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February 3, 2015

State of Connecticut
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Attn: Melanie A. Bachman, Acting Executive Director

Re: ***Docket 192B-Towantic Energy, LLC Motion to Reopen and Modify the June 23, 1999 Certificate of Environmental Compatibility and Public Need based on changed conditions pursuant to Connecticut General Statutes §4-181a(b) for the construction, maintenance and operation of a 785 Megawatt dual-fuel combined cycle electric generating facility located north of the Prokop Road and Towantic Hill Road intersection in the Town of Oxford, Connecticut.***

Dear Attorney Bachman,

I accordance with Connecticut Siting Council (Council) requests for Late-file Exhibits dated Jan. 30, 2015, I herewith provide the following relevant exhibits:

Exhibit #1. CGS §22a-69-1.2, 1.8,1.9, 2.5, 3., 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, & 3.7.

The above statute 22a-69-1.8 (k), generally exempts noise created by aircraft or aircraft propulsion components. However, under 22a-69-3.6. High background noise areas, *"In those individual cases where the background noise levels caused by sources not subject to these Regulations exceed the standards contained herein, a source shall be considered to cause excessive noise if the noise emitted by such source exceeds the background noise level by 5dBA, provided that no source subject to the provisions of Section 3 shall emit noise in excess of 80 dBA at any time, and provided that this Section does not decrease the permissible levels of the other Sections of this Regulation."* (emphasis added)

The above is the manner in which the Connecticut DEEP **does consider and includes all sources of noise impacting the sensitive receptors**.

To aid the Council in its deliberation of how all noise sources impacting specific receptors for a particular source review must be considered and included, I also attach herewith:

Exhibit #2. Massachusetts Noise Regulations, Noise Control Regulation 310 CMR 7.10 Noise.
Again, all sources of noise to receptors are represented, but in somewhat different methodology. Each State has differing legislation and verbiage with respect to Noise Pollution. The MA DEP uses "ambient sound level" to define "background sound level" used by the CT DEP. Noise from aircraft is not exempted in MA 310-CMR-7.10, and is included in "ambient noise level".

Exhibit #3. Hearing Loss, Wikipedia
These three pages of Hearing Loss from Wikipedia explain quite simply how noise pollution is cumulative, and therefore all sources of noise to the receptors must be considered in order to assess risk. For your convenience, please see highlighted portion of page #6 of this document.

The various policies are all designed to protect affected residents and other sensitive occupants of nearby property against the known and potentially health injurious part of air pollution referred to as Noise Pollution. In order to achieve that goal, all sources of noise impacting a study area must be included for a study to be meaningful.

Exhibit #4. From Connecticut Siting Council, Findings of Fact for Connecticut General Statutes (CGS § 4-181a (b) Proceeding, dated January 4, 2007, page 11, 80., Annual Impacts (ug/m3) chart (please see just below chart) *"Stack height reduced to 140 feet agl would result in downwash conditions and double the 160' modeled figures"*. (emphasis added)

I would be happy to provide any other materials or information the Council might request.

Respectfully,

Raymond Pietrorazio

This document contains the Connecticut regulations for the Control of Noise. This document was prepared by the State of Connecticut Department of Environmental Protection and is provided for the convenience of the reader. This is not the official version of the regulations. The official regulations are published by the State of Connecticut, Judicial Branch, Commission on Official Legal Publications in the Connecticut Law Journal. In the event there is inconsistency between this document and the regulations as published in the Connecticut Law Journal, the Connecticut Law Journal publication will serve as the official version.

whistles or other warning devices associated with pressure buildup.

(v) **site** means the area bounded by the property line on or in which a source of noise exists.

(Effective June 15, 1978)

Sec. 22a-69-1.2. Acoustic terminology and definitions

(a) All acoustical terminology used in these Regulations shall be in conformance with the American National Standards Institute (ANSI), "Acoustical Terminology", contained in publication S1.1 as now exists and as may be hereafter modified. The definitions below shall apply if the particular term is not defined in the aforesaid ANSI publication.

(b) **audible range of frequency** means the frequency range 20 Hz to 20,000 Hz which is generally considered to be the normal range of human hearing.

(c) **background noise** means noise which exists at a point as a result of the combination of many distant sources, individually indistinguishable. In statistical terms, it is the level which is exceeded 90% of the time (L_{90}) in which the measurement is taken.

(d) **continuous noise** means ongoing noise, the intensity of which remains at a measurable level (which may vary) without interruption over an indefinite period or a specified period of time.

(e) **decibel** (dB) means a unit of measurement of the sound level.

(f) **excessive noise** means emitter Noise Zone levels from stationary noise sources exceeding the Standards set forth in Section 3 of these Regulations beyond the boundary of adjacent Noise Zones.

(g) **existing noise source** means any noise source(s) within a given Noise Zone, the construction of which commenced prior to the effective date of these Regulations.

(h) **fluctuating noise** means a continuous noise whose level varies with time by more than 5 dB.

(i) **frequency** means the number of vibrations or alterations of sound pressure per second and is expressed in Hertz.

(j) **hertz (Hz)** means a unit of measurement of frequency formerly stated as, and numerically equal to, cycles per second.

(k) **impulse noise** means noise of short duration (generally less than one second), especially of high intensity, abrupt onset and rapid decay, and often rapidly changing spectral composition.

(l) **infrasonic sound** means sound pressure variations having frequencies below the audible range for humans, generally below 20 Hz; subaudible.

(d) Sound created by bells, carillons, or chimes associated with specific religious observances.

(e) Sound created by a public emergency sound signal attached to an authorized emergency vehicle in the immediate act of responding to an emergency, as authorized by subsection (d) of Section 14.80 and Section 14-1a of Chapter 246 of the General Statutes and all amendments thereto, or located within or attached to a building, pole or other structure for the purpose of sounding an alarm relating to fire or civil preparedness.

(f) Sound created by safety and protective devices.

(g) Farming equipment or farming activity.

(h) Back-up alarms required by OSHA or other State or Federal safety regulations.

(i) Sound created by any mobile source of noise. Mobile sources of noise shall include, but are not limited to, such sources as aircraft, automobiles, trucks, and boats. This exclusion shall cease to apply when a mobile source of noise has maneuvered into position at the loading dock, or similar facility, has turned off its engine and ancillary equipment, and has begun the physical process of removing the contents of the vehicle.

(Effective June 15, 1978)

Sec. 22a-69-1.8. Exemptions

Exempted from these Regulations are:

(a) Conditions caused by natural phenomena, strike, riot, catastrophe, or other condition over which the apparent violator has no control.

(b) Noise generated by engine-powered or motor-driven lawn care or maintenance equipment shall be exempted between the hours of 7:00 a.m. and 9:00 p.m. provided that noise discharged from exhausts is adequately muffled to prevent loud and/or explosive noises therefrom.

(c) Noises created by snow removal equipment at any time shall be exempted provided that such equipment shall be maintained in good repair so as to minimize noise, and noise discharged from exhausts shall be adequately muffled to prevent loud and/or explosive noises therefrom.

(d) Noise that originates at airports that is directly caused by aircraft flight operations specifically preempted by the Federal Aviation Administration.

(e) Noise created by the use of property for purposes of conducting speed or endurance events involving motor vehicles shall be exempted but such exemption is effective only during the specific period(s) of time within which such use is authorized by the political subdivision or governmental entity having lawful jurisdiction to sanction such use.

(f) Noise created as a result of, or relating to, an emergency.

(g) Construction noise.

(h) Noise created by blasting other than that conducted in connection with construction activities shall be exempted provided that the blasting is conducted between 8:00 a.m. and 5:00 p.m. local time at specified hours previously announced to the local public, or provided that a permit for such blasting has been obtained from local authorities.

(i) Noise created by on-site recreational or sporting activity which is sanctioned by the state or local government provided that noise discharged from exhausts is adequately muffled to prevent loud and/or explosive noises therefrom.

(j) Patriotic or public celebrations not extending longer than one calendar day.

(k) Noise created by aircraft, or aircraft propulsion components designed for or utilized in the development of aircraft, under test conditions.

(l) Noise created by products undergoing test, where one of the primary purposes of the test is evaluation of product noise characteristics and where practical noise control measures have been taken.

(m) Noise generated by transmission facilities, distribution facilities and substations of public utilities providing electrical powers, telephone, cable television or other similar services and located on property which is not owned by the public utility and which may or may not be within utility easements.

(Effective June 15, 1978)

Sec. 22a-69-1.9. Burden of persuasion regarding exclusions and exemptions

In any proceeding pursuant to these Regulations, the burden of persuasion shall rest with the party attempting to enforce the Regulations. Notwithstanding the foregoing, if an exclusion or exemption stated in these Regulations would limit an obligation, limit a liability, or eliminate either an obligation or a liability, the person who would benefit from the application of the exclusion or exemption shall have the burden of persuasion that the exclusion or exemption applies and that the terms of the exclusion or exemption have been met. The Department shall cooperate with and assist persons in determining the application of the provision of these Regulations.

(Effective June 15, 1978)

76 Parks
79 Other, N.E.C. *
*Not Elsewhere Classified
8. Agriculture
81 Agriculture
82 Agricultural Related Activities
9. Undeveloped, Unused, and Reserved Lands and Water Area
91 Undeveloped and Unused Land Area
93 Water Areas
94 Vacant Floor Area-Except 941
99 Other Undeveloped Land and Water Areas, N.E.C. *
*Not Elsewhere Classified
(Effective June 15, 1978)

Sec. 22a-69-2.5. Class C noise zone

Lands designated Class C shall generally be industrial where protection against damage to hearing is essential, and the necessity for conversation is limited.

Class C Land Use Category. The land uses in this category shall include, but not be limited to, manufacturing activities, transportation facilities, warehousing, military bases, mining, and other lands intended for such uses.

The specific SLUCONN categories in Class C shall include:
2. Manufacturing - Secondary Raw Materials
3. Manufacturing - Primary Raw Materials
4. Transportation, Communications and Utilities-Except 46 and 47
6. Services
637 Warehousing and Storage Services
66 Contract Construction Services
672 Protective Functions and Related Activities
675 Military Bases and Reservations
8. Agriculture
83 Forestry Activities and Related Services
84 Commercial Fishing Activities and Related Services
85 Mining Activities and Related Services
89 Other Resource Production and Extraction, N.E.C. *
*Not Elsewhere Classified
(Effective June 15, 1978)

Sec. 22a-69-3. Allowable noise levels

Sec. 22a-69-3.1. General prohibition

No person shall cause or allow the emission of excessive noise beyond the boundaries of his/her Noise Zone so as to violate any provisions of these Regulations.

(Effective June 15, 1978)

Sec. 22a-69-3.2. Impulse noise

(a) No person shall cause or allow the emission of impulse noise in excess of 80 dB peak sound pressure level during the nighttime to any Class A Noise Zone.

(b) No person shall cause or allow the emission of impulse noise in excess of 100 dB peak sound pressure at any time to any Noise Zone.

(Effective June 15, 1978)

Sec. 22a-69-3.3. Prominent discrete tones

Continuous noise measured beyond the boundary of the Noise Zone of the noise emitter in any other Noise Zone which possesses one or more audible discrete tones shall be considered excessive noise when a level of 5 dBA below the levels specified in Section 3 of these Regulations is exceeded.

(Effective June 15, 1978)

Sec. 22a-69-3.4. Infrasonic and ultrasonic

No person shall emit beyond his/her property infrasonic or ultrasonic sound in excess of 100 dB at any time.

(Effective June 15, 1978)

Sec. 22a-69-3.5. Noise zone standards

(a) No person in a Class C Noise Zone shall emit noise exceeding the levels stated herein and applicable to adjacent Noise Zones:

	Receptor			
	C	*B*	*A/Day*	*A/Night*
Class C Emitter to	70 dBA	66 dBA	61 dBA	51 dBA

Levels emitted in excess of the values listed above shall be considered excessive noise.

(b) No person in a Class B Noise Zone shall emit noise exceeding the levels stated herein and applicable to adjacent Noise Zones:

Receptor

	C	*B*	*A/Day*	*A/Night*
Class B Emitter to	62 dBA	62 dBA	55 dBA	45 dBA

Levels emitted in excess of the values listed above shall be considered excessive noise.

(c) No person in a Class A Noise Zone shall emit noise exceeding the levels stated herein and applicable to adjacent Noise Zone:

Receptor

	C	*B*	*A/Day*	*A/Night*
Class A Emitter to	62 dBA	55 dBA	55 dBA	45 dBA

Levels emitted in excess of the values listed above shall be considered excessive noise

(Effective June 15, 1978)

Sec. 22a-69-3.6. High background noise areas

In those individual cases where the background noise levels caused by sources not subject to these Regulations exceed the standards contained herein, a source shall be considered to cause excessive noise if the noise emitted by such source exceeds the background noise level by 5 dBA, provided that no source subject to the provisions of Section 3 shall emit noise in excess of 80 dBA at any time, and provided that this Section does not decrease the permissible levels of the other Sections of this Regulation.

(Effective June 15, 1978)

Sec. 22a-69-3.7. Existing noise sources

Existing noise sources constructed between the effective date of these Regulations and January 1, 1960 shall be provided a permanent five (5) dBA maximum noise level allowance over levels otherwise herein required regardless of subsequent changes in ownership or facility utilization processes at the location of the existing noise source. Existing noise sources constructed prior to 1960 shall be provided a permanent ten (10) dBA maximum noise level allowance over levels otherwise herein required regardless of subsequent changes in ownership or facility utilization processes at the location of the existing noise source. Additionally, all existing noise sources shall be provided twenty-four (24) months in order to achieve compliance with these Regulations if a notice of violation has been, or may be, issued to the source. This time period begins with the

effective date of these Regulations, not with the date of the notice of violation.

(Effective June 15, 1978)

Sec. 22a-69-3.8. Adaptive reuse of existing buildings

Buildings and other structures that exist as of the effective date of these Regulations which have been remodeled or converted for adaptive reuse or which may be remodeled or converted at a future date shall be provided a permanent five (5) dBA maximum noise level allowance above the Emitter Class of the new use of the building over levels otherwise herein required.

(Effective June 15, 1978)

Sec. 22a-69-4. Measurement procedures

Acoustic measurements to ascertain compliance with these Regulations shall be in substantial conformity with standards and Recommended Practices established by professional organizations such as ANSI and SAE.

(a) Personnel conducting sound measurements shall be trained and experienced in the current techniques and principles of sound measuring equipment and instrumentation. The Commissioner shall establish sufficiently detailed measurement procedure guidelines specifying, but not necessarily being limited to, the following: The appropriate utilization of fast or slow sound level meter dampening when making sound level measurements, the rise time specified in microseconds for measuring impulse noise, the need for a whole circuit in such measurements, and the proper weighting to be used in measuring impulse noise.

(b) Instruments shall conform to the following standards of their latest revisions:

(i) ANSI S1.4-1971, "Specifications for Sound Level Meters," Type 1 or 2.

(ii) ANSI S1.11-1966, "Specifications for Octave, One-Half Octave and One-Third Octave Band Filter Sets," Type E, Class II.

(iii) If a magnetic tape recorder or a graphic level recorder or other indicating device is used, the system shall meet the applicable requirements of SAE Recommended Practice J184, "Qualifying a Sound Date Acquisition System."

(c) Instruments shall be set up to conform to ANSI S1.13-1971, "Methods for the Measurement of Sound Pressure Levels."

(d) Instrument manufacturer's instruction for use of the instruments shall be followed, including acoustical calibration of equipment used.

(e) The determination of L_{90} to ascertain background levels requires a statistical analysis. A graphic level recording and visual interpretation of the chart recording to determine the levels is an acceptable method. Instruments designed to determine the cumulative distribution of noise levels are also

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Massachusetts Noise Regulations

The Commonwealth of Massachusetts Department of Environmental Protection (DEP) Noise Control Regulation 310 CMR 7.10

310 CMR 7.10 Noise

(1) No person owning, leasing, or controlling a source of sound shall willfully, negligently, or through failure to provide necessary equipment, service, or maintenance or to take necessary precautions cause, suffer, allow, or permit unnecessary emissions from said source of sound that may cause noise.

(2) 310 CMR 7.10(1) shall pertain to, but shall not be limited to, prolonged unattended sounding of burglar alarms, construction and demolition equipment which characteristically emit sound but which may be fitted and accommodated with equipment such as enclosures to suppress sound or may be operated in a manner so as to suppress sound, suppressible and preventable industrial and commercial sources of sound, and other man-made sounds that cause noise.

(3) 310 CMR 7.10(1) shall not apply to sounds emitted during and associated with:

1. parades, public gatherings, or sporting events, for which permits have been issued provided that said parades, public gatherings, or sporting events in one

city or town do not cause noise in another city or town;
2. emergency police, fire, and ambulance vehicles;
3. police, fire, and civil and national defense activities;
4. domestic equipment such as lawn mowers and power saws between the hours of 7:00 A.M. and 9:00 P.M.

(4) 310 CMR 7.10(1) is subject to the enforcement provisions specified in 310 CMR 7.52.

The DEP has established a Noise Level Policy for implementing this regulation. The policy specifies that the ambient sound level, measured at the property line of the facility or at the nearest inhabited buildings, shall not be increased by more than 10 decibels weighted for the "A" scale [dB(A)] due to the sound from the facility during its operating hours.

The ambient sound level is the sound from all sources other than the particular sound of interest; also known as the background sound level. The ambient sound measurement (A-weighted sound level) is taken where the offending sound cannot be heard, or with the sound source shut-off. The ambient sound level is rarely found to be constant over time, and is usually quite variable. The ambient sound level is considered to be the level that is exceeded 90% of the time that the noise measurements are taken. The ambient sound level may also be established by other means with the consent of the DEP.

The dB(A) unit of sound measurement is altered (or weighted) to reflect human sound sensitivity. For instance, for those frequencies of sound which humans hear very well, the actual reading is enhanced, or increased, in the weighting process. The "weighted" reading therefore emphasizes the frequencies best heard by humans, and likewise de-emphasizes those sound frequencies which are less well heard.

The guideline further states that the facility shall not produce a pure-tone condition at the property line (or at the nearest inhabited buildings). A pure-tone exists if the sound pressure level, at any given octave band center frequency, exceeds the levels of the two adjacent octave bands by three (3) or more decibels.

The Massachusetts Department of Environmental Protection (DEP) adopted this Noise Control Regulation, 310 CMR 7.10, under the authority of M.G.L. Chapter 111, Section 142B and 142D. The Noise Control Regulation is used to limit the sound impact of new stationary sources and to respond to complaints of certain excessive sound. The DEP Noise Control Regulation can be enforced by local officials under the authority of 310 CMR7.52

310 CMR 7.52 Enforcement Provisions

"Any police department, fire department, board of health officials, or building inspector or his designee acting within his jurisdictional area is hereby authorized by the DEP to enforce, as provided in M.G.L. c. 111, S 142B, any regulation in which specific reference to 310 CMR 7.52 is cited."
Noise is defined in the Regulations as "...sound of sufficient intensity and/or duration as to cause or contribute to a condition of air pollution."

Community Sound Level Criteria

A source of sound will be considered to be in compliance with the DEP noise regulation 310 CMR 7.10(1) if the source does not:

1. Increase the broadband sound level by more than 10 dB(A) above ambient, or
2. Produce a pure tone condition.

The material presented herein is intended for informational purposes only. Regulations continually evolve and are subject to change. We do not warranty this information and remind any users of this information to research the current validity and applicability.

[redacted]

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Hearing loss

From Wikipedia, the free encyclopedia

Hearing loss, **deafness**, **hard of hearing**, **anacusis**, or **hearing impairment** (a term considered derogatory by many in the deaf community),[1] is a partial or total inability to hear.[2] In children it may affect the development of language and can cause work related difficulties for adults.[3]

Hearing loss is caused by many factors, including: genetics, age, exposure to noise, illness, chemicals and physical trauma. Hearing testing may be used to determine the severity of the hearing loss. While the results are expressed in decibels, hearing loss is usually described as mild, mild-moderate, moderate, moderately severe, severe, or profound. Hearing loss is usually acquired by a person who at some point in life had no hearing loss.

There are a number of measures that can prevent hearing loss and include avoidance of loud noise, chemical agents, and physical trauma. Testing for poor hearing is recommended for all newborns.[3] But, in some cases such as due to disease, illness, or genetics, it is impossible to reverse or prevent. Hearing aids are partially effective for many. Depending on the kind of hearing loss, hearing implants can be effective.[4]

Globally hearing loss affects about 10% of the population to some degree.[5] It caused moderate to severe disability in 124 million people as of 2004 (108 million of whom are in low and middle income countries).[6] Of these 65 million developed the condition during childhood.[7] It is one of the most common medical conditions presenting to physicians.[8] It is viewed by some in the deaf community as a condition, not an illness. Treatments such as cochlear implants have caused controversy in the deaf community.

Hearing loss

The international symbol of deafness or hard of hearing

Classification and external resources

ICD-10	H90 (http://apps.who.int/classifications/icd10/browse/2015/en#/H90)–H91 (http://apps.who.int/classifications/icd10/browse/2015/en#/H91)
ICD-9	389 (http://www.icd9data.com/getICD9Code.ashx?icd9=389)
MedlinePlus	003044 (http://www.nlm.nih.gov/medlineplus/ency/article/003044.htm)
eMedicine	article/994159 (http://emedicine.medscape.com/article/994159-overview)
MeSH	D034381 (https://www.nlm.nih.gov/cgi/mesh/2015/MB_cgi?field=uid&term=D034381)

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There is a progressive loss of ability to hear high frequencies with increasing age known as presbycusis. For men, this can start as early as 25 and women at 30, but may even affect teenagers and children. Although genetically variable it is a normal concomitant of aging and is distinct from hearing losses caused by noise exposure, toxins or disease agents.[10]

Noise

Noise is the cause of approximately half of all cases of hearing loss, causing some degree of problems in 5% of the population globally.[5]

Populations living near airports or freeways are exposed to levels of noise typically in the 65 to 75 dB(A) range. If lifestyles include significant outdoor or open window conditions, these exposures over time can degrade hearing. The U.S. EPA and various states have set noise standards to protect people from these health risks. The EPA has identified the level of 70 dB(A) for 24−hour exposure as the level necessary to protect the public from hearing loss and other disruptive effects from noise, such as sleep disturbance, stress-related problems, learning detriment, etc. (EPA, 1974).

Noise-induced hearing loss (NIHL) is typically centered at 3000, 4000, or 6000 Hz. As noise damage progresses, damage spreads to affect lower and higher frequencies. On an audiogram, the resulting configuration has a distinctive notch, sometimes referred to as a "noise notch." As aging and other effects contribute to higher frequency loss (6–8 kHz on an audiogram), this notch may be obscured and entirely disappear.

Louder sounds cause damage in a shorter period of time. Estimation of a "safe" duration of exposure is possible using an *exchange rate* of 3 dB. As 3 dB represents a doubling of intensity of sound, duration of exposure must be cut in half to maintain the same energy dose. For example, the "safe" daily exposure amount at 85 dB A, known as an exposure action value, is 8 hours, while the "safe" exposure at 91 dB(A) is only 2 hours (National Institute for Occupational Safety and Health, 1998). Note that for some people, sound may be damaging at even lower levels than 85 dB A. Exposures to other ototoxins (such as pesticides, some medications

including chemotherapy agents, solvents, etc.) can lead to greater susceptibility to noise damage, as well as causing their own damage. This is called a *synergistic* interaction.

Some American health and safety agencies (such as OSHA, the Occupational Safety and Health Administration, and MSHA, the Mine Safety and Health Administration), use an exchange rate of 5 dB.[11] While this exchange rate is simpler to use, it drastically underestimates the damage caused by very loud noise. For example, at 115 dB, a 3 dB exchange rate would limit exposure to about half a minute; the 5 dB exchange rate allows 15 minutes.

Many people are unaware of the presence of environmental sound at damaging levels, or of the level at which sound becomes harmful. Common sources of damaging noise levels include car stereos, children's toys, motor vehicles, crowds, lawn and maintenance equipment, power tools, gun use, musical instruments, and even hair dryers. Noise damage is cumulative; all sources of damage must be considered to assess risk. If one is exposed to loud sound (including music) at high levels or for extended durations (85 dB A or greater), than hearing loss will occur. Sound levels increase with proximity; as the source is brought closer to the ear, the sound level increases.

In the USA, 12.5% of children aged 6–19 years have permanent hearing damage from excessive noise exposure.[12]

Hearing loss has been described as primarily a condition of modern society.[13] In preindustrial times, humans had far less exposure to loud sounds and deafness appears to have been a rare condition.[14] This began to change with the event of machinery and electrical devices in the 18th-20th centuries. Studies have noted that baby boomers most often suffer hearing loss from recreational activities while their parents' generation were more affected by occupational (i.e. workplace) noise. Military service in World War II, the Korean War, and the Vietnam War, has likely also caused hearing loss in large numbers of men from those generations, though proving hearing loss was a direct result of military service is problematic without entry and exit audiograms.[15]

Genetic

79. To comply with the requirements of a non-attainment new source review for NO_x, the proposed project would acquire offsets at a minimum ratio of 1.2 to 1.0. Towantic Energy would also obtain allowances to offset SO_2 emissions under the federal Acid Rain Program. Towantic Energy would acquire NO_x offsets from within a regional airshed including such states as New York and New Jersey. Towantic Energy would purchase SO_2 offsets on the competitive trading market. (Towantic Energy Exhibit 1, p. 4-16 and Appendix F, pp. 4 and 7; Towantic Energy Exhibit 3, Q. 32; Tr. 1, p. 29)

80. Existing, modeled, and National and Connecticut Ambient Air Quality Standards (NAAQS/CAAQS) for the following pollutants at the proposed stack height (160 feet) and a height equal to the Federal Aviation Administration (FAA) "circle to land minimum" criteria at the Waterbury-Oxford Airport (146 feet) are as follows:

Annual Impacts (ug/m^3)

Pollutant Dispersion	SO_2		NO_x		PM_{10}	
stack height	160'	146'	160'	146'	160'	146'
existing	16.7	16.7	43.3	43.3	21.7	21.7
modeled*	0.41	0.48	0.22	0.26	0.15	0.18
total	17.11	17.18	43.52	43.56	21.85	21.88
NAAQS/CAAQS.	80		100		50	

*Stack height reduced to 140 feet agl would result in downwash conditions and double the 160' modeled figures.

(Towantic Energy Exhibit 1, pp. 3-55 to 3-60 and Appendix H; Towantic Energy Exhibit 4, Q. 42; Towantic Energy Rebuttal Exhibits 2 and 3; Tr. 1, p. 75; Tr. 3, pp. 78-80; Tr. 6, pp. 176-182)

81. Air emissions from the proposed facility, based on maximum potential annual emissions, using worst case load conditions while operating on natural gas and distillate fuel, would be as follows:

Proposed Project Emissions (tons per year)

Criteria Pollutant	**Natural Gas 8,760 hours/yr**	**Natural Gas 8,040 hours/yr Distillate fuel oil 720 hours/yr**
Nitrogen Oxides (NO_x)	226	246
Carbon Monoxide (CO)	245	274
Volatile Organic Compounds (VOC)	23	27
Particulate Matter (PM-10)	92	110
Sulfur Dioxide (SO_2)	5	80

(Towantic Energy Exhibit 1, p. 2-60 and Appendix H, p.2; Towantic Energy Exhibit 4a)

Traffic

82. Roads that would be used to access the proposed site from the north include Interstate 84, State Route 188, Waterbury-Oxford Access Road (State Route 454), Christian Street, Jack's Hill Road, Riggs Street, and Prokop Road to Woodruff Hill Road. Roads that would be used to access the proposed site from the south include Route 8, Route 67, Riggs Street, and Prokop Road to Woodruff Hill Road. (Towantic Energy Exhibit 1, p. 3-27 and 3-34; Towantic Energy Exhibit 4, Q. 45; Tr. 1, p. 59; Tr. 3, p. 95)