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May 11, 2016

Comments: RSG Research Study On Wind Turbine Acoustics, Presentation to WNTAG (Wind Turbine Noise Technical Advisory Group) March 18, 2016

Comments Submitted May 11, 2016 to: Laurel Carlson, DPH, Stacie Smith,CBI, Copy to: Beth Card, MADEP, Martin Suuberg, MADEP, Nils Bolgen, MACEC

Frustration was the sentiment felt when I reached Page 170, Section: 12.0 SUMMARY AND CONCLUSIONS, in RSG's "Research Study on Wind Turbine Acoustics".

A lot of time, manpower and taxpayer money (\$491, 986. To RSG and \$68,821. to Consensus Building Institute as of September 2015), were used, in essence, to create one-half of a report, and we are left, still, with a lot of questions unanswered, and many gray-area assumptions and an uncertain path ahead.

I would say that consensus can be reached only when persons have the same goals but need to establish the way to arrive at the goal. The proper siting of industrial wind turbines should be the goal and end result desired by all involved. This, however, can only come after proper and safe wind turbine siting distances and noise impacts are established and if, after determining whether or not "safe", the industrial wind turbine agenda were then to move forward as part of an overall Energy Plan.

Ultimately, here in Massachusetts, the industrial wind turbine agenda can only move forward after two Bills filed by Representative Sarah Peake are moved out of the Massachusetts Joint Committee. HD1775 is a petition accompanied by resolve, House, No. 2032 (*A Resolve to establish a commission to study the health impacts from wind turbines to protect the health of the citizens of the Commonwealth*) and HD1771 is a petition accompanied by Bill, House No. 733 (*An Act Relative to Noise Pollution*).

Had these Bills been in place in 2013, the RSG report may have been an integral part of arriving at one of MADEP's stated goals (wntag meeting summary, meeting 1 –July 18, 2013): "MADEP *is seeking a policy that is protective of public health and the environment* " That was nearly three years ago and you had already had health issue complaints since 2010 at that point. And, now, in 2016 we are no further ahead in the "goal" to protect the public's health and the environment.

Unfortunately, when President Obama, during his Earth Day Speech on April 22, 2008, pronounced that "Denmark produces almost 20 percent of their electricity through wind power" and, even though the U.S. is not remotely like Denmark, he was intent on doing as Denmark had, very obviously without doing his homework. The President and his industrial wind turbine energy agenda followers, did not take into consideration the differences and Denmark became our wind energy role model. Impossible to meet mandates were implemented and costly (to the American tax payer) Tax Credits were handed out as life support to the industrial wind turbine

agenda which already had a 30-year history (not very successful) in the U.S. Obviously, this was an error in judgment and made it necessary to try to back into the agenda's desired end result with no consideration for the health and well-being of the American people, its environment, or its economy.

A current event (2016) involving Denmark is evolving and must be given serious scrutiny. Denmark's DongEnergy (formerly Dong Oil and Natural Gas.....opportunists?) is seeking permitting to exploit our Atlantic Ocean as they have the oceans of Europe. If we allow this to move forward, we are about to embark on a similar mission as that of 2008 also based on an error in judgment by a group of Legislative junketeers who made the trek to Denmark to see Dong's ocean wind farm masterpiece and accept Dong's promises, without guarantees, and sell that to the Massachusetts Legislature. This is not a diversion from the RSG report, but, rather, to point out that once again, we may be moving forward without the information necessary to properly assess an effort of this magnitude.

If consensus is desired, it is necessary to put our priorities in order, starting with the well-being and health of the people of Massachusetts.

Regarding RSG's report, given wntag's original assigned task to provide MADEP technical advice on the crafting of regulation and policy for wind turbine installation including possible noise impacts, RSG's final report, does not appear to have accomplished the original purpose. Without proper siting data having been established, including knowledge and certainty about all noise related issues and a "do no harm" ethic being the ultimate goal of all parties, "crafting of regulation and policy" cannot occur.

The focus on noise, which one would think would be the most critical requirement of the report and the most critical element on the road to better understanding of "proper" siting, cannot be accomplished with this report because of the elimination of critical noise testing of low frequency noise, infrasound and amplitude modulation (eliminated, it appears, by consensus of MACEC, MADEP, RSG). The eliminated noise elements combined with the exclusion of victim statements, victim impact studies and, perhaps, if it had been executed properly, the ability to actually link wind turbine victims to the offending industrial wind turbines would have filled a serious void existent now in the RSG report and given complete and solid information for creation of *effective*, if not necessarily "standard", policy and regulations taking into consideration the vagaries of the industrial wind turbine(s) at each site.

In the last "Metrics" issue addressed in the RSG report, "Low frequency sound/infrasound", the implication is, ".....there is nothing to be concerned about, further testing will require greater expertise and more expensive monitoring tools than the project is worth or than we can afford", this background lament regarding cost was repeated throughout the report and in many statements pre/post/+duration of wntag. Cost was alluded to in reference to compliance monitoring in the HMMH/Epsilon presentation of "Massachusetts Wind and Noise Technical Advisory Group Status Report to the Acoustical Society of America in Providence, RI in 2014 (is that sort of "sharing" allowed/approved of before the report has had proper review by wntag members and conclusions drawn?) If cost is such a worrisome consideration with regard to testing and getting the process right before moving forward, then, perhaps, it is time to get out of the industrial wind turbine business. Relegating amplitude modulation, low frequency noise and infrasound to the status of 'insignificant to the noise issue' because of their innate and complicated mechanisms and research costs is unacceptable. This isn't a game and those nearly

60-story wind machines are not toys, they are quite obviously dangerous to humans when placed in the wrong hands and, therefore sited in the wrong place..... too close to humans. We cannot take short cuts.

I have no expertise, as all of you have, in the workings of the industrial wind turbine, wind turbine acoustics or wind turbine noise. But, I am observant and aware. I am aware of duplication of effort. The RSG report is yet another “report” making the industrial wind turbine the innocent victim and the victims the problem. This is underscored by the fact that there are no victim impact studies included in either the MADEP/MADPH Health Study 2012 or the MADEP/MACEC Noise Report 2016. As we all know, there are victims and they have been given the same attention as low frequency noise, infrasound and amplitude modulation. The lack of knowledge about these three troublesome components inherent, it appears, in all industrial wind turbines is spoken of in a vague manner in Meeting 5 Summary, Page 11, #2) ... “To account for amplitude modulation [inferred is the need for use of an adjustment factor] because we cannot measure it yet”, as noted by the “facilitator”. If we/you cannot measure “it”, amplitude modulation, “yet” and can’t quite get a handle on low frequency noise and infrasound, then what other “its” are you not dealing with? It hardly seems that Massachusetts (any state for that matter) should move forward with an industrial wind turbine agenda or is able to reach any sort of consensus, because you really do not have answers or, if you do have answers, you are avoiding sharing the answers to siting and noise issues.

I am aware of the continuity of truth avoidance in the wind industry and in the various agencies supporting the wind industry. Since the 1980’s the wind industry has been very much aware of the noise issues inherent in industrial wind turbines. Dr. Neil D. Kelley presented “A Proposed Metric for Assessing the Potential of Community Annoyance from Wind Turbine Low-Frequency Noise Emission” at the ‘1987 Wind Power Conference and Exposition’ which was held October 5-6, in San Francisco, CA . In 1979 the first reports of noise complaints related to the industrial wind turbine were known and, interestingly, were not avoided, but, dealt with. The U.S. Department of Energy and NASA commissioned Dr. Kelley to research the problem; he did so in cooperation with GE, SERI, and several universities and human test volunteers who experienced “distress” and more during the testing sequences. The end result was the presentation of Dr. Kelley’s findings at the 1987 Wind Power Conference where he informed the wind industry of the issues related to infrasound and low frequency noise inherent in the industrial wind turbine.

The wind industry refused to acknowledge the test results and established a “**noise working group**” (*that does have a familiar ring*). With the assistance of the noise working group, the wind industry “helped” put together a “standard/guideline document” for the United Kingdom; the document became ETSU-R-97. ETSU-R-97 excluded any reference to Dr. Kelley’s and NASA’s research project or low-frequency noise (history keeps repeating itself) but it relied, instead, exclusively on db(A)-weighting which was found to be irrelevant in the NASA/Kelley research results presented to the wind industry in 1987. It seems since 1990ish nearly all research projects and publications addressing the industrial wind turbine noise issues and created by persons and groups sincerely wishing to address the noise issue, recognizes the importance of low frequency noise and infrasound measurements. It appears from all that I have read, whether pro wind or anti wind papers, that noise “masking” (would one call that altering or covering up?) is the desired end result whenever A weighting is used.

Is it coincidental that research produced or cited by MACEC/MADEP/MADPH and other industrial wind turbine support groups pass off low frequency noise and infrasound as insignificant and not viewed as a problem in the scheme of things and deny low frequency noise and infrasound as instrumental to the existence of victims and the denial of human health issues and human health hazards posed by the industrial wind turbine.

Since the early 1990's to the present time it seems (to me) all entities interested in the furthering of the industrial wind turbine agenda are ignoring infrasound and low frequency noise; making it seem impossible to deal with and not necessary to "capture" properly, not necessary to identify, or make meaningful to any report of industrial wind turbine health impacts, making claims that further "study and research" is not worth the effort, that it takes specialized equipment and personnel with expertise to measure and interpret results. Obviously, based on that attitude, it takes more expertise than exists within MADEP/ MADPH/ MACEC/RSG.

Combine this "attitude" or mentality with terms such as, it "probably will" (also used: it may, it should, it could) come under, that is not exceed, acceptable or allowed ISO 9613 (ISO 7196?) standards anyway so, "*we are just not going to bother with those elements*". Measured readings *may* come under ISO standards but, they, also, may not come under ISO standards; so, why isn't MADEP/MADPH insisting that the testing be done to prove that measured noise does or will come under those ISO "standards". MADEP/MADPH appears to be avoiding the need to identify and deal with a problem inherent in industrial wind turbines. The problem, whether noise or something other than noise, is making people sick. With the passing of time and the suggestion that it is not information necessary to know, the culprit(s), low frequency noise and infra sound have very conveniently been determined to not be necessary to a complete and successful noise report. MACEC/MADEP/MADPH should be turning over every stone and examining every detail to know why industrial wind turbines have serious health impacts to persons living too close to them.

Why is MADEP/MADPH/MACEC ignoring the issue?

In my estimation the answer is that **if** the problems inherent in the industrial wind turbine are acknowledged through appropriate research, the results *may*, or will, destroy the wind industry in the U.S. and conceivably in the world, and that the consensus among industrial wind turbine agenda supporters has been and is that it will be best if the noise issues and health problems are not given identity or resurrected and people and the environment will have to be collateral damage "for the greater good". Resurrected and acknowledged they must be, all the way back to Dr. Neil Kelley and what was "lost" and buried since 1987. And, if there is nothing to be concerned about, that, too, will be uncovered.

And, if MACEC, MADEP, MADPH feel they have finished noise testing to their satisfaction, in the interest of making their lives as simple as possible, let's not call the annoying "it" noise. Let's just call it "something". *Something* is emitting from industrial wind turbines in Massachusetts, across the country, around the world that is making humans sick. Knowing that *Something* "emitting" from an industrial wind turbine is causing health impacts, why are the offending industrial wind turbines allowed to continue to operate? Why are the offending and offensive industrial wind turbines not being shut down? Why wouldn't *Something* warrant investigation and identification? The *Something* emitting from industrial wind turbines qualifies as "pollutant"; not unlike factories emitting toxic fumes, or wells producing toxic drinking water, or polluted beaches, or any other entity that is shut down to protect the health interests of the

public. To date, here in Massachusetts, that Something that has caused people harm has not been identified and the victims that Something has created have been ignored.

Amazingly, even though there have been acknowledged exceedences of Bylaw regulations of audible noise, there has been no enforcement by enforcement agencies at all levels. If current Bylaws are not being enforced, why is MADEP seeking the establishment of new numbers, new protocol and new policy to be applied to industrial wind turbines? Why not just enforce the laws on the books?

Let's put that another way: If new noise exceedance numbers, protocols and policy are created and adopted as it relates to the industrial wind turbine without proper investigation of health issues and all noise issues, the new elements must be conservative to the point of being caution warnings to any prospective developer/owner seeking permitting for a project and the "new" procedure must carry with it immediate shut down and removal of offending industrial wind turbine as Order of Conditions for exceedences by all industrial wind turbines standing and future builds. Fines and threatening Abatement Orders will not bring about compliance and the fines paid by the owners/developers of offending wind turbines are just use of "free"/or found taxpayer money being used as bail-out which allows continued infractions and harm to humans. This is unacceptable and any future infraction numbers, protocols and policy must be stringent enough to make even the largest developers and local governance think twice about whether or not to go ahead with a project or permit a project, each and all involved in the wrong decision would be held accountable.

The most disturbing fact, and this cannot be said often enough, is that in both the MADEP/MADPH/MACEC January 2012 Wind Turbine Health Impact Study and the MADEP/MACEC/RSG March 18, 2016 Research Study on Wind Turbine Acoustics is that none of the Massachusetts wind turbine victims have been called upon to give their "testimony" and the facts and knowledge they have about the coming of the industrial wind turbine into their lives, into their homes and creating an unhealthy environment. The testing completed in the RSG Report, one would assume, was to give a better understanding and insight into the Massachusetts wind turbine complaints, identify the problem-causing entity, resolve the problem, and establish a protocol, based on fact, that would avoid issues in the future. Instead, infrasound and low frequency sound have been swept under the rug, gagged and tied and held harmless, but, *Something* is harming people and must be identified before the industrial wind turbine agenda is allowed to continue in any location in the State of Massachusetts.

In the case of unpredictable industrial wind turbines, as opposed to other dependable and predictable "power plants", for siting purposes and in pursuit of accuracy, there should be no modeling, no projections, no predictions, no use of averaging, A-weighting and absolutely no use of questionable "standards", which do not seem to apply to the reality of industrial wind turbines; and, there should be no guesstimating ["think" is unacceptable; you must know ...]. It seems from late 1980s to this moment everyone has tried to standardize the industrial wind turbine and everyone has cited standards; yet standards has had no positive impact on industrial wind turbine siting, but has had easy to predict negative health impacts on turbine neighbors. Standards, quite obviously, has not and will not work.

The industrial wind turbine is a machine out of control and you cannot site them using generalizations or accepted standards created, in part, with the assistance of the wind industry, ETSU-97-R being one of those standards. Industrial wind turbines do not operate by any

standard. Every element of every project in every location must be measured separately and distinctly, using proper tools and experts regardless of cost. Standards and acceptable norms and a questionable process are what created the industrialization of Hideaway Village, Buttermilk Bay, Bourne (note that the industrial wind turbines are located in Plymouth). A sleepy village of 200+ tightly sited homes has been turned into host for the negative impacts of these industrial wind turbines; given the fact that these wind machines are not operational, as of today, and that the health impacting *Something* has not been identified by the MADEP, this project should be poster child for doing things the right way and this industrial wind turbine farm should not be allowed to become operational until further noise research and health impacts are completed. Based on recent history, there is little doubt that once these industrial wind machines become operational and people become sick, the people/victims will be ignored by all enforcement agencies.



(Top photo sleepy, peace-filled Hideaway Village, Bourne, MA before the Mann Project was permitted and allowed to build these looming, nearly 60-story tall, industrial wind machines behind the village.)

Is this what MACEC/MADEP/+BOHs in both Plymouth and Bourne consider to be proper siting of an industrial wind turbine farm and Industrialization of a Seaside Residential Community? Was industrializing the Rural Residential Berkshires with 19 industrial wind turbines proper siting more important, is industrializing Rural Residential Areas the right thing to do? Massachusetts is one of the most densely populated states in the country with

870 (+-) people per square mile and it appears the industrial wind turbine agenda goal is to continue to industrialize Rural Residential Areas and Suburban Areas. This cannot be allowed.

Still to be pondered and, I feel, answered by the creators and supporters of the RSG Report is: Because this is a Massachusetts study, it seems that all industrial wind turbine farm locations should have been in Massachusetts. The references regarding “locations” are somewhat vague/confused/confusing. Why would one use places that are “like” Massachusetts and not just focus on Massachusetts? Whether the sites were located in Massachusetts or not, why weren’t victims/residents of the area(s) not included to expand the scope of the research?

I am somewhat curious about the actual ownership of the Report. I saw this on line and am wondering if this is the MACEC/DEP wntag final report being given by Ken Kaliski/RSG at the AWEA conference which took place in Las Vegas, Nevada on *May 5 – 8, 2014*. The event promotion stated: *“On Tuesday, May 6, 2014 at 11:00 am during the “Don’t Build Here, Go Over There - Current Challenges In Siting” session, Kenneth Kaliski from RSG will be presenting **The Massachusetts Research Study on Wind Turbine Acoustics – Methods and Goals**. Epsilon is a key member of the project team, and has conducted fieldwork at many of the sites in the study.”*

I note that Mr. Kaliski presented “the draft interim report” to wntag at the 6th meeting of wntag on March 7, 2014 and did not present the final report until 2 years+ later on March 18, 2016.

If the report presented at the AWEA (American Wind Energy Association) Conference was a completed report and that was on May 6, 2014, why did the wntag group have to wait nearly 2 years to have it presented to them, give their opinion and, if necessary, make changes that more accurately depicted what the wntag group, after years’ of involvement, thought needed further attention. If the AWEA report is the MACEC/MADEP “report”, why weren’t wntag members privy to the report before it ever hit the AWEA Conference circuit? Why was a Massachusetts taxpayer paid for report and supposedly incomplete, or not refined, at the time, presented at an AWEA Conference? What are the differences between the wntag presented draft report on March 7, 2014 and that presented at the AWEA conference on May 6, 2014? What are the differences between AWEA conference report presented on May 6, 2014 and the “final report” presented on March 18, 2016 to the wntag group?

I sincerely hope that MACEC, MADEP, MADPH will support Representative Peake’s Bills which will include low frequency noise and infrasound. It is unfortunate that so much time was lost by not including in depth study of low frequency noise, infrasound and amplitude modulation concurrent with the time frame that RSG was preparing their report for presentation to wntag. As stated before, because the RSG Report is so lacking significant infrasound, low frequency noise and amplitude modulation information the so-called “wind turbine acoustics report” can only be considered to be one-half of a Report; it studied the obvious and known and not the so often questioned and still missing and in need of answers infrasound and low frequency noise.

I believe with the exception of the last wntag meeting on March 18, 2016 there were victims of the industrial wind turbine present at every meeting, those who were made sick and those who had given up homes to protect their health and well-being. In the past you gave the audience 2, 2 ½, 3 minutes to tell you what they needed or had been through or questioned. You essentially turned your back on the victims, giving them “token” time to express their concerns. Even while these victims and/or their advocates sat in your “audience”, you denied that they are proof that

industrial wind turbines are hazardous to human health. You took it a step further when you did not contact them and make them a significant part of the RSG report and instrumental in future siting plans.

Today, many European countries are turning away the industrial wind turbine agenda and saying enough is enough. This may explain DongEnergy's interest in our Atlantic Ocean. It is time for the U.S. to learn through their own and other's errors in judgement and to rethink the industrial wind turbine agenda in the U.S. and, here, in Massachusetts, on both our land and sea until every detail insuring health, safety and well-being has been addressed.

It is my understanding that all comments received and as written will be made part of the public record and available to all who wish to view them. I feel that is necessary to give greater insight into the opinions of all who have been involved in this process. Previously, comments have been condensed and, in my opinion, dilute the intent of the writer or speaker.

(I will be sharing these "comments" with others who share my concerns about the industrial wind turbine agenda.)

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