

12/5/17

Good evening,

My name is Victoria Vora  
10 Boulder Drive, Colorado and  
very briefly I oppose this proposal  
and as the big <sup>red</sup> sign says -  
enough is enough. Thank You.

**TOWN OF CHARLESTOWN, RI  
RESOLUTION OPPOSING THE SITING OF THE  
CLEAR RIVER ENERGY CENTER IN BURRILLVILLE, RI**

WHEREAS, on October 29, 2015 Invenergy Thermal Development LLC filed an application to Construct the Clear River Energy Center Power Plant in Burrillville, RI with the Rhode Island Energy Facility Siting Board (EFSB); and

WHEREAS, in the months since the filing of that application, the Town of Burrillville has conducted extensive study of the application with and through credentialed professionals, including studies of noise, water, traffic and air quality, among others; and

WHEREAS, after considering expert testimony and conducting thorough public hearing the Burrillville Planning Board and Zoning Board of Review have advised the EFSB that Burrillville, RI is not a suitable site for the Clear River Energy Center; and

WHEREAS, the Burrillville Building Inspector and Burrillville Tax Assessor, have also submitted advisory opinions to the EFSB expressing the impact the proposed Clear River Energy Center would have on the Town of Burrillville; and

WHEREAS, during the past eleven months, many citizens of the Rhode Island, as well as our neighboring communities in Massachusetts and Connecticut, have expressed clear opposition to the siting of the Clear River Energy Center for reasons including the impacts on property, environment, water and traffic; and

WHEREAS, the Charlestown Town Council joins with the citizens and officials of the Town of Burrillville as well as residents throughout the State of Rhode expressing concerns and objections to the siting of the Clear River Energy Center in Burrillville, RI.

NOW, THEREFORE, BE IT RESOLVED that we, the Town Council of the Town of Charlestown, RI, do hereby oppose the siting of the Clear River Energy Center in Burrillville, RI.

BE IT FURTHER RESOLVED that this resolution of the Town Council of the Town of Charlestown, RI, be submitted to the Rhode Island Energy Facility Siting Board for consideration during their hearings on Invenergy Thermal Development LLC's application to construct the Clear River Energy Center power plant in Burrillville, RI.

By resolution of the Charlestown Town Council  
At a meeting duly held on December 12, 2016.

Amy Rose Weinreich, CMC

Attested to by:

Amy Rose Weinreich, CMC Town Clerk



It hereby certifies the above to  
be a true copy and have  
affixed the seal of the town  
of Charlestown this 05 day  
of Dec 2017  
Amy Rose Weinreich, CMC



**TOWN OF CHARLESTOWN, RI  
RESOLUTION OPPOSING THE WATER SUPPLY PLAN SUPPLEMENT  
FOR THE CLEAR RIVER ENERGY CENTER POWER PLANT IN BURRILLVILLE, RI**

WHEREAS, on October 29, 2015 Invenergy Thermal Development LLC ("Invenergy") filed an application to construct the Clear River Energy Center Power Plant in Burrillville, RI with the Rhode Island Energy Facility Siting Board ("EFSB"); and

WHEREAS, in the months since the filing of that application, the Town of Burrillville has conducted extensive study of the application making use of credentialed professionals, including studies of noise, water, traffic and air quality, among others; and

WHEREAS, after considering expert testimony and conducting thorough public hearings, the Burrillville Planning Board and Zoning Board of Review have both advised the EFSB that Burrillville, RI is not a suitable site for the Clear River Energy Center Power Plant; and

WHEREAS, since filing their application with the EFSB, Invenergy has had difficulty in securing a reliable water supply for their proposed power plant; and

WHEREAS, the Town of Johnston has authorized the sale of water which they purchase from the Providence Water Supply Board ("PWSB") to Invenergy for their water supply needs at the proposed power plant; and,

WHEREAS, the Town of Burrillville and the Conservation Law Foundation have filed suit in the Providence Superior Court seeking to enjoin and otherwise prevent the sale of water from Johnston to Invenergy; and

WHEREAS, since the initiation of the above-referenced litigation Invenergy has filed a Water Supply Plan Supplement which indicates, in relevant part, that additional water shall be made available through a long-term reserve capacity agreement with an undisclosed provider in a document filed with the EFSB, dated September 28, 2017; and

WHEREAS, the Town of Charlestown, after due inquiry, has reason to believe that the undisclosed water supply source is located on the Narragansett Indian Tribe ("NIT") Settlement Land, located in the Town of Charlestown; and,

WHEREAS, the groundwater aquifer located on the NIT property is part of the larger Pawcatuck River EPA-designated sole source aquifer which supplies a large portion of the potable water needs to Charlestown's residents, businesses, and institutions; and

WHEREAS, the water obtained from the local supply is proposed to be transferred by truck to the proposed plant in Burrillville through the Town of Charlestown; and

WHEREAS, neither Invenergy nor the NIT have provided any information to the Town of Charlestown on the impacts and or consequences of using the local groundwater to supply the Invenergy power plant's water needs or the impact and frequency of truck traffic on local travel.

NOW, THEREFORE, BE IT RESOLVED that we, the Town Council of the Town of Charlestown, RI, without an un-redacted Water Supply Plan Supplement, do hereby oppose the use of locally supplied groundwater for the Clear River Energy Center Power Plant in Burrillville, RI.

BE IT FURTHER RESOLVED that this resolution of the Town Council of the Town of Charlestown be submitted to the Rhode Island Energy Facility Siting Board for consideration during their hearings on Invenergy Thermal Development LLC's application to construct the Clear River Energy Center Power Plant in Burrillville, RI, to the Town of Burrillville, to Invenergy Thermal Development LLC, and to the Narragansett Indian Tribe; and that the Town Solicitor take necessary action to obtain the Water Supply Plan Supplement.

By resolution of the Charlestown Town Council  
At a meeting duly held on October 10, 2017.

*Amy Rose Weinreich, CMC*  
Attested to by:

Amy Rose Weinreich, CMC Town Clerk



It hereby certifies the above to  
be a true copy and have  
affixed the seal of the town  
of Charlestown this 05 day  
of Dec 2017  
Amy Rose Weinreich, CMC

# The One Number That Shows Why Climate Change Is Making Hurricane Season Worse

By Justin Worland  
September 7, 2017

Hurricanes Irma and Harvey have reignited discussions about the link between global warming and extreme weather, with climate scientists now saying they can show the connections between the two phenomena better than ever before.

Scientists' explanation of how they do that involves a complex discussion of climate models, historical temperature data and probability. But understanding the link really comes down to one figure: the air can hold 7% more water with every degree Celsius that the temperature rises. That figure comes from the Clausius–Clapeyron equation, a widely accepted physical law established centuries ago long before any politicized debate on climate change.

“A warmer ocean makes a warmer atmosphere, a warmer atmosphere can hold more moisture,” says Gabriel Vecchi, a professor of geosciences at Princeton University who studies extreme weather events. “So, all other things equal, the same storm in a warmer planet would give you more rainfall.”

This summer's hurricane season has been a particularly warm one in the region of the Atlantic where hurricanes form, with sea surface temperatures between 0.5°C (0.9°F) and 1°C (1.8°F) above average, according to data from the National Oceanic and Atmospheric Administration (NOAA).

Those high temperatures mean hurricanes will store more water, which they can eventually dump when they make landfall. Climate scientists blame high temperatures during Hurricane Harvey's formation and along its path for the more than 50 inches of rain dropped on Houston.

“You fit all the data together and ask what is the likelihood for 100 millimeters, 200 millimeters of precipitation,” said study co-author Sarah Kapnick, a researcher at the NOAA, before the Harvey hit Texas. “As you get to higher and higher values of precipitation it becomes less and less likely without climate change.”

Now, scientists just need to convince the policymakers charged with helping prepare communities for hurricanes that the dangers are only increasing.

<http://time.com/4931586/irma-hurricane-season-climate-change/>

# **Natural Gas May Actually be Worse than Coal for Climate: Report**

**Study says methane leaks may have a yearly warming impact equivalent of up to 250 coal-fired power plants; activists rally in Pelham.**

By [Tony Schinella, Patch National Staff](#) | Jul 28, 2016 10:03 am ET | Updated Jul 28, 2016 10:04 am ET

PELHAM, NH — A new report released by Toxics Action Center, Frontier Group, Environment America, and more than a dozen community groups across New England finds that burning gas for electricity is as bad for the climate as coal — or worse, according to a press release.

The report, titled "Natural Gas and Global Warming: A Review of Evidence Finds that Methane Leaks Undercut the Climate Benefits of Gas," shows that older claims that gas has a modest impact on the climate are wrong, as they fail to account for the greenhouse gas effect of methane and high rates of methane leaks from gas infrastructure.

"For years, communities on the frontlines of proposed pipelines, power plants, compressor stations, and LNG terminals have been told by the fossil fuel lobby and politicians that gas is a low-carbon bridge to a clean energy future," said Shaina Kasper of Toxics Action Center. "Today, it's clearer than ever that this is not the case. New fracked gas infrastructure proposed across the region threatens our climate future, our health, and our neighborhoods. It's time to double down on clean local renewable energy sources right here in New England."

Released simultaneously in seven New England cities and towns today, the report emphasizes that methane is a much more powerful greenhouse gas than carbon dioxide, trapping 86 to 105 times as much heat as CO<sub>2</sub> over a 20-year period. Making these findings even more concerning, the report authors found flaws in studies that reported very low rates of methane leakage, finding evidence instead of high rates of methane leaks from gas infrastructure.

"Methane can leak during every stage of natural gas production – during drilling, processing, and even from the pipeline," said Elizabeth Ridlington of Frontier Group, report author. "Our review of the evidence suggests that these leaks may have an annual global warming impact equivalent of up to 250 coal-fired power plants, enough to nearly or completely offset any other climate benefits of natural gas."

Cathy Corkery Chapter Director and Senior Regional Organizer for New Hampshire Sierra Club, added, "We know the smart investment dollar is investing in our homes, municipal buildings, local businesses and people - Not expanding utility pipelines whose costs will be passed on to the ratepayers but the profits never get socialized as well. This is real money with real benefits that will address climate solutions, employ local workers, keep our money in our state economy, and save money for the consumers. This is our moment to get this right and leave something better for our kids."

These thoughts were echoed by community leaders in New Hampshire: "I'm an educator:  $a+b=c$ ," said Julia Steed Mawson of Pelham Pipeline Awareness Outreach Subcommittee. "This report shows that a) Methane leaks are substantial, b) Methane is just as potent a pollutant as coal, so that means c) Natural gas is not a bridge fuel; it's a gangplank."

Yesterday's seven-city release also made clear the connection between the increasingly evident urgency of a regional transition to clean, renewable energy sources and localized opposition to a surge of proposals for new gas infrastructure across all six New England states.

"My daughter and I spend as much time outside in this beautiful summer weather as possible. A gas pipeline would have devastated everything we love about living in New Hampshire," said Kaela Law of Pelham Pipeline Awareness. "I'm very glad to be standing here today having worked hard and successfully driven off the Northeast Energy Direct, an export pipeline project proposed by Kinder Morgan. In stopping this project, I helped to protect my daughter, my community, our resources and beautiful New Hampshire."

*Submitted by Toxics Action Center.*

#Environment

September 27, 2017 / 12:06 PM / Updated a day ago

## **Weather extremes, fossil fuel pollution cost US \$240 billion: study**

Alister Doyle

OSLO (Reuters) - Weather extremes and air pollution from burning fossil fuels cost the United States \$240 billion a year in the past decade, according to a report on Wednesday that urged President Donald Trump to do more to combat climate change.

This year is likely to be the most expensive on record with an estimated \$300 billion in losses from Hurricanes Harvey, Irma and Maria and a spate of wildfires in western states in the past two months, it said.

“The evidence is undeniable: the more fossil fuels we burn, the faster the climate continues to change,” leading scientists wrote in the study published by the non-profit Universal Ecological Fund.

Costs to human health from air pollution caused by fossil fuels averaged \$188 billion a year over the past decade, it estimated, while losses from weather extremes such as droughts, heat waves and floods averaged \$52 billion.

Trump could curb the \$240 billion costs, equivalent to 1.2 percent of U.S. gross domestic product, by revising his plans to promote the U.S. coal industry and to pull out of the 195-nation Paris climate agreement, it said.

“We are not saying that all (weather extremes) are due to human activity, but these are the sort of events that seem to be increasing in intensity,” co-author Robert Watson, a former head of the U.N. panel of climate scientists, told Reuters.

Higher ocean temperatures, for instance, mean more moisture in the air that can fuel hurricanes.

And, in a sign of increasing risks, there were 92 extreme weather events that caused damage exceeding \$1 billion in the United States in the decade to 2016, against 38 in the 1990s and 21 in the 1980s.

The combined cost of extreme weather and pollution from fossil fuels would climb to \$360 billion a year in the next decade, the study said. Trump’s pro-coal policies could mean more air pollution, reversing recent improvements in air quality.

Last month, the U.S. Environmental Protection Agency accused scientists who linked record extreme rainfall from Tropical Storm Harvey to man-made climate change as trying to “politicize an ongoing tragedy.”

Wednesday's study has been in the works for months, said co-author James McCarthy, professor of Oceanography at Harvard University. He said there was widening evidence that a shift from fossil fuels made economic sense.

"Why is Iowa, why is Oklahoma, why is Kansas, why is Texas investing in wind energy? Not because they are interested in sea level rise or ocean temperatures but because it's economically sensible," he told Reuters.

Reporting By Alister Doyle; Editing by Robin Pomeroy

Our Standards: The Thomson Reuters Trust Principles.



<https://insideclimatenews.org/content/Exxon-The-Road-Not-Taken>

**Exxon's Own Research Confirmed Fossil Fuels' Role in Global Warming Decades Ago**

**Top executives were warned of possible catastrophe from greenhouse effect, then led efforts to block solutions**

**By Neela Banerjee, Lisa Song, and David Hasemyer**

After eight months of investigation, InsideClimate News presents this multipart history of Exxon's engagement with the emerging science of climate change. The story spans four decades, and is based on primary sources including internal company files dating back to the 1970s, interviews with former company employees, and other evidence, much of which is being published on this web site for the first time.

It describes how Exxon conducted cutting-edge climate research decades ago and then, without revealing all that it had learned, worked at the forefront of climate denial, manufacturing doubt about the scientific consensus that its own scientists had confirmed.

## WHY WATER SHOULD NOT BE TAKEN FROM CHARLESTOWN

Joyce Schickler

26 Sunset Drive, Charlestown

Charlestown is struggling to meet its own water consumption needs. *from its aquifer,*

Even today, water trucks are carting water to some consumers in Charlestown in order to meet these needs.

Water should not be taken from Charlestown to meet the huge needs of a new fossil fuel power plant when not all the need of Charlestown residents can currently be met, and future <sup>potable water</sup> needs are at risk.

~~Unless a pipeline is to be run,~~ <sup>huge quantities</sup> hundreds of thousands of gallons of water will have to be carried over the relatively narrow and winding roads of the town, adding risk to drivers, pedestrians, and infrastructure. *and environment.*

*Can't the waste water be recycled?*

Robert A. Anderson  
Linda Hall Anderson  
22 Jonathan Dr.  
Charlestown, RI 02813

December 5, 2017

Energy Facility Siting Board (EFSB)  
Warwick, RI

RE: Charlestown RI water usage/depletion proposition by Invenergy

Dear Members,

As residents of Charlestown RI, we are writing you to voice our vehement opposition to the withdrawal of water from the Lower Wood Aquifer, located in the Wood-Pawcatuck Watershed. The watershed comprises all or parts of Charlestown, Richmond, Hopkinton, Westerly, Exeter, West Greenwich, and South Kingstown in Rhode Island, and North Stonington, Stonington, Voluntown, and Sterling in Connecticut. When running on gas, the plant would require about 15,000 gallons of water per day and when running on oil, it would need about 724,320 gallons of water per day. No limit or "not to exceed" amount has been specified.

We are very disappointed in the air of mystery and secrecy by Invenergy to not release the facts regarding the installation of this site, which according to ISO-NE is not even needed. We also greatly oppose the use of fracked gas and diesel oil supplying this power plant.

Our concerns are listed below:

1. The likely possibility of lowering the volume of the aquifer would drain underground water sources from many other areas. Of great concern to us is the underground waste dump from Kenyon Mills, comprised of barrels of dye, etc. This is located less than one mile from us across from Rippy's market. Possible leaching from this site could eventually seep into the aquifer due to the lowered volume and pollute our wells in Charlestown and surrounding areas. Of similar concern is the possibility of leaching underground water into the aquifer from the former United Nuclear site. Although that was said to be "cleaned" up, who knows what toxicity remains that could seep into the aquifer. What if hundreds of properties were deemed condemned due to contaminated wells?
2. Who will take responsibility if our wells run dry or get contaminated and as a result we cannot live in our homes. We personally had our well water tested and the results were that it is exceptionally clean.
3. Environmental- We also have concerns to our wetland areas which could be adversely affected by lowering the aquifer level. We understand there are laws to protect our wetlands. Also we have concerns about the huge amount of tanker trucks needed to transport this water along the route to and from Charlestown. The damage to our roads, the congestion, the noise factor, not to mention the inconvenience to everyone along the route is of great concern as well. Who will pay for the road repairs?

The EFSB has a tremendous responsibility to protect the citizens of all the towns that would be adversely affected by the installation of this power plant. Will you or Invenergy be held accountable for any and all damages as a result of your decision to approve this unneeded and unwanted power plant? If you approve this plant, you will NOT be following the will of the people of the state of RI, so we urge you not to approve this.

Sincerely,



Robert A. Anderson  
Linda Hall Anderson

cc: Governor Gina Raimondo



Charlestown Land Trust  
P.O. Box 1387  
Charlestown, RI 02813

December 5, 2017

To whom it may concern;

We are in opposition to both the proposed Burrillville power plant and the potential withdrawal of water from Charlestown or southern Rhode Island. Both the proposed plant and water withdrawal will introduce unnecessary risks to our citizen's health and safety, along with unacceptable, cumulative, harmful, environmental impacts.

NATURAL GAS IS STILL A NON-RENEWABLE FOSSIL FUEL and misleading when said to be a clean alternative to other fossil fuels. Even though CO<sub>2</sub> emissions are lower when gas is burned, leaks in the extraction and transmission process have been shown to negate any environmental pluses of natural gas over coal or oil. Methane is a greenhouse gas over 20 times more powerful than carbon dioxide.

There are 52 known pollutants and 3.6 million tons of CO<sub>2</sub> that will be emitted into our atmosphere annually from this new power plant. Our State will not meet it's goals of carbon emission reduction of the Resilient RI Act with numbers like this.

We all need electricity but we need alternatives to burning fossil fuels and the perpetual damage to our environment. We need to eliminate fracking and minimize fossil fuel infrastructure, transition to renewables, support research, energy innovation and land preservation. We should be in the forefront of change, following the goals of our own state-wide plans.

Along with the Governor, the decision and approval for this plant rests in your hands. As citizens, we should be kept apprised of projects of this magnitude because they will affect us long into our future. Trust needs to be established. Most of the towns in RI have opposed this power plant and they need to be listened to. Our questions need to be answered. We can't change the past; but today's decisions can protect the future.

To the Attention of the R.I. E.F.S.B.:  
Margaret Curran, Janet Cort and Parag Agrawal,

Please consider our family's grave concern over the application of Inveenergy Thermal Development to include The Town of Charlestown as a water supplier for an oil and gas power plant in Burrillville R.I.

This would put an undue burden on all of Charlestown residents. This is the sole source of water for ALL our wells.

We have not been told the amount of water to be taken, but do know that there is no cap on this amount. The impact of constant siphoning from our only water source could cause harm to our health and safety. This could cause unfair restrictions on the future of this community to continue to grow and prosper. The idea of trucking gallons of water out of our community is very frightening as we are all dependent on this clean water, supplied only by rainwater. The carbon footprint of this plan is bad for all of Rhode Island. The Inveenergy plan intrudes on wetlands and conservation land. This plan will cause unacceptable harm to economy, our health and safety. Please deny their application.

Sincerely

Sarah St Laurent, Peter H. Lewis  
382 Shemankanic Hill Rd  
Charlestown, RI

02813



My name is Peter Mahony of Stumpy Point Charlestown. ~~For my first 65 years I was primarily a summer resident on the western shores of Ninigret Pond and for the last 8 years a full-time resident,~~ now a semi-retired land use, environmental and transportation planner. I have had an opportunity to work with several Charlestown Boards and commissions and reviewed the most recent amendments to the Invenergy's proposed Clear River Energy Center application to the RI Energy Facilities Siting Board, specifically the ESS Group's report of October 24, 2017 titled "CREC's Proposed Water Use from the Lower Watershed."

To be frank, I sympathize with the ESS Group for they have been dealt an only very partial deck of cards by Invenergy and I also wonder how the Siting Board can do its proper due diligence along with all various impacted communities and interveners without the most basic information regarding this supposed back-up water supply location, its water quality, recharging rates, existing wells, pipeline and vehicular access, available infrastructure and water rights ownership. No contract appears to exist or for some reason is being withheld. Why are we dealing with a "conceptual location of the "proposed groundwater withdrawal site"?

Hence ESS had to make a series of modelling assumptions and some of them are overly conservative and many critical factors have been left out. I will attempt to highlight some of them:

- From Town Board's in this watershed (where we have no municipal water systems) it would be easy to document over the last 20 years the number and length of summer weeks where there were water shortages; I know that the Town of South Kingston was more proactive than Charlestown in declaring these shortages and requiring alternate day water usage for lawn watering and car washing, etc.;
- We must factor in present and projected changing weather patterns concurrent with global warming which has and will affect aquifer recharging capabilities, salt water intrusion, surface water evaporation, water quality deterioration;
- More specifically we contest ESS's southern limit of the Lower Sub-watershed as being the Charlestown Moraine (see unnumbered USGS figure on page 8); ESS has taken a purely topographic definition of the Lower Sub-watershed. In reality a watershed definition needs an understanding of transmissivity of the Charlestown moraine till and the flow of ground water. Modelling of these flows were undertaken in the 2006 Scientific Investigations Report. Please review figure 6 on page 9. The Lower Wood Watershed does indeed extend into the Salt Ponds Basin.

- The population figures used on table 2 come from the US Census and do not reflect the significant increase in summer residential population and hence water consumption by tourists, renters, summer home owners, summer shops, hotels, restaurants, etc.!!
- With the above increase in summer population, water consumption and the extension southward of the Lower Wood sub-watershed, the projected population figures in Table 2 are way out of line!!
- Charlestown has had endemic problems with residential on-site wastewater treatment systems OWTS's polluting our groundwater; hence, the assumptions of the amount of potable water returned to the subsurface through OWTS's is optimistic at best (page 15); this definitely impacts the water availability ratios used in this analysis;
- The transmissivity factors of 1,250 to 2,500 ft<sup>2</sup>/day (on page 20) a 1974 USGS study and the resultant calculation of 525 feet to 1,075 feet for the distance of residential wells affected by the water drawdown from the proposed potential well site also appear out of line! If there is not a more recent hydrologic study, one should be commissioned with a new calculation. Do we want to constrain appropriate development in the Lower Wood Recharge Area?
- Charlestown has had the services of three generations of AB Hoxie well drillers who maintain excellent records which will provide more than anecdotal information as to water quality, recharge rates, salt water intrusion etc. In my small neighborhood of perhaps 25 homes, I know of three families who have had to drill replacement wells in new locations given inadequate recharge rates and water quality. The Salt Pond Coalition has done likewise with a significant data base and analytic studies.

Finally the RI Energy Facilities Siting Board website for this one Clear River Proposal documents starting in early 2015 their attempts to understand Invenergy's constantly morphing proposal. During that nearly three year time frame the region's demand curve for electric power has changed due to great strides being made both in energy conservation and utilizing alternate power generating sources. Perhaps we should step back and see whether indeed we need another natural gas/oil back-up, water cooled turbines!

renewable

My name is Bonnie Van Slyke. I am a resident of Charlestown. I am also a member of Charlestown's Town Council. Thank you for coming to Charlestown.

Invenergy's application calls for water to be withdrawn from the Wood-Pawcatuck Watershed—a watershed designated by the EPA as the ONLY source of our drinking water. This water would be withdrawn year after year over the lifespan of the power plant.

This is alarming because sea level rise and warming temperatures will affect Charlestown in particular during this time period because of your geology, and this plan will impact our ability, and that of other coastal communities within this watershed as well, to manage these effects.

- NOAA projects that sea levels in the Northeast will rise by 9.2 to 11 feet by 2100, and estimates a 3- to 5-foot rise by 2050.
- More than half of the town's population (approximately 4500 people in 2250 homes) live south of state Route 1 on the coastal plain and stand to be affected by sea level rise.
- Added to this number are currently 241 residential properties north of Route 1 in the SAMP (Special Area Management Plan) area.
- Also added should be individuals in businesses and institutions, and the town's visitors. (Note Charlestown's population swells to between 20,000 to 30,000 in the summer months.)

Considering that seasonal tides (adding an additional 2 feet) and coastal storms that can occur at high tide, Charlestown will wake up long before 2050 to issues with saltwater intrusion into wells and septic systems that will be less effective or have failed, which will cause additional issues with our drinking water quality. Other threats (such as oil spills) could further affect drinking water supplies.

As a result, Charlestown, and other communities, will need water from the Wood-Pawcatuck Watershed during the life of this plant. Water Quality 2035 states, "water quality is most effectively managed on a watershed basis."

Charlestown's economy depends on being able to provide this drinking water. Please reject this plan to withdraw water, especially an unknown amount of water, from Charlestown and truck it to another watershed. Please do not mortgage our future!



*Testimony submitted to the Rhode Island Energy Facility Siting Board at their public hearing on Tuesday, December 5, 2017 at the Charlestown Rhode Island Elementary School, by Ruth Platner*

My name is Ruth Platner, I am a member of the Charlestown Planning Commission, but I am speaking for myself.

The Energy Facility Siting Board should not accept Invenergy's proposal to withdraw groundwater from within the Town of Charlestown to satisfy any requirement for a water supply.

This application is before the EFSB, but if it were an application before the Planning Commission, our Planner would stamp it incomplete and send it back to the applicant. The EFSB should do the same.

There aren't enough hours in tonight's meeting to list and discuss all the deficiencies in Invenergy's water withdrawal proposal. There is simply no data, it's missing everything except a location on a map. But that location on the map is very problematic.

The location is at the center of the Indian Cedar Swamp, an approximately 900-acre pristine, wetland. Before it was returned to the Narragansett it was a State Wildlife Management Area. No matter who owns the land, it remains a Rhode Island Natural Heritage Area.

To access the well sites will require at least a half-mile road through the wetland. Forest in the wetland will have to be cleared at the well sites. Pumping the well for the smallest volume of water proposed, 15,000 gallons a day, will negatively impact almost 50 acres of wetland surrounding the well. Pump more water and an even larger area will be damaged.

Has Invenergy provided the EFSB with any estimate of the total area of wetland that will be altered in Charlestown to support their power plant? Shouldn't the EFSB have that information before you make a decision?

I don't believe DEM would issue a wetland alteration permit for this location, and neither should the EFSB.

In the pre-filed testimony of Scott Cummings of the Rhode Island Nature Conservancy, he references maps of low light pollution on page 20 and open space connectivity on page 24. In both figures, Charlestown makes up the southern terminus of this important conservation corridor that connects the ocean in Charlestown with the forests of Burrillville. The forest fragmentation and wetland impacts that would take place in the Indian Cedar Swamp to support the power plant with water will add to the cumulative damage to this irreplaceable corridor.

Rhode Island is small and densely populated, our remaining open space is not just necessary to wildlife, but it is critical to the long-term economy of the state.

Energy sprawl at both ends of this important conservation and recreation corridor ***will cause unacceptable harm to the environment and will damage the socio-economic fabric of our state.***

And that is just one of many problems with this water withdrawal proposal. Over the next 90 days you'll hear a lot more.

*Contact information for Ruth:*

*Ruth Platner, 59 Maize Dr., Charlestown, RI 02813, ruthplatner@gmail.com, (401) 364-3832*

## List of Questions for Energy Facilities Siting Board

Distrust or skepticism about government is rife. We need openness and questions answered not secret contracts. We need accurate, truthful information. I hope the Energy Facility Siting Board will carefully consider Charlestown's interests in this matter. The Energy Facility Siting Board needs to consider the overall impact of these plans, not only the provision of extra energy but the impact on localities and contradictions in State plans.

→ **Has the cost benefit been fully explored for this venture. Costs in road use, loss of valuable natural resources, effect on tourism and safety, and long term impact? If so what was the result?**

**Next question is where exactly the proposed water for the proposed power plant is to come from. Is it Charlestown or Westerly?**

*We should have a say.*  
**Can Charlestown or Westerly vote NO on taking water from their communities and the watershed even if the actual withdrawal site is on Narrangansett land. The aquifer is under and utilized by more than the Tribe. Charlestown uses the aquifer in question as well as the Narrangansett tribe and as we all rely on wells we need to have questions answered.**

**Could withdrawals pull possibly still contaminated water from the United Nuclear plant site and thus affect surrounding wells.**

There is the question of "ownership of water" It should not be just who is on top but who uses the underground water. Over withdrawal and contamination affects all.

When people are on mains water they frequently do not think about where the water comes from or even that it is finite, but we do. Most of Charlestown is in a watershed protection area and designated a sole source aquifer meaning the water only comes in from rain and is the primary source of drinking water for the residents of the area. Wells are our only source of drinking water. It is finite in essence. Withdrawal and taking water away from the watershed is like taking money from your savings account and not putting any back. Our septic put water back into the watershed where the ground cleans it of most contaminants. It is also good water at the moment.

*Why not redo the old systems which currently are there?  
I have already impacted areas.*



As board members represent the environment - DEM and State planning it is difficult to see how they can approve this matter since it is in conflict with many parts of State planning and environmental aims - clear and open decision making and accountability, protecting public safety and health, a sustainable economy which preserves, sustains and restores the natural environment. While endeavoring to meet energy needs from non sustainable fuels we risk losing valuable natural resource assets of forest, farmland and wetland which have values over and above carbon sinks.

How can municipalities plan for clean fresh water when the control is wrested from them and their comprehensive plans and rules and regulations disregarded?

Other Questions:

What environmental disruption will there be to forest and especially wetlands from road access and infrastructure.

Have DEM approvals been sought?

What impact will flotillas of trucks have on country roads, tourism, safety, pollution from spills and also emissions. Producing energy but using it to truck water seems counterproductive unless the trucks use renewable energy sources.

These are a few of the important questions that need to be answered before allowing this water to be used for the proposed power plant.

Frances Topping  
33 Cedar Swamp Path  
Charlestown, RI 02813  
401 364 8002

Note:

There are many aspects of Statewide Planning that are in conflict with this proposal. Below is a sample. There are many others.

Rhode Island Rising executive summary cites appreciation of RI's natural environment which this power plant and its need for water will impact hugely; clear and open standards in economic decision making and accountability in government. We have not had sufficient clear information, Protecting public health, safety and well being through regulation. (This doesn't protect our water or our safety. ) and a sustainable economy which preserves, sustains and restores the natural environment and while endeavoring to meet supposed energy needs we are at risk of also losing valuable natural resource assets of forest, farmland and wetland. Forests and wetlands have value above just carbon sinks. Forests house wildlife, create oxygen, cool the surroundings, create recreation and health and provide greenways for animals to move about. Wetlands house wildlife and unique plants, clean water of pollutants, buffer flooding - a key issue in resiliency.

*"The goal of Rhode Island's Source Water Assessment Program is to better protect drinking water supplies at their source by evaluating threats to future water quality and making this information available to water suppliers, town officials, and landowners. Because the vast majority of land in reservoir watersheds and groundwater recharge areas is privately owned, the assessment is designed to generate information municipal officials can use to support local planning and regulation of land use in drinking water supply watersheds and aquifers. The assessment provides a consistent framework for identifying and ranking threats to all Rhode Island public water supplies. " Threats such as pollution from infrastructure, vehicles and over withdrawal.*

*Increase opportunities for renewables on small business, brownfields, parking lots etc.*

Submitted by Silvermoon LaRose  
78 Old Mill Rd. Charlestown, RI Resident

I was the last to speak in Burrillville +  
the 1<sup>st</sup> to speak today. I am an enrolled  
member of the Narragansett tribe. I  
have been told that our tribal court,  
whose legality is in question, submitted  
to the EFSB a document stating that  
no one in the tribe wants to intervene.  
I want it understood that that is  
emphatically untrue.

Our rights as tribal members are  
being ~~violated~~. In 1998, the tribe  
considered a proposal ~~to~~ to bottle +  
sell water on our tribal land. This  
documentation provided to me by  
an elder in our community will  
show the legal process for such a  
deal to be considered. By our  
constitution the plan should go  
before the tribal body for consideration  
questions, ~~additions~~, and vote. This  
documentation shows that process  
being properly followed. We still haven't seen  
This deal did not follow that <sup>process</sup>  
process. In fact I believe we are  
being purposely misled. In a letter

From the <sup>former</sup> Chief Sont in October  
(his term is up)  
to tribal members excuses were  
made for not following proper process.  
Further, we were told water was  
coming from Westerly, not  
Charlestown.

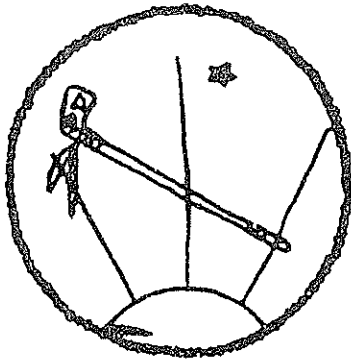
In energy released in to to the  
contrary. Furthermore,  
The Crandall Farm property in  
Westerly, unless I'm wrong, is  
not under federal trust &  
therefore ~~cannot~~ does not fall  
under the same sovereignty  
that would allow us to make  
this deal in Charlestown.

Therefore it is my opinion that we  
are purposely being misled.

And if it is in Westerly, this  
meeting should be afforded  
to the Citizens of Westerly  
as it will certainly impact  
them directly.

And I still oppose this deal. It  
goes contrary to our principals  
& we will not allow two misled  
individuals to sell out our whole tribe.

We will not be the backup water supply.



## *Narragansett Indian Tribe*

*P.O. Box 268  
Charlestown, Rhode Island 02813  
(401) 364-1100  
1-800-287-4225  
Fax (401) 364-1104*

February 24, 1998

**Mr. George Hibbard, Administrator  
Town of Charlestown  
Charlestown Town Hall  
4540 South County Trail  
Charlestown, R. I. 02813**

**Dear Mr. Hibbard:**

**Being mindful of the Tribe's sovereign rights and the necessity to protect our resources and traditional values, we are respectfully requesting a brief summary of the town's resolve on the effect the Tribe's pre-proposed bottled water plant may have on town residents.**

**At present, there is no proposal on the table between Indian Wells Water Company and the Tribe. There is only a signed letter of intent. However, the Tribal assembly will be reviewing the company's proposal for acceptance or rejection this coming Saturday, February 28, 1998.**

**We realize this does not allow you a substantial amount of time for input from town residents and we apologize. The Tribe is not subject to the OPEN MEETING laws of R. I. and our meetings are open to Tribal members and scheduled guests ONLY. Hence, a written summary from town staff at this premature stage of the proposed project will serve as input and as a communication method to Tribal members prior to decision making on this matter.**

**We are hopeful that this brief summary will set a standard of communication that is essential to insure the protection of our mutual land use (common borders) and natural resource (environmental) issues. Also, that it will aid in the ability for both the Tribe and Town to maintain compliance with our Comprehensive Plans.**



**Letter to George Hibbard  
February 24, 1998  
Page 2**

**Sincerely,**

A handwritten signature in cursive script, appearing to read "Mary T. Banfield".

**Mary T. Banfield  
Director of Planning**

**cc: Matthew Thomas, Chief Sachem  
Honorable Tribal Council  
Charles Beck, Charlestown Town Council President  
Nancy Hess, Town Planner**

GEORGE C. HIBBARD  
Town Administrator



4540 SO. COUNTY TRAIL  
CHARLESTOWN,  
RHODE ISLAND 02813

Tel (401) 364-1210  
Fax (401) 364-1238

TOWN OF CHARLESTOWN

February 25, 1998

By Facsimile

Mary T. Banfield, Director of Planning  
Narragansett Indian Tribe  
P.O. Box 268  
Charlestown, Rhode Island 02813

Re: Your Letter of February 24, 1998

Dear Ms. Banfield:

Thank you for your referenced letter concerning a possible water bottling facility on Tribal land.

While the Town generally desires to be as supportive as possible, we are unable to respond definitively until more specific information is available to us.

In the meantime I enclose a copy of a memorandum on this subject from Planner Nancy Hess dated February 25, 1998. I hope that you will find it helpful.

Let's keep the lines of communication open.

Sincerely,

George C. Hibbard  
Town Administrator

GCH:mec

cc: The Honorable Town Council  
Nancy Hess, Town Planner  
Philip M. Sloan, Jr., Town Solicitor  
Marcia D. Carsten, Town Clerk

[REDACTED]

To: George Hibbard, Town Administrator  
From: **NH** Nancy Hess, Town Planner  
Date: Wednesday, February 25, 1998  
Subject: 2/24/98 Correspondence- Mary Banfield

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The correspondence from Mary Banfield raises concerns for the public health and the environment in the area of potential groundwater impacts. The letter identifies that the Narragansett Indian Tribe is considering a proposed water bottling plant but specific details on the location and intensity of use were not supplied. Identification of the area where water withdrawal will occur is critical. The Tribal Settlement Lands are mostly located over glacial outwash deposits within the Pawcatuck River Watershed. Such outwash deposits can provide abundant drinking water supplies but also can be contaminated relatively easily. The watershed of the Pawcatuck River has been designated a Sole Source Aquifer by the US. EPA because all of the residents and businesses rely on this groundwater for their only source of drinking water.

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The following are preliminary questions a water bottling plant should address:

- o What type of facility is being proposed and how large ?
- o Where will the facility be located and how are access to the site and impacts to local roadways to be addressed ?
- o Has a hydrogeological study been done to analyse the following:
  - the proposed rate of withdrawal (in gallons per day),
  - the prevailing flow of groundwater in the proposed withdrawal site,
  - the area of influence impacted by the proposed withdrawal,
  - the zone of contribution for potential contamination sources,
  - will the water meet the EPA drinking water standards,
  - will high volume wells affect the water quality of adjacent property,

will other wells, both private and public, be impacted,

will adjacent ISDS be impacted,

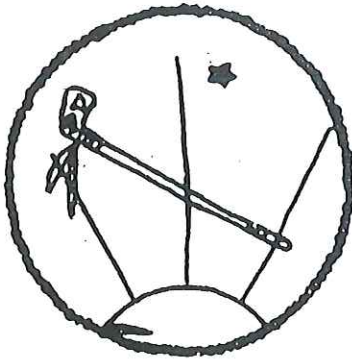
will there be affects on adjacent surface water bodies and if so will impacts of surface water contaminants be considered,

will it affect the public's use of adjacent water bodies for recreational uses by lowering the water level of ponds, streams or the Pawcatuck River,

will there be impacts on any wetlands,

- o Is the proposed site in close proximity to the UNC contaminated site ? (This site is still under monitoring for excessive levels of Strontium 90 and Nitrates.)

Please note these are initial questions which may be added to or answered if more information becomes available in the future.



*Narragansett Indian Tribe*

*P.O. Box 268  
Charlestown, Rhode Island 02813*

*(401) 364-1100*

*1-800-287-4225*

*Fax (401) 364-1104*

**MEMORANDUM**

**TO:** George Hibbard, Charlestown Town Administrator  
Nancy Hess, Charlestown Town Planner

**FROM:** Mary T. Banfield  
Director of Planning

**SUBJECT:** HYDROGEOLOGICAL STUDY  
NARRAGANSETT TRIBAL LAND

**DATE:** March 6, 1998

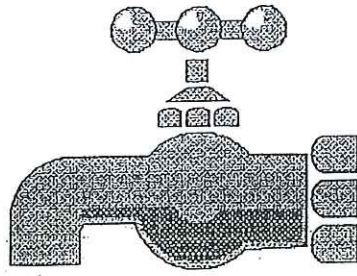
Please find enclosed a copy of the handout given to Tribal members at our monthly Tribal Assembly meeting February 28, 1998. The last page was taken from your communication to us regarding input into the proposed Bottled Water Plant.

No final decision was made whether to or not to accept the proposal. However, it was voted by the Tribal Assembly to have a hydrogeological study done at the expense of Indian Wells Bottling Company with inclusion of the Tribe's land base staff being present at all levels of testing.

Again, we appreciate your input and quick response to our request.

Mary T. Banfield

**Cc:** Matthew Thomas, Chief Sachem  
Honorable Tribal Council  
Dinalyn Audette, Environmental Specialist  
Lorraine Stanton, Real Estate and Rights Protection Director  
John Brown, Land and Water Resource Commission  
Greg Soder, Natural Resource Director



## **DID YOU KNOW...**

that “surface water” means lakes, ponds, streams and rivers,

that “ground water” is water beneath the earth’s surface between saturated soil and rock that supplies wells and springs,

that an “aquifer” is a geologic formation that can store and release large amounts of subsurface water,

that “recharge” is the process by which an aquifer is replenished, like rain, snow, and run off,

that the Tribe’s sole source aquifer and a portion of the Wood Pawcatuck Watershed



**join each other within the reservation boundary lines,**

**that the current level of information does not allow the Tribe to make a valid judgement whether drawing millions of gallons of water a day out of the aquifer will cause future problems with surrounding wells, surface water and the Narragansett Indian Tribe sole source aquifer,**

**that an Indian Wells Bottling Company spokesman told a news reporter that the company was looking at the environmental issues concerning the Tribe's land and "checking out the water situation",**

**that information on the location of the water plant has not been made known to the appropriate departments within the Tribe,**

**that because this information as well as *all other pertinent* information has been withheld from the appropriate Tribal departments there is a potential for harmful effects to the**



**reservation, the Tribe's future water reserves,  
and the Tribe's ground and surface water  
qualities,**

**that the location of a bottled water plant on  
any Tribal land has the potential for  
disturbing many archeological, sensitive, and  
sacred areas,**

**that the water levels of Deep and/or  
Schoolhouse Ponds may go down to almost  
nothing because of a bottled water plant,**

**that a bottled water plant may pull from the  
earth water that we will need for drinking  
and community purposes in the future?**

**Per the request of Tribal staff, the town of  
Charlestown's staff members graciously  
forwarded the following list of preliminary  
questions they felt a water bottling plant  
should address:**

What type of facility is being proposed and how large ?

Where will the facility be located and how are access to the site and impacts to local roadways to be addressed ?

Has a hydrogeological study been done to analyse the following:

the proposed rate of withdrawal (in gallons per day),

the prevailing flow of groundwater in the proposed withdrawal site,

the area of influence impacted by the proposed withdrawal,

the zone of contribution for potential contamination sources,

will the water meet the EPA drinking water standards,

will high volume wells affect the water quality of adjacent property,

will other wells, both private and public, be impacted,

will adjacent ISDS be impacted,

will there be affects on adjacent surface water bodies and if so will impacts of surface water contaminants be considered,

will it affect the public's use of adjacent water bodies for recreational uses by lowering the water level of ponds, streams or the Pawcatuck River,

will there be impacts on any wetlands,

Is the proposed site in close proximity to the UNC contaminated site ? (This site is still under monitoring for excessive levels of Strontium 90 and Nitrates.)

Please note these are initial questions which may be added to or answered if more information becomes available in the future.

# Narragansett Indian Tribe

Permitting Board  
P.O. Box 268, Charlestown, Rhode Island 02813

(401) 364-1100 ext. 210  
Fax: (401) 364-1104

## Conditional Use Permit

Permit Number: CU98-1204

Page: 1  
Printed: 12/7/98  
Approved: *[Signature]*

**Applicant:** Indian Wells Water Co.  
2221 Glasgow Road  
Alexandria, VA 22307

**Parcel Number:** Dev. Tract # 6  
Narragan Trust Land  
Charlestown, RI 02813

**Zoning:** Commerci  
**Addition:**  
**Block:** Lot(s):  
**Section:** Tract 6  
**Township:** N/A  
**Range:**  
**Area:**

**Legal Description:** Cadastral Survey (See)

**Conditions:**


**Property Dimensions:** Approx. 20 acres  
**Current Site Use:** Commercial  
**Adjacent Site Use:** Residential  
**Hours:**  
**Construction Date:** 12/7/98  
**Existing Floor Space:** 0  
**Proposed Floor Space:** 0  
**Existing Parking:** 0  
**Proposed Parking:** 0  
**Eliminated Parking:** 0

**Residents/Workers:**

**Conditional Use Desc.:**

**Other Parking Provision:**

**Traffic:**

**Shoreline:**

**Designation:**

Phased-approached Bore-hole Installation and Testing

## Fee Record

Fee Number: FEE CU98-1204

Page: 1  
12/7/98

**Fee Type:**  
**Charged To:** Indian Wells Water Company  
**Reference #:** CU98-1204  
**Charged By:** Permitting Board  
**Comments:** Permit Amount: \$210.00

**Amount:**  
**Paid?:** No  
**Account:-**

**Date:** 12/4/98  
**Receipt:**

# **Narragansett Indian Tribe**

**Permitting Board**

**P.O. Box 268, Charlestown, Rhode Island 02813**

**(401) 364-1100 ext. 210**

**Fax: (401) 364-1104**

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December 4, 1998

Ms. Terry Heide  
Vice President, Tribal Relations  
Indian Wells Water Company  
2221 Glasgow Road  
Alexandria, VA 22307

Permit Application: 98-1204

Re: Phased-approached Bore-hole Installation and Testing, location:

Tract 6 - small forested wetland in the southeast portion of project site; proximal to the kettle lake discharge area.

Dear Ms. Heidi:

Kindly be advised that the Narragansett Indian Tribe's Permitting Board has reviewed your request for Bore-hole installation and testing on Tract 6 of Tribal Trust lands. The area of Tract 6 where the bore hole(s) will be placed is a wetland. It is the determination of the Permitting Board that the work can be approved as long as the following special conditions are met for the protection of Tribal resources:

1. A copy of this permit must be kept at the site at all times.
2. The limits of all clearing, grading, and disturbance shall be kept to a minimum. All areas outside of the limits of disturbance shall remain totally undisturbed.
3. Any material utilized during this project must be clean and free of matter which could pollute any freshwater wetland.
4. Sedimentation controls shall be installed at the site prior to or commensurate with the site alterations. Such controls shall be properly maintained, replaced, supplemented, or modified as necessary throughout the project to minimize soil erosion and to prevent sediment from being deposited in any wetlands not subject to disturbance under this permit.
5. Upon permanent stabilization of all disturbed soils, sedimentation barriers must be removed.

6. You are obligated to follow all best management practices to minimize or prevent adverse impacts to any adjacent wetlands.
7. In the areas of restoration and to the greatest extent possible, any surface vegetation removed in area shall be lifted out intact and the vegetation shall be replaced.
8. Tribal representatives shall be present in the area to determine if areas of impact are clear with respects to endangered flora, fauna, and cultural resources. The area will be inspected before and after the project.
9. It is the responsibility of Indian Wells to contact the Tribal Council to comply with all Tribal laws and obtain any other necessary permits.

Provided that your project is undertaken in strict compliance with the Special Conditions listed above, the Permitting Board authorizes that the Bore-hole installation and testing can begin immediately. Failure to comply with any of the Special Conditions listed above, will render this approval null and void.

Please note that this does not remove your obligation to obtain any necessary permits from other Federal Agencies in regards to Section 404 of the Clean Water Act and Section 401 Water Quality Certification, and the National Environmental Policy Act due to the presence of a freshwater wetland.

There is a permit processing fee which includes a copy of the Tribe's Zoning Ordinance. The cost of the permit processing fee is \$210 payable to the Narragansett Tribe's Permitting Board, attention Dinalyn Audette, Chairwoman.

Sincerely,



Dinalyn Audette  
Permitting Board Chairwoman

cc: Permitting Board members  
Chief and Tribal Council

# Clear River Valley (Home of Red River Valley)

I'm retexting some of the song I sang at the last EFSB hearing in Burrillville + added a few appropriate verses. I live 2 houses away from Charlestown, in Green Hill, Rhode Island.

① From Clear River we wish you were going,  
We wouldn't miss your evil plan to defile,  
All the land, water, air that brings sunshine,  
To ~~the~~ the creatures and people white!

② Do please think of the endangered wildlife  
Do not hasten to bid them adieu.  
Just remember 35 R.I. Town councils  
passed resolutions for no building too!

③ Methane from fracked gas + diesel oil is deadly  
Even R.I. D.O.H. did say,  
Killer of people and ecosystems  
Invenergy, take your money + go away!

④ We don't need any more infrastructure  
poisoning water, the land, and the air  
Near those precious preserves in the forest  
That destruction would be too much to bear!!

⑤ Invenergy made a deal to buy the water  
From the Narragansett Indian Tribe  
But they need 2/3 vote before they do that  
It was illegal <sup>3</sup> leaders and an illegal bribe.

⑥ Just the source of the water is a mystery Farm  
Will the water come from the Tribe's Crandall,  
Or Indian Cedar Swamp in Charlestown.  
This confusion is a source of alarm!!



(7) And to add insanity and confusion  
There's a lawsuit about an electrical line,  
Between National Grid and Invenergy,  
Two rich grants, their greed + power entwined.

Testimony of  
Janice Creamer, 40 Elm Rd, Wakefield,  
R.I. 02879

(who strongly opposes the power plant  
proposed by Invenergy <sup>against</sup> + water being withdrawn  
from this South County area of R.I.)

<https://insideclimatenews.org/.../hurricane-maria-irma-harvey-wildfires-damage-cost-e...>

## **Costs of Climate Change: Early Estimate for Hurricanes, Fires Reaches \$300 Billion**

*A new report starts adding up the damage from the past few weeks of western wildfires and Hurricanes Harvey, Irma and Maria. It sees climate costs rising.*

*By Sabrina Shankman*

The devastation from hurricanes Harvey, Irma and Maria—plus dozens of wildfires that raged across the West in early August—could result in the costliest string of weather events in U.S. history, according to a new report.

Over the course of a few weeks, the hurricanes and wildfires left a trail of damage that could add up to nearly \$300 billion, according to early estimates from the authors of "The Economic Case for Climate Action in the United States," a report released on Wednesday by the nonprofit Universal Ecological Fund. If they're right, the cost of the damage would be equivalent to nearly half the president's proposed 2018 budget for the Department of Defense.

"The evidence is undeniable. These recent extreme weather events are a continuation of a three-decades trend of increasing numbers, intensities and costs of severe storms, hurricanes, flooding, droughts and wildfires," said report co-author Robert Watson, a former chair of the Intergovernmental Panel on Climate Change. "Simply, the more fossil fuels we burn, the faster the climate continues to change and cost. Thus, transitioning to a low-carbon economy is essential for economic growth and is cheaper than the gigantic costs of inaction."

Adding up the economic losses from extreme weather events, more frequent weather events and the health impacts from air pollution, the report found that over the last decade, the United States has lost an average of \$240 billion each year. And that's projected to go up.

In the decade ahead, those economic losses and health costs could reach \$360 billion annually, the report says.

The study echoes recent work by economists who sought to quantify the steep costs associated with climate change. A study published in the journal *Science* in June found that every degree celsius that the planet warms could be associated with a loss of roughly 1.2 percent of the United States' GDP. The authors found that those impacts were not distributed evenly and could result in widening inequality.

### **Number of Billion-Dollar Storms Rises**

As was clear this year, the impacts of extreme weather aren't evenly spread across the states. In the last decade, Texas has had 32 storms with economic losses exceeding \$1 billion—four times more than it saw during the decade of the 1990s. Oklahoma and Illinois have each had 23, a four-fold increase for Oklahoma and a six-fold increase for Illinois.

In the last decade, Louisiana has been hit by four hurricanes that passed the \$1 billion threshold for damages and four floods resulting from hurricanes or severe storms with costs at least as high. In one of those events, 30 inches of rain fell in southern Louisiana over a few days in August 2016, damaging or destroying more than 50,000 homes, 100,000 vehicles and 20,000 businesses, according to the report. The price tag reached \$10 billion, and 75 percent of the people affected were uninsured.

"The fiscal costs of hurricanes are higher than we think," said Tatyana Deryugina, a professor of finance at University of Illinois who was not involved in the study. "Most of the time when people think about how much a hurricane costs, they think about disaster aid. But public medical spending and unemployment insurance spending go up, too."

In the agriculture sector, climate change-driven droughts have resulted in \$56 billion in losses across the central and western United States since 2012.

As climate change progresses, coastal cities like Miami, Boston, New York, Seattle and San Diego are the most at risk from sea level rise. "The question is when and how much sea level will rise," said James McCarthy, a professor of oceanography at Harvard University and a coauthor of the report. "Lives and almost \$1 trillion worth of real estate in coastal areas are at stake."

#### What to Do About It?

The report calls for more efficient use of energy and a shift toward renewable energy sources to reduce the greenhouse gas emissions that are driving climate change.

"Protecting Americans from the escalating economic losses and costs due to the impacts of climate change can happen," said Watson. "It will require increased efficient use of energy in all sectors, the share of carbon-free electricity to be double or tripled, and fossil fuel generation with [carbon capture and sequestration] to be expanded, along with installing a carbon tax."

Though the scientific consensus that human activities are driving climate change is clear, there is a degree of uncertainty. Peter Howard, the economics director at NYU's Institute for Policy Integrity, said that while skeptics may grab onto that uncertainty as a reason to do nothing, from an economic perspective, the uncertainty suggests we should do more.

"Human beings are in general risk averse—it's scientifically known," he said. "With the government you can pool risk, but you can't do that with climate change. There's nothing to pool because we're all going to be impacted."

Sept. 28<sup>th</sup> 2017