

Saying “NO!” to permits for “Midtown Eco Energy”

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Description of this document

- This document was created in 2007 in response to a proposal for a wood burning incinerator in Minneapolis, Minnesota. (I served as a consultant to community organizations.)
- The emissions information comes from a draft permit for the facility developed by Minnesota regulators, who had every intention of issuing a permit until community opposition prevailed. The project has since been chased out of other locations in Minnesota.
- Some of the information is Minnesota-specific but most applies to wood burners generally.
- Note that this document does not address climate change aspects. However, it is well-established that wood burners are not “carbon neutral and in fact emit more, not less, carbon than fossil fuels.

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Who is Alan Muller?

- Long-time member of international “GAIA” network (Global Alliance for Incinerator Alternatives)
- Executive Director of Green Delaware since 1995
- Former consultant to DuPont—been on both sides was involved in designing and marketing burners
- Involved in successful campaigns in Delaware to effectively outlaw new incinerators

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It would be illegal in Delaware ...

- (2) No permit may be granted to any incinerator unless:
- ...
- b. Every point on the property boundary line of the property on which the incinerator is or would be located is:
1. At least 3 miles from every point on the property boundary line of any residence;
 2. At least 3 miles from every point on the property boundary line of any residential community; and
 3. At least 3 miles from every point on the property boundary line of any church, school, park, or hospital.

[7 Del. C. Sec. 6003(c)(2)] Approved April 25, 2000

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The proposal:

- A waste wood burner in an urban area where many people would be exposed to air pollution causing asthma, bronchitis, heart disease, cancer and other serious health problems

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A few facts about “Midtown”

- 24.5 megawatt electricity output
- Plus maybe some heat for “district heating”
- 140 foot smokestack
- 300,000 tons per year of “wood” to be burned
- 28 truck visits per day to site hauling fuel, ash, etc
- One million pounds per hear of health-threatening pollutants

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A few more facts about “Midtown”

- 10 schools within one mile
- 3 health care facilities within one mile
- Existing air polluters within one mile include 2 asphalt plants, one power plant, and 5 others

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Sources of harmful air pollution from the proposal

- The smokestack (obviously) One million pounds per year
- “Fugitive emissions”—dust and odors from storing and processing the wastes to be burned
- Diesel exhaust from trucks hauling the wastes in and the ashes out

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Other Impacts on community

- Noise
- Wear and tear on roads
- Property values and sense of community
- Taxpayer & Ratepayer subsidies divert spending from weatherization programs, solar, heating system upgrades, energy assistance—other spending that DOES benefit community

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Why Say “NO?”

- **Pollution/health damage**
- Harm to property values and sense of community
- Few if any benefits to local residents

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What happens in a burner?

- Look at the basic chemistry of what’s happening:
- Waste is mostly carbon and when it burns:
$$\begin{array}{rcl} \text{C} & + & \text{O} & \rightarrow & \text{CO}_2 \\ 12 & + & 16 \text{ (X2)} & \rightarrow & 44 \end{array}$$
- Burning one pound of carbon gives 3.7 pounds of carbon dioxide, a greenhouse gas.
- Many other harmful emissions!

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Hundreds of studies and reports on health effects of incinerators

- *“The Health Effects of Waste Incinerators”*
British Society for Ecological Medicine (Dec 2005) 257 references

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What comes out of incinerator smokestacks?

- “Incinerator emissions are a major source of fine particulates, of toxic metals and of more than 200 organic compounds, including known carcinogens, mutagens, and hormone disruptors.” (Ecomed report)

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More:

- “Emissions also contain other unidentified compounds whose potential for harm is as yet unknown, as was once the case with dioxins.”

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More ...

- “Present safety measures are designed to avoid acute toxic effects in the immediate neighborhood, but ignore the fact that many of the pollutants bioaccumulate, can enter the food chain and cause chronic illnesses over time and over a much wide geographical area.”

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Back to the Foth report

- “Air dispersion modeling is the primary predictive tool used by regulatory agencies for evaluating air impacts ...uses emission rate stack height” (Sec. 9.1.3)
- In other words “the solution to pollution is dilution.” (a taller smokestack!)

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A taller smokestack

- Exposes more people to lower concentrations of pollutants
- Does not reduce total exposure...
- “Midtown” smokestack would be 140 ft high (The existing brick smokestack is 180 ft.)

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OK, so what?

- Traditional environmental regulation assumes there is a safe concentration of pollutants. As long as we stay below that our health is protected... NOT!
- But, based on this thinking, EPA has established National Ambient Air Quality Standards for SEVEN substances

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Regulating air pollutants

- “Pollution is legal”
- This proposal would put out about a million pounds per year NOT including carbon dioxide
- Laws and regulations call for controlling but not preventing harm

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The basic Clean Air Act is Federal

- Permitting and enforcement is mostly delegated to the states, in this case the Minnesota Pollution Control Agency
- States can be stricter but not more lenient with polluters than Federal laws and regulations require

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Two basic types of pollutants

- **“Criteria Air Pollutants”**—there are seven
 - Controlled by “Best Achievable Control Technology” (BACT)
- **“Hazardous Air Pollutants”**—there are 188 official “HAPs”
 - Controlled by “Maximum Achievable Control Technology (MACT)

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The “criteria air pollutants”

- NO_x
- SO₂
- Ozone (O₃)
- CO
- Lead
- Particles (dust)
 - PM-10
 - **PM 2.5 (the latest one)**

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“ECO” burner emissions of Criteria pollutants

- | | |
|----------------------------------|--------------------------|
| • NO _x | • 160 tons (320,000 lbs) |
| • SO ₂ | • 40 tons (80,000 lbs) |
| • Ozone (O ₃) | • (not emitted directly) |
| • CO | • 160 tons (320,000 lbs) |
| • Lead | • 150 lbs (also a “HAP”) |
| • Particles (dust) | • 36 tons (72,000 lbs) |
| - PM-10 | - 65 tons (130,000) |
| - PM 2.5 (the latest one) | (included in above?) |

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“Eco” “Hazardous Air Pollutants”

- | | |
|---------------------|--------------|
| • Hydrogen Chloride | • 61,000 lbs |
| • Formaldehyde | • 13,800 lbs |
| • Benzene | • 13,200 lbs |
| • Manganese (metal) | • 4,800 lbs |
| • Chlorine | • 2,400 lbs |
| • Sulfuric Acid | • 1200 lbs |
| • Arsenic | • 69 lbs |
| • Beryllium | • 3.4 lbs |

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“Eco” “Hazardous Air Pollutants” Cont.

- Cadmium • 13 pounds
- Carbon Tet • 143 lbs
- Chlorobenzene • 104 lbs
- Chromium • 9 lbs
- Lead • 150 lbs
- Mercury • 5.5 lbs
- Methylene Chloride • 902 lbs
- Nickel • 11 lbs

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“Eco” “Hazardous Air Pollutants” Cont.

- Phenol • 159 lbs
- Styrene • 5840 lbs
- Vinyl Chloride • 58 lbs
- 2,3,7,8 ...dioxin (what are “total dioxins???”) • 0.02 grams ???
- Various others ... • Varies ...
- Total “HAPs” • 55.6 tons (111,200 lbs)

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In addition there are “VOCs”

- VOCs (“Volatile Organic Compounds”) are officially neither “criteria” or “hazardous” pollutants.
- “Midtown” says it would put out 27 tons of VOCs (54,000 pounds) per year.

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In addition there will be emitted ...

- 110,000 thousand pounds per year of ammonia
(This is actually a consequence of the measures taken to control “NOx” and is mostly counted with the “PM-2.5”)

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Pollution from truck traffic is greatly underestimated

- The average number of trucks per day is 28 (maximum per day 44)
- These emit toxic Diesel pollutants and also raise dust
- MPCA only counts trucks while driving on the site—about 800 ft per trip.

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Total emissions over one million pounds per year

- Why so much?
- Wood is actually a “dirty” fuel:

	Carbon dioxide	Sulfur dioxide	NOx	PM	Mercury
Natural Gas	1192	0.005	1.2	0.07	1 x 10 ⁻⁸
RDF	5870	1.0	9.6	0.22	6923 x 10 ⁻⁸
Biomass	3910	0.6	8.1	1.36	1316 x 10 ⁻⁸

Leaflet from Xcel Energy

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Environmental controls too expensive?

- No emission controls are required for carbon monoxide and sulfur dioxide
- “Midtown claims equipment to control these emissions would not be “cost effective.” MPCA concurs.
- Annual cost of CO controls \$2 million
- Annual cost of SO2 controls \$2.1 million

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“Air Emissions Risk Analysis”

- Tries to evaluate “cancer” and “non-cancer health risks from a project
- MPCA claims risks are acceptable but admits that “*some households may experience risk from growing and consuming local food...*”

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But this is not “how the world works”

- There is no safe level of pollutants
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- There is no safe level of pollutants

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Let’s go back to the doctors’ report

- “*Two large cohort studies in America have shown that fine particulate (PM 2.5) pollution causes increases in all-cause mortality, cardiac mortality, and mortality from lung cancer, after adjustment for other factors.*”

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More from the doctors

- “*...heart disease was responsible for nearly a quarter of deaths and was strongly related to the level of PM2.5 particulates.*”

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More ...

- “*Short term increases in fine particles, as will occur downwind from incinerators, have also been shown to cause significant increases in [heart attacks].*”

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More ...

- *“Higher levels of fine particulates have been associated with an increased prevalence of asthma and COPD.”*

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There is NO safe level of pollutants

- Staying below the NAAQS does NOT protect your health
- Any increase in air pollution, even from a low level, will cause an increase in disease and death
- The regulatory process is based on false assumptions

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What about Minneapolis?

- Urban air is unhealthy everywhere
- Minneapolis is no exception
- According to MPCA, the highest levels of PM 2.5 measured in Minnesota are in the Metro area and aren't far below the NAAQS

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More from the doctors:

- *“Fine particles formed in incinerators in the presence of toxic metals and organic toxins (including those known to be carcinogens), absorb these pollutants and carry them into the bloodstream and into the cells of the body.”*

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More ...

- *“Toxic metals accumulate in the body and have been implicated in a range of emotional and behavioural problems in children including autism, dyslexia, attention deficit and hyperactivity disorder (ADHD), learning difficulties, and delinquency, and problems in adults including violence, dementia, depression and Parkinson's. These metals are universally present in incinerator emissions and present in high concentrations in the fly ash.”*

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More ...

- *“The safety of new incinerator installations cannot be established in advance ...”*
- *“Incinerators presently contravene basic human rights ... the foetus, infant and child are most at risk from incinerator emissions....”*

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Garbage vs. “Biomass”

- Is “clean biomass” safe?
- How clean is it in practice?
- Probably fewer toxic emissions (dioxin, metals ...)
- But particulate emissions –the leading health hazard--will be similar
- And regulations looser.....

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Minnesota “waste combustor” rules

- A “biomass” burner is allowed to burn 30 percent “RDF” (essentially, garbage) without being permitted as an RDF burner.

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Minnesota “waste combustor” rules

(<http://www.pca.state.mn.us/air/rulechange-combustor.html>)

“... state standards must be at least as stringent as federal standards. The federal standards are now more stringent in many ways, and the MPCA must therefore revise state rules.”

“The MPCA is considering whether the existing rules should be modified to exempt certain biomass-based wastes from being subject to the waste combustor rules, and if so, under what conditions.”

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Minnesota “waste combustor” rules

- “Working Draft of the MPCA’s possible rule amendments” contains:
- “Subp. 3a. Exemptions from [emissions] standards of performance for biomass fuels”
- If “Biomass” is a clean fuel, why exempt it from “performance standards?”

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I see a pattern

- Already-inadequate rules may be further weakened
- Historically, when “fuel” runs short, limits on what can be burned are eased (Lancaster, PA, example)
- “Biomass” misrepresented as a clean fuel

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Conclusions

- “Just Say NO!”
- “Garbage,” “RDF,” “Biomass” all unacceptable
- Limit “renewable energy” incentives to wind, solar, conservation, other truly clean sources
- Step up recycling—“Zero Waste”

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Communities can win!

- **Hundreds of burner schemes have been defeated**
- **Informed communities usually win**
- **Corrupt and anti-democratic practices favor the burn**
- **Empowered communities favor recycling (“Zero Waste”)**