to ask Invenergy what its plan is exactly.

MY ADVISORY OPINION TO THE PLANNING BOARD:

I have given you as much of my knowledge (facts) as possible in the first report, dated June 20, 2016, and this report, dated July 11, 2016. The facts are the facts. The Clear Water sub basin does not have the capacity to support Invenergy's water withdrawal. Invenergy's protocol for the PUD Well #3A testing is not sufficient in showing the exact location and flow of the MTBE plume as well as how the sub basin reacts to the step down pump tests. Just these two items concerning the sub basin/aquifer should tell you that this project is not in compliance or in-line with Burrillville's Comprehensive Plan and for its future growth. What about the pressurized hydrogen gas that Invenergy plans to use for cooling. Hydrogen is explosive. Two million gallons of ULSD on the site. 40,000 gallons of aqueous ammonia on the site. Using MTBE contaminated water from our aquifer. Groundwater IS the growth of Burrillville. Without it, Burrillville will not grow—residentially nor commercially. Who would want to come to live in a town with a huge power plant in the middle of pristine acres of management areas, pristine water bodies, and quiet forests and wetlands? Who would want to grow their business in such a town that allows a project to steal its water right out from under them?

None of the electricity generated by Invenergy will go to RI. It will go to the grid and be distributed throughout NE as ISO-NE sees fit. (The same is and has been true for Ocean State Power's electricity generation.) Burrillville's electric rates will not go down. Frankly, after attending the many town council meetings and watching past videos of meeting, the town owes a lot of money in loans, etc. If this proposed project is approved, our taxes will not go down (as Invenergy states). The money from the tax treaty will go to paying off the loans (such as the WWTF upgrade) and the rest will be ear-marked for other improvements to the town such as schools and infrastructure.

I really hope that you folks read this report as well as the one dated June 20, 2016. There is a lot of good factual data in them. I have researched hard as I am passionate about the environment. I hope that questions are pulled out of these reports and are used as future data requests to Invenergy. I believe that like the hydrogen tube trailers and the increased noise during start-up and shutdown procedures, Invenergy is hiding even more. I really wish that I knew someone who worked for a natural gas power company.

In conclusion, giving the RI EFSB a positive advisory opinion will be the wrong thing to do for Burrillville. Not only does the Comprehensive Plan talk about the importance of the groundwater and pristine environment, the state of RI Planning Division believes the same.

As I stated at the beginning of this report: "The Town of Burrillville understands that importance of the groundwater. In Chapter 10 of the Plan, it states: "Burrillville is one of 14 Rhode Island communities which

depend entirely upon groundwater for its drinking water source.” As far as the town of Burrillville is concerned the groundwater is GOLD!!!! (You cannot drink money!) (And you cannot breathe money!)” I will add one more thing: Burrillville is a small rural town, with compassionate people. It is a very rich town because it has one of the most pristine environments in all of Rhode Island. If this proposed power plant is indeed approved, the whole character of the town will be negatively impacted. How can we, as a town, let this horror happen?

Take this home with you: If Invenergy’s proposed project is approved and is built, it will be able to do what it wants. If it violates any permit (noise, air, or water) all that it will have to do is pay fines. No one will be able to shut it down. Not the EPA, not the DEM, not FERC, not ISO-NE. No one.

Water is life. Once the water is gone so is Burrillville’s future. And I don’t want to be the canary in Invenergy’s experiment.