Waste-to-Energy Interest Groups

1. Citizens' Group for the WTE Facility

Members of this group of local and regional residents and businessowners support building a WTE facility. They see it as the best solution to the region's MSW disposal and recycling needs. A landfill will still be needed, but the WTE facility will reduce the amount of waste going to the landfill by about 60 percent. Because a site is available for the WTE facility, building it would help extend the use of the current landfill while allowing time for a new one to be sited.

Recyclable materials can be separated out before combustion, thus reducing the amount of waste to be burned and, hence, the amount of ash produced. With a program for recycling and composting, the size of the facility can be smaller, thus lowering the initial cost to build it. Removing glass, plastic, and metals before combustion can reduce many of the pollutants.

In addition to reducing the waste going to the landfill, the facility can generate steam that can be used to make electricity. The electricity production can generate revenue for the maintenance of the facility.

2. Citizens' Group against the WTE Facility

This group consists of a number of local and regional residents who believe that building a WTE facility would be detrimental to the community. The WTE facility would result in increased air pollution, specifically particulate matter and dioxin. The emission of some gases can contribute to acid rain and increase the amount of greenhouse gases produced. Local lakes and aquatic life such as fish could be affected by the emission of mercury and other chemicals or by acid rain resulting from the combustion process. Additional traffic from trucks hauling waste to the site would increase air pollution from exhaust emissions, contributing to acid rain and greenhouse gases. Traffic jams could result because of the increase in traffic to the site and would be a nuisance to the community. Increased traffic and pollution from the facility could also reduce the amount of wildlife in the area.

The WTE facility would not encourage recycling or source reduction, because paper and other recyclable materials are good fuels and may not be separated out before burning. Also a minimum amount of waste, which varies with the size and type of facility, is necessary to efficiently operate the WTE facility. Landfills are still needed to bury the ash and nonburnable materials. The ash would have to be removed from the site and buried in the landfill, adding to the traffic using the site. Additionally, the ash may contain toxic materials that could cause problems with disposal.

It is too expensive to build and maintain the facility, which could cost about $400 million. Many things could go wrong that could result in additional pollution or a breakdown of the facility. If the facility breaks down, the waste will need to be taken somewhere else for disposal. The repairs could be expensive and could take a long time to finish.

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3. Garbage Haulers

Waste collection companies support any project that will result in a slightly lower per-ton fee for waste disposal and allow the waste collectors to dump their garbage at a closer facility. The higher transportation costs and high tipping fees result in higher waste collection prices. Price increases often result in some people canceling collection service and bringing their waste to the landfill themselves. With fewer people using the service and the potential increase in tipping fees, rates will continue to climb in the future. A new closer site will allow the collection service price to stabilize or may even reduce fees in the future.

Currently, the collection program includes a separate collection for recyclable materials. The recycling facility is now in a neighboring county so haulers must travel further to deliver this material. If a new recycling facility is created within the community, as part of either a landfill or a WTE facility, the hauling and collection fees may be reduced. The nearby train can be used to transport collected recyclables to the manufacturers that make new products. The train can eliminate the need for long-distance transport of the materials by the waste haulers.

4. Recycling Coordinator/Board Representatives

The Recycling Office would support any plan that includes a new recycling collection and sorting facility. By increasing the amount of materials that are recycled, the amount of natural resources that are used to make new products can be reduced. Using recycled materials such as aluminum cans to make new cans means that fewer raw natural resources are needed to make more of the product. Energy is also saved by not having to process as much from raw materials.

A recycling and sorting center at the new WTE facility would encourage continued separation of recyclables before waste combustion. Removing plastics and other recyclables before combustion can eliminate some of the problems with the waste combustion process such as plastics "gumming up" the WTE mechanisms. Also many pollutants result from burning batteries, metals, and glass. Collection or separation of those materials before combustion can eliminate many hazardous gases and toxic ash components. Additional recovery of ferrous metals such as steel can occur after combustion if the facility uses magnets to extract them from the ash.

Establishing a local collection center, in addition to current drop-off centers, can encourage and increase participation in the recycling program. Revenue generated from the sale of recyclables or energy from a WTE facility can be used by the community to offset the cost of the recycling program. An increase in the amount of materials that are recycled could reduce the amount of waste needing to be combusted or landfilled. Less waste means that a smaller, less-expensive WTE facility could be built, and the capacity of a landfill could be extended.

Concerns exist, however, that recyclables may be diverted to the WTE facility instead of being recycled. Many recyclable materials such as plastic, wood, and paper have high energy fuel values. Since WTE facilities require a certain amount of waste to work properly, recyclable material may be needed to maintain efficient combustion.

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5. Builder of WTE Facility

The builder is excited about showing Branfield plans for the state-of-the-art WTE facility they would like to construct for the county. WTE facilities are compatible with recycling programs. By removing recyclables and household hazardous waste items before combustion, hazardous emissions and toxic ash production, which often result from burning waste, are reduced. Many items such as plastics and batteries contribute to the amount of chemicals (for example, mercury and cadmium) emitted into the air or deposited in ash. Through a combination of recycling and combustion, many of these natural resources can be reused or recycled while the rest is reduced to ash, which takes up less space in landfills.

WTE facilities have various control features that are used to remove air pollutants from emissions. Scrubbers remove particulate matter such as fly ash and gases before those by-products are released through the stack into the atmosphere. In addition to scrubbers, emissions go through an electrostatic precipitator or fabric filters before entering the stack. Both of those processes are used to remove additional particulate matter, especially small particles that are inhalable. Emissions from the WTE facility would be periodically tested for compliance with federal and state regulations.

The process of combustion heats water in the boiler to create steam. This steam can be used to run a turbine that generates electricity or to heat buildings. Steam or energy production from combustion can reduce the need for additional energy or fossil fuels. Additionally, the builder is exploring potential future markets for the ash such as for cement production. If there is a market for the ash, extra revenue will be generated. There will also be a greater reduction in the amount of waste sent to landfills as well as a reduction in the risks currently involved with ash disposal.

6. Builder of the Landfill

The landfill engineer wants to discuss plans for the new landfill and to show all the features and safety factors. A landfill will still be needed in a program using WTE because noncombustable items and the ash must still be landfilled. Although the old landfill will be able to take this waste for some time, eventually a new landfill will be needed. The landfill builder recommends developing plans to build a new landfill while land is still available for it.

Many safety features are now required for new landfills. These include pollution controls (such as liners), leachate collection systems, methane gas collection and monitoring, and groundwater monitoring wells. Barriers consisting of a layer of clay and a synthetic plastic liner are designed to collect any leachate produced and to prevent it from seeping into the soil beneath the landfill.

Leachate collection systems remove the leachate and pump it into storage tanks for treatment. Methane gas, produced by the decomposition of organic matter in landfills, is vented using pipes to release it. Methane can be collected and used for energy production or burned off. Groundwater monitoring wells are tested to make sure leachate from the landfill is not affecting the groundwater.

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7. Air Pollution Experts

The air pollution experts are examining state-of-the-art WTE facilities that have recently been built, both in the United States and in Europe. It appears that although the pollution from these plants is very low, there may still be low-level emissions of hazardous air pollutants into the environment.

Many types of pollutants can be released from the combustion of waste. Mercury, lead, dioxins, sulfur dioxide, carbon dioxide, and nitrogen oxides are all potential pollutants in emissions. Those gases contribute to acid rain production, breakdown of the ozone layer, and increase in greenhouse gases. Particulate matter along with those gases can affect human health, plants and animals, and the environment.

If the facility is functioning properly at the correct temperature and with the emission controls working effectively, the pollution will be minimal. However, to run at the correct temperature, the facility needs to maintain a constant flow of waste. If the amount of waste going to the facility drops below the required amount for efficient combustion, pollution emissions will increase. Additionally, if the facility isn't maintained properly, the amount of pollution released could increase, thereby causing harm to the environment and people.

The effects of the small amount of pollution that is normally released are still being studied. Many of the problem waste combustion items such as batteries can be separated out before combustion in order to reduce the amount of toxic material in the gases and ash produced. With the possibility of future changes in air pollution regulations, the board must consider how easily the facility could be retrofitted for additional pollution control equipment.

8. Representatives of the U.S. Environmental Protection Agency (EPA)

This federal agency has advised the Branfield Solid Waste District on the pros and cons of building a WTE facility. The EPA has conducted studies nationwide on their benefits and drawbacks. The main advantages of WTE facilities are the ability to reduce the weight and volume of waste before it is sent to a landfill and the generation of energy from the process. This reduction allows the capacity of landfills to be extended. Energy can be produced from steam created during the combustion process. This energy can reduce the need to burn additional fossil fuels in order to create heat or electricity. Being able to reduce the amount of waste being landfilled and to create energy that will reduce the need for fossil fuels may prove to be more important in the future.

Disadvantages include the air pollution that results from the combustion process, the possibility of toxic ash, and the cost to build a WTE facility. Various potential air pollutants are produced during combustion. While many of these pollutants can be removed before they are released into the air, small amounts of heavy metals and other pollutants may escape from the stacks. The removal of fly ash particles and acid gases from the stack results in more toxic bottom ash. Toxic ash may inadvertently be placed in regular MSW landfills, thus creating the potential for toxic leachate to seep into groundwater.

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9. Representatives of the State Department of Natural Resources (DNR)

The DNR is weighing the pros and cons of the WTE facility and the landfill. They are leaning toward a plan with a WTE facility, which they see as having a longer life as well as a wider use than does the landfill. In addition, a WTE facility considers the existing road and railroad infrastructures.

The DNR is concerned, however, about the amount of natural resources that are being wasted through disposal rather than being reused or recycled. Many valuable resources—metals, glass containers, plastics, paper, and organic waste—are buried in landfills or burned. Organic waste could be composted and used to enrich the soil, thereby enhancing a natural resource rather than depleting it. In landfills, those items degrade some, but mainly remain intact because of the anaerobic conditions in most landfills. Combustion of these products is often difficult because of the high moisture level in many organic wastes. Once combusted, the ash is merely put in a landfill and is not used to enrich the soil. Metals, glass, plastics, and paper could be recycled and made into new products instead of being burned or left in landfills. Recycling those materials can conserve many natural resources and uses less energy.

Increasing the recycling program by establishing a recycling center at the new WTE facility will allow for the recovery of many recyclables before burning the waste. Additionally, local power companies can use the heat or steam produced during the combustion process. The energy from WTE can be used to supplement current power production, reducing the amount of petroleum or natural gas products needed for heating or electricity production. Waste combustion can greatly extend the capacity of a landfill. Landfilling the same amount of material that is burned at a WTE facility can take 60 percent more room than the ash.

An established road and railroad system already exists, but the increase in its use could cause traffic congestion and increase auto emissions in the area. The railroad may be able to eliminate some of the transportation because a train can carry more waste, ash, or recyclables than can individual trucks.