

Talking Points Guide

Proposed SMART Technology Gasification/Incineration Facility-
Plainfield, CT

Prepared by the CT Zero Waste Coalition



Toxic By-Products

- The gasification process proposed for this facility creates highly toxic by-products, including air emissions, dust, vapors, slag, char, fly ash, and wastewater.
- Fly ash is particulate matter that contains hazardous substances such as mercury, dioxins, and furans, and requires special handling due to its toxicity.
- Fly ash is readily windborne and likely to become airborne during loadout and transport to landfill. Exposure risk is not confined to the facility site.
- The fly ash produced is toxic and must be kept wet and sealed to prevent air and/or water contamination. Containment and transport of ash must be scrupulously managed.
- A large quantity of water is used to cool and clean the syngas, producing wastewater that contains pollutants such as phenols, ammonia, cyanides, acid gases, salts, trace metals and metalloids.
- Gasification is more dangerous than regular combustion/incineration: This incomplete combustion process also creates higher amounts of dangerous toxics, including furans and dioxins, which are carcinogenic and persistent.

Health impacts of mercury, dioxins, and furans

- Mercury: Linked to nervous system, immune system, respiratory, cardiovascular, liver, kidney, brain, eye, and skin damage.
- Dioxins/furans disrupt hormone, endocrine, and immune function and are linked to developmental and reproductive harm. High exposure has caused chloracne, a severe skin disease.

Public Health

- Particulate matter in ash and dust exacerbates cardiovascular disease and respiratory illnesses, like asthma.
- Emissions like carbon monoxide and nitrogen oxides inflame the lungs and lower blood oxygen levels.
- Cumulative impacts from other polluting facilities make all of the above risks worse for residents.

Fire, Explosion and Direct Safety Hazards

- Most large-scale commercial gasification plants fail. Independent analysis finds the technology has high risks associated with multiple pathways for fire, explosion, and the release of environmental toxins and accidental poisoning. [Fire, explosion and chemical toxicity hazards of gasification energy from waste](#) by Dr. Andrew N. Rollinson.
- Of the three incineration types: pyrolysis, gasification, and conventional incineration, gasification has the highest flammable mixture potential.
- This facility would pose a high risk to local first responders who are required to manage the aftermath of catastrophic accidents that pull valuable people and resources from the community.
- Firefighters specifically experience much higher rates of cancer due to levels of toxic exposure from burning products and from firefighting foam, such as PFAS.
- There is no supporting documentation that gasification destroys PFAS. Therefore, a facility accepting consumer products or waste contaminated with PFAS will release that toxic chemical into the air, and it will be present in the event of a fire at the facility.
- Smart Technology intends to store household hazardous waste and electronic waste found in their accepted loads until it can be removed. However, no timeline has been established for the removal of these materials, which could remain on the property indefinitely. Prolonged storage of household hazardous waste and electronic waste raises concerns of soil and water contamination and fires.

Economic Impacts

- Homes located near waste management and industrial facilities can experience reduced property values due to concerns about air quality, noise, odors, truck traffic, and perceived health risks.
- Heavy trucks cause substantially more pavement damage than passenger vehicles, increasing road maintenance and repair costs for the town, funded by taxpayers.
- The town may incur expenses related to emergency planning, mutual aid agreements, drills, and coordination with state agencies.
- Businesses may view proximity to an incinerator as less desirable, which could affect future commercial investment and community revitalization efforts.
- If future environmental remediation, legal disputes, or facility closure issues arise, the town can face indirect financial and administrative burdens, even when operators bear primary responsibility.

Truck Traffic and Diesel Emissions

- Plainfield has already seen a recent, massive increase in truck traffic from various new facilities. The SMART Technology facility would require, by conservative estimates at the

lower range of the facility's capacity, an additional 260 truck trips per day, hauling municipal solid waste, ash, and other chemicals. This will further increase congestion, diminish local air quality, and substantially increase noise. Congestion, risk of accidents, air pollution, and noise will diminish the quality of life and overall well-being of Plainfield's residents.

- Diesel emissions from trucks hauling municipal solid waste (MSW) are a significant source of air pollution and greenhouse gases, emitting nitrogen oxides and fine particulate matter into the environment.
- Exposure to traffic noise has been associated with poor mental health, especially in children.
- Large trucks account for a disproportionate number of fatal road crashes.

Air Pollution

- Air emissions from the syngas include particulate matter, sulfur and nitrogen compounds, trace heavy metals, and organic micropollutants such as dioxins and furans. These pollutants increase the occurrence of respiratory illnesses and conditions in surrounding communities.
- The amount of pollution generated by gasification facilities is speculative with a lot of moving parts, and a large margin for error.

Water Pollution

- A large quantity of water is used to cool and clean the syngas, producing wastewater that contains pollutants such as phenols, ammonia, cyanides, acid gases, salts, trace metals and metalloids.

Light Pollution

- The facility's solid waste permit application provides that the facility will be "well-lit, especially during nighttime," to deter trespassing.
- Artificial nighttime lighting disrupts the natural rhythms of the ecosystems, including those of the blue-spotted salamanders, which are an endangered species present at the site, according to the Natural Diversity Database.

Odor Pollution

- The SMART Technology waste permit applications raise serious concerns regarding odor control. These documents indicate that the incinerator will accept more trash than it can process on any given day, leading to residual putrescible waste lingering on site, which will emit foul odors with associated health impacts for Plainfield residents. In addition, the applications fail to demonstrate that the facility will maintain a sufficient degree of negative pressure to prevent odors from escaping into outside areas.

Cumulative Impacts and Environmental Justice

- Plainfield currently hosts three environmental justice affecting facilities: a biomass gasification facility, a tire waste disposal site, and the Willimantic Waste Paper Company.
- The town has an EPA Superfund site known as Gallup's Quarry. This gravel pit dates back to the 1970s when the owners accepted chemical waste without a permit, leading to the contamination of soil and groundwater. Today, part of this land is now occupied by the biomass gasification facility, but soil and groundwater monitoring continues.
- Plainfield also has two more affecting facilities located just across the town borders: the Sterling-Voluntown Transfer Station south of the town in Voluntown, and ReEnergy Sterling located north of the town in Sterling.

Topography

- Plainfield, CT is situated in a valley, where air pollution naturally accumulates. Temperature inversions trap pollutants in valley communities, prolonging residents' exposure to dangerous air quality.
- The facility proposed by Smart Technology would increase the concentration of air pollutants in the area. As a result, the community may face heightened risks of respiratory diseases, including asthma, as well as increased rates of cancer.

Process Ineffectuality

- Gasification is an energy-intensive process where high heat (generally above 600C) is applied to solid waste in a low-oxygen environment—to prevent immediate combustion and to create synthetic gas (syn gas) from the carbon-based portion of solid waste (organics like food and yard waste).
- It is expensive and difficult to create and maintain low-oxygen environments at commercial scale.
- The intermediate products of gasification are contaminated with chemicals from the plastic waste feedstocks and/or ones introduced or generated during the chemical recycling process.
- Needs lots of processing/purification: These products must then be purified before they can be used.(4,7,9,10,23–25) Even the American Chemistry Council, industry's primary lobby group, names fuel quality as “one of the most salient challenges” for the plastic-derived fuel production and marketing.
- Lack of transparency: Industry claims their technologies and processes are confidential, there are very few facilities operating at the commercial or industrial scale, and most that do use pyrolysis as opposed to gasification. There is not a lot of available research or information, so most of the literature is based on laboratory or pilot-scale information.