My name is Mary Bailey. I live at 80 East Wallum Lake Road in Pascoag.

Before I begin, I'm wondering if anyone would object to my lighting up this cigarette. I'm sure if I were to do so, I would promptly be escorted out of the room. Why? Because it has been determined that cigarette smoke, both first and second hand, is hazardous to one's health. There is currently a bill in the General Assembly to raise the purchase age of cigarettes to twenty-one. In other words, cigarette smoke must be more dangerous than going off to war which one can do at age eighteen.

That being the case, I cannot then understand why we could ever consider allowing Invenergy to destroy the clear, clean air in Burrillville. Attached you will find a list of emissions Invenergy plans to spew into the air surrounding the proposed power plant. This list was taken from Invenergy's application to the Energy Facility Siting Board. Also attached, you will find articles from the World Health Organization and the American Cancer Society listing the carcinogens found in tobacco. Remember, the word "carcinogen" indicates a cancer causing agent. Invenergy lists <u>eleven</u> of these same carcinogens they will be polluting our air with. They are indicated by the circled items on their application. You will also see two chemicals with check marks beside them. Invenergy lists them as "non-

pollutants," yet the World Health Organization lists the same chemicals as carcinogens. Please note that there are three chemicals, including carbon monoxide, a killer, that are boxed. The American Cancer Society also lists these as dangerous. They go on to say at the end of this list, "Many of these substances cause cancer. Some cause heart and lung diseases. All of these products can be deadly."

Invenergy also lists 77.54 tons of VOC'S that will be emitted. VOC stands for Volatile Organic Compounds. The EPA lists health effects from VOC'S as eye, nose and throat irritation; headaches, loss of coordination and nausea; and damage to liver, kidney and central nervous system. "Some organics can cause cancer in animals, some are suspected or known to cause cancer in humans."

The EPA lists NO_x and SO_2 as the main causes of acid rain. Invenergy plans on churning tons of these chemicals into the air, again, as listed on their application. The EPA lists the cause of acid rain in New England not only from water that combines with these chemicals in the atmosphere, but also from dry deposition – in other words when these chemicals go directly into the soil or bodies of water. I can list twelve bodies of water in Pascoag alone that would be affected by this. One of them is a drinking source for the patients at Zambarano Hospital, a state-run facility serving a very vulnerable segment

of the population consisting of elderly and chronically disabled RI citizens. In this article, the EPA lists power plants and large "smoke stack" facilities as being the primary culprits. At the May 2 hearing between Invenergy representatives and the Burrillville Planning Board, a gentleman from Invenergy stated that we are already breathing chemicals from plants in Massachusetts. That means that the emissions from the proposed plant will likely reach the Scituate Reservoir, RI's main source of drinking water.

So if the carcinogens Invenergy plans on making us breathe 24-7 (even people who smoke have to take time out to eat, work, and sleep) weren't enough, now our precious water will also be put at risk. The ponds and lakes that we and our children enjoy swimming and fishing in as well as the wells we get water to cook, drink, and bathe in will now all be in danger of posing hazards to our health.

Not only do I live within two miles of the proposed facility, but I am also the principal of a small private school, also within that radius, which serves students from Connecticut, Massachusetts and RI. A few years ago when we were repainting our 175 year old sanctuary, I had parents concerned about the removal of lead paint and paint fumes, even though the children did not use that room. I can't help but wonder if the toxins from a nearby power plant will cause some families

to reconsider sending their children to a school in such close proximity to said power plant. I know of one family, whose children attend our school, who already plans to move if the plant gains approval. We could potentially be shut down if several families leave since we run on a shoe-string budget already.

After seeing what happened in Flint, Michigan, do we really want to endanger the people of RI by allowing a power plant to destroy an area of RI known for its idyllic setting, clean water and air, home to important wildlife including eagles, and surrounded by boy scout camps, open spaces and state parks?

Please, don't make us subject to such things that pose serious health hazards or death. I urge you to vote "NO" on Invenergy's application.

The Facility stationary emission sources are detailed below. The equipment specifications and emissions information provided are based on the current Facility design, preliminary equipment and emissions information provided to date by the potential equipment manufacturers including GE, Siemens and MHI, and the available emission factors. The actual equipment vendors for the Project, the Facility design and layout, the equipment specifications, and the emission rates of each pollutant from each emission source are all subject to change as the Project design advances.

Table 6.1-1

Facility Potential Emissions of Criteria Pollutants[1]

Potential Emissions	Units	Total	Major Source Threshold	Major Source?	Attainment Status	Offsets/Allowances Required
NO_x	ton/yr	285.15	50	Yes	Ozone Nonattainment	342
CO	ton/yr	220.03	100	Yes	Attainment	NA
VOC	ton/yr	77.54	50	Yes	Ozone Nonattainment	93
CO_2	ton/yr	3,626,113	100,000	Yes	No NAAQS	3,579,867
SO_2	ton/yr	50.84	100	No	Attainment	NA
PM/PM10/PM2.5	ton/yr	197	100	Yes	Attainment	NA

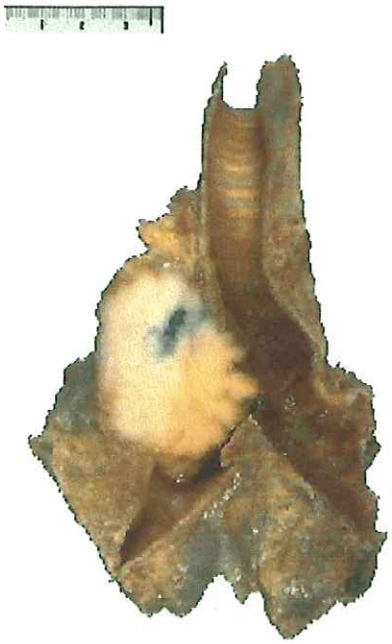
[1]Based on preliminary project equipment specifications and emissions estimates provided by GE. Equipment vendor selection, equipment specifications, and emission rates are subject to change as the project design advances.

Table 6.1-2

Potential Emissions of Non-Criteria Pollutants

Non-Criteria Pollutant	Hazardous Air Pollutant Yes/No	Total Facility Potential Emissions lb/yr	RIDEM APCR No. 22 Minimum Quantity lb/yr	RIDEM APCR No. 22 Applicability Determination Yes/No	Total Potential HAP Emissions ton/yr	Major HAP Source Threshold
1,3-Butadiene	Yes	10	3	Yes	0.01	10
2-Methylmaphthalene	No	0.032	NA	NA		
3-Methylchloranthrene	No	0.0023	NA	NA		
7,12-Dimethylbenz(a)anthracene	No	0.021	NA	NA		
Acenaphthene	No	0.015	NA	NA		
Acenaphthylene	No	0.012	NA	NA		
Acetaldehyde	Yes	219	50	Yes	0.11	10
Acrolein	Yes	0.08	0.07	Yes	0	10
Ammonia	No	81,240	300	Yes		
Anthracene	No	0.013	NA	NA		
Arsenic	Yes	2.7	0.02	Yes	0	10
Barium	No	53	2,000	No		
Benz(a)anthracene	No	0.008	NA	NA		
Benzene	Yes	80	10	Yes	0.04	10
Benzo(a)pyrene	No	0.0039	NA	NA		
Benzo(b)fluoranthene	No	0.01	NA	NA		

Non-Criteria Pollutant	Hazardous Air Pollutant Yes/No	Total Facility Potential Emissions lb/yr	RIDEM APCR No. 22 Minimum Quantity lb/yr	RIDEM APCR No. 22 Applicability Determination Yes/No	Total Potential HAP Emissions ton/yr	Major HAP Source Threshold
Benzo(g,h,i)perylene	No	0.0059	NA	NA		
Benzo(k)fluoranthene	No	0.0047	NA	NA		
Beryllium	Yes	1.7	0.04	Yes	0	10
Butane	No	3,978	NA	NA		
Cadmium	Yes	14	0.07	Yes	0.01	10
Chromium	Yes	28	20,000	No	0.01	10
Chrysene	No	0.012	NA	NA		
Cobalt	Yes	1	0.1	Yes	0	10
Copper	No	11	40	No		
Dibenzo(a,h)anthracene	No	0.0047	NA	NA		
Dichlorobenzene	No	2.3	NA	NA		
Ethane	No	5,883	NA	NA		
Ethylbenzene	Yes	175	9,000	No	0.09	10
Fluoranthene	No	0.013	NA	NA		
Fluorene	No	5.4	NA	NA		
Formaldehyde	Yes	1,450	9	Yes	0.72	10
Hexane	Yes	3,418	20,000	No	1.71	10
Indeno(1,2,3-cd)pyrene	No	3.5	NA	NA		
Lead	Yes	10	0.9	Yes	0	10
Manganese	Yes	5.9	0.2	Yes	0	10
Mercury	Yes	3.2	0.7	Yes	0	10
Molybdenum	No	14	60	No		
Naphthalene	Yes	27	3	Yes	0.01	10
Nickel	Yes	33	0.4	Yes	0.02	10
Pentane	No	4,930	NA	NA		
Phenanthrene	No	0.26	NA	NA		
Propane	No	3,035	NA	NA		
Propylene	No	18	36,500	No		
Propylene Oxide	Yes	158	30	Yes	0.08	10
Pyrene	No	0.015	NA	NA		
Selenium	Yes	1.6	2,000	No	0	10
Sulfuric Acid	No	32,670	40	Yes		
Toluene	Yes	717	1,000	No	0.36	10
Vanadium	No	28	0.07	Yes		
Xylenes	Yes	350	3,000	No	0.18	10
Zinc	No	352	3,000	No		
Total					3.35	25



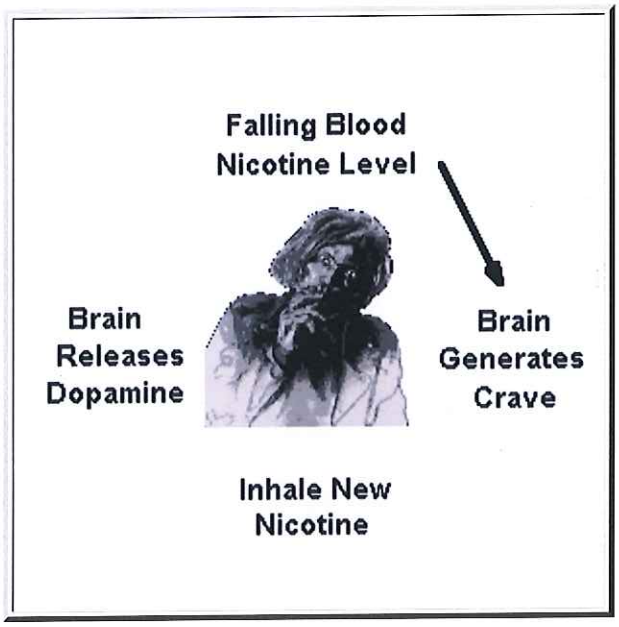
81 Cancer Causing Chemicals Have So Far Been Identified in Cigarette Smoke

1. Acetaldehyde
2. Acetamide
3. Acrylamide
4. Acrylonitrile
5. 2-Amino-3,4-dimethyl-3H-imidazo[4,5-f]quinoline (MeIQ)
6. 3-Amino-1,4-dimethyl-5H-pyrido [4,3-b]indole (Trp-P-1)
7. 2-Amino-l-methyl-6-phenyl-1H-imidazo [4,5-b]pyridine (PhlP)
8. 3-Amino-l-methyl-5H-pyrido [4,3-b]indole (Trp-P-2)
9. 2-Amino-3-methyl-9H-pyrido[2,3-b]indole (MeAaC)
10. 2-Amino-6-methyldipyrido [1,2-a:3',2'-d] imidazole (Glu-P-1)
11. 2-Amino-9H-pyrido[2,3-b]indole (AaC)
12. 4-Aminobiphenyl
13. 2-Aminodipyrido[1,2-a:3',2'-d]imidazole (Glu-P-2)
14. 0-Anisidine
15. Arsenic
16. Benz[a]anthracene
17. Benzene
18. Benzo[a]pyrene
19. Benzo[b]fluoranthene
20. Benzo[j]fluoranthene
21. Benzo[k]fluoranthene
22. Benzo[b]furan

23. Beryllium
24. 1,3-Butadiene
25. Cadmium
26. Catechol (1,2-benzenediol)
27. p-Chloroaniline
28. Chloroform
29. Cobalt
30. p,p'-DDT
31. Dibenz[a,h]acridine
32. Dibenz[a,j]acridine
33. Dibenz(a,h)anthracene
34. 7H-Dibenzo[c,g]carbazole
35. Dibenzo(a,e)pyrene
36. Dibenzo(a,i)pyrene
37. Dibenzo(a,h)pyrene
38. Dibenzo(a,i)pyrene
39. Dibenzo(a,l)pyrene
40. 3,4-Dihydroxycinnamic acid (caffeic acid)
41. Ethylbenzene
42. Ethylene oxide
43. Formaldehyde
44. Furan
45. Glycidol
46. Heptachlor
47. Hydrazine
48. Indeno[1,2,3-cd]pyrene
49. IQ 92-Amino-3-methyl-3H-imidazo[4,5-f]quinoline)
50. Isoprene
51. Lead
52. 5-Methyl-chrysene
53. 2-Naphthylamine
54. Nitrobenzene
55. Nitrogen mustard
56. Nitromethane
57. 2-Nitropropane
58. N-Nitrosodi-n-butylamine (NDBA)
59. N-Nitrosodi-n-propylamine (NDPA)
60. N-Nitrosodiethanolamine (NDELA)
61. N-Nitrosodiethylamine (DEN)
62. N-Nitrosodimethylamine (DMN)
63. N-Nitrosoethylmethylamine (NEMA, MEN)
64. 4-(N-Nitrosomethylamino)-1-(3-pyridinyl)-1-butanone (NNK)
65. N'-Nitrosonornicotine (NNN)

66. N-Nitrosopiperidine (NPIP, NPP)
67. N-Nitrosopyrrolidine (NPYR, NPY)
68. Polonium-210
69. Propylene oxide
70. Radon 222
71. Safrole
72. Styrene
73. Tetrachloroethylene
74. o-Toluidine (2-methylaniline)
75. Trichloroethylene
76. Urethane - carbamic acid
77. Urethane - ethyl ester
78. Vinyl acetate
79. Vinyl chloride
80. 4-Vinylcyclohexene
81. 2,6-Xylidine (2,6-dimethylaniline)

Source: World Health Organization's
International Agency for Research on Cancer - (IARC)
June 2003



Plus 4,000 Extra Chemicals in

EPA United States Environmental Protection Agency

Indoor Air Quality (IAQ)

Volatile Organic Compounds' Impact on Indoor Air Quality

On this page:

Introduction

Volatile organic compounds (VOCs) are emitted as gases from certain solids or liquids. VOCs include a variety of chemicals, some of which may have short- and long-term adverse health effects. Concentrations of many VOCs are consistently higher indoors (up to ten times higher) than outdoors. VOCs are emitted by a wide array of products numbering in the thousands.

Organic chemicals are widely used as ingredients in household products. Paints, varnishes and wax all contain organic solvents, as do many cleaning, disinfecting, cosmetic, degreasing and hobby products. Fuels are made up of organic chemicals. All of these products can release organic compounds while you are using them, and, to some degree, when they are stored.

EPA's Office of Research and Development's "Total Exposure Assessment Methodology (TEAM) Study" (Volumes I through IV, completed in 1985) found levels of about a dozen common organic pollutants to be 2 to 5 times higher inside homes than outside, regardless of whether the homes were located in rural or highly industrial areas. TEAM studies indicated that while people are using products containing organic chemicals, they can expose themselves and others to very high pollutant levels, and elevated concentrations can persist in the air long after the activity is completed.

Sources of VOCs

Household products, including:

- paints, paint strippers and other solvents
- wood preservatives
- aerosol sprays
- cleansers and disinfectants
- moth repellents and air fresheners
- stored fuels and automotive products
- hobby supplies
- dry-cleaned clothing
- pesticide

Other products, including:

- building materials and furnishings
- office equipment such as copiers and printers, correction fluids and carbonless copy paper
- graphics and craft materials including glues and adhesives, permanent markers and photographic solutions.

Health Effects

Health effects may include:

- Eye, nose and throat irritation
- headaches, loss of coordination and nausea
- damage to liver, kidney and central nervous system
- Some organics can cause cancer in animals, some are suspected or known to cause cancer in humans.

Key signs or symptoms associated with exposure to VOCs include:

- conjunctival irritation
- nose and throat discomfort
- headache
- allergic skin reaction
- dyspnea
- declines in serum cholinesterase levels
- nausea
- emesis

Carcinogens in Tobacco Products

Tobacco smoke

Cigarettes, cigars, and pipe tobacco are made from dried tobacco leaves. Other substances are added for flavor and to make smoking more pleasant. The smoke from these products is a complex mixture of chemicals produced by the burning of tobacco and its additives.

Tobacco smoke is made up of more than 7,000 chemicals, including over 70 known to cause cancer (carcinogens). Some of the chemicals found in tobacco smoke include:

- Nicotine (the addictive drug that produces the effect people are looking for and one of the harshest chemicals in tobacco smoke)
- Cyanide
- Benzene
- Formaldehyde
- Methanol (wood alcohol)

- Acetylene (the fuel used in welding torches)
- Ammonia
-
- The poison gases carbon monoxide and nitrogen oxide
- Vinyl chloride
- Ethylene oxide
- Arsenic
- Chromium
- Cadmium
- Nitrosamines
- Polynuclear aromatic hydrocarbons
-

Many of these substances cause cancer. Some cause heart and lung diseases, too. All of these products can be deadly.

Radioactive materials in tobacco smoke

Radioactive materials are in the tobacco leaves used to make cigarettes and cigars; the amount depends on the soil the plants were grown in and fertilizers used. But this means that the smoke from burning these leaves has small amounts of radioactive material, too, which smokers take into their lungs as they inhale. These radioactive particles build up in the lungs, and over time can mean a big dose of radiation. This may be another key factor in smokers getting lung cancer.

How is cigar smoke different?

Cigar smoke has higher concentrations of some toxic and carcinogenic compounds than cigarette smoke.

Because of the aging process used to make cigars, cigar tobacco has a high concentration of nitrogen compounds (nitrates and nitrites).

When the fermented cigar tobacco is smoked, these compounds give off several tobacco-specific nitrosamines (TSNAs), some of the most potent cancer-causing substances known.

Also, because the cigar wrapper is less porous, the tobacco doesn't burn as completely. The result is a higher concentration of nitrogen oxides, ammonia, carbon monoxide, and tar – all very harmful substances.

Smokeless tobacco products

The snuff and chewing tobacco products most widely used in the United States have very high levels of tobacco-specific nitrosamines (TSNAs). There are other cancer-causing agents in smokeless tobacco, too, such as benzo[a]pyrene and other polycyclic aromatic carcinogens. These carcinogens are absorbed through the mouth and may be why several types of cancer are linked to use of smokeless tobacco.

Swedish snus has fewer TSNAs that are known to cause cancer. But there are other carcinogens in snus besides TSNAs.

Which is riskier?

Smokeless tobacco or cigarette smoking?

Smokeless tobacco products are less lethal than cigarettes. On average, they kill fewer people than cigarettes. But smokeless tobacco hurts and kills people all the same. Even though they are marketed as a less harmful alternative to smoking, smokeless products can be deadly. And they have not been proven to help smokers quit.

https://www3.epa.gov/region1/eco/acidrain/causes.html

EPA United States Environmental Protection Agency

Causes of Acid Rain

Two elements, sulfur and nitrogen, are primarily responsible for the harmful effects of acid rain.

Sulfur is found as a trace element in coal and oil. When these are burned in power plants and industrial boilers, the sulfur combines with oxygen to form sulfur dioxide (SO_2). Because SO_2 does not react with most chemicals found in the atmosphere, it can travel long distances. Eventually, if it comes in contact with ozone or hydrogen peroxide, it can be converted to sulfur trioxide. Sulfur trioxide can dissolve in water, forming a dilute solution of sulfuric acid.

Nitrogen makes up about 78% of the atmosphere. When heated to the temperatures found in steam boilers and internal combustion engines, it can combine with oxygen from the atmosphere to form nitrogen oxide and nitrogen dioxide (NO_x). NO_x is the sum of nitrogen oxide and nitrogen dioxide in a given parcel of air. These can dissolve in water, forming weak solutions of nitric and nitrous acids.

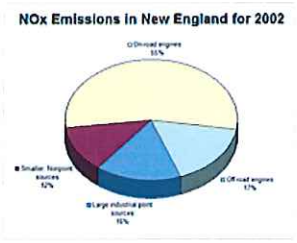
NO_x and SO_2 can come from natural or human made (anthropogenic) sources.

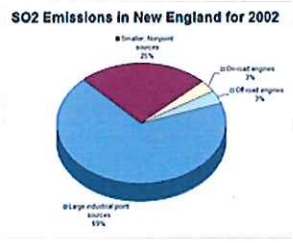
Volcanoes and sea spray are typical natural sources of SO_2. Lightning is the most common natural source of NO_x. Contributions from natural sources are generally small compared to those from anthropogenic sources.

EPA classifies the sources of anthropogenic emissions of pollutants into 3 groups: point (or stationary) sources, area sources, and mobile sources. Point sources include factories, power plants, and any other large "smoke stack" facilities. Area sources consist of smaller facilities which occur in greater numbers. These include residential heating equipment, small industry, and other categories in which it is impractical to analyze each individual emission source. Mobile sources include anything that can move. They can be divided into on-road sources (including cars, trucks, buses, motorcycles, etc.) and non-road (tractors, snowmobiles, boats, airplanes, lawnmowers, etc.).

Point sources emit the largest amount of SO_2. Of these, coal fired power plants are the highest emitters. The Brayton Point Station in southeastern Massachusetts is the largest point source for SO_2 in New England. In 2006, 16 units at 8 facilities emitted a total of 82,129 tons of sulfur dioxide.

The following charts show how much each group contributed to emissions of NO_x and SO_x (SO_2) in New England in 2002.





Once SO_2 and NO_x have been released into the air, they can be transported by the wind. The prevailing winds above most of the United States flow from west to east. Storm systems and other meteorological events may alter this flow. The final effects of these pollutants may occur as much as 1000 miles from where they were released. Eventually, these elements will dissolve in water droplets, and be converted into nitrate and sulfate ions. In this form, they may return to earth through acid deposition. Acid deposition occurs when these ions are deposited to the ground. It may be in the form of wet deposition, either indirect (acid rain, acid snow) or direct (acid fog), or dry deposition.

Prior to the mid 1990s, most scientists felt that the most common for method of acidic deposition was by rain and other forms of wet deposition. This is the most visible, and best understood means of deposition. It is easy to measure, and it effects are most obvious. Acid snow tends to carry less acidity per unit of water, since the chemistry is slower in cold weather, but since snow accumulates over the course of a season, when it melts, it releases a surge of acidity. At higher altitudes, direct deposition can occur when clouds descend to the surface. This can cause a severe problem because it may last for hours.

Dry deposition occurs when sulfate or nitrate ions do not dissolve in water, but rather fall to the surface as small particles or go directly from gaseous form in the atmosphere to soil or water. Unlike wet deposition, dry deposition is not easily measured. Very little falls at one time or at one location, but since dust is constantly settling to the Earth's surface, and the atmosphere is constantly in contact with the Earth, it can potentially have a large impact. As we have learned more about it, we realize it is an important part of acid deposition, and as the amount of acidity in rain decreases, dry deposition has become a more prominent route for deposition. Dry deposition now accounts 20-60% of the total deposition.

Last updated on 2/23/2016