

# **Appendixes**

## Appendix A

# Glossary

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- Additive**—a substance added to plastic resins that imparts physical properties to meet specific applications and improve processing.
- Ash**—the noncombustible solid byproducts of incineration processes.
- Avoided cost**—costs a utility may pay for electric power purchased from a waste-to-energy facility, based on how much it would have cost the utility to generate the power itself; or, costs not incurred because of diversion of waste from a landfill (e.g., disposal, environmental, and opportunity costs).
- Baghouse (or fabric filter)**—emission control device; an array of cylindrical bags used to trap solid particles and dust.
- Beneficiation**—initial processing of a raw material to remove contaminants.
- Biodegradable plastic**—a plastic that can be broken down by microorganisms such as bacteria and fungi; as generally used, the term does not necessarily mean complete degradation into carbon dioxide and water.
- Bottom ash**—relatively coarse uncombusted or partly combusted residue of incineration that accumulates on the grate of a furnace.
- Buy-back**—a facility that pays individuals for recyclable materials and further processes them for market.
- Capacity utilization**—ratio of quantity of production to total *capacity* of production facilities.
- Capture rate**—tonnage of recyclable collected, divided by total tonnage of MSW generated by participating households or commercial establishments.
- Codisposal**—disposal in one area of two or more types of solid waste, for example unprocessed MSW and incinerator ash in a landfill.
- Cogeneration**—production of both electricity and steam at one facility, from same primary fuel source.
- Collection**—gathering of MSW for subsequent management (i.e., landfilling, incineration, or recycling).
- Combined ash-mixture of bottom ash and fly ash.**
- Combustion**—see **incineration**.
- Commerce Clause**—a constitutional clause granting Congress the power to regulate all commerce; the “dormant commerce clause” makes it explicit that State lines cannot be made barriers to the free flow of commerce.
- Commingled** recyclables—recyclable materials separated from mixed MSW at point of generation; further separation into individual components occurs at collection vehicle or centralized processing facility.
- Composite liner**—a liner system composed of an engineered soil layer overlain by a synthetic flexible membrane liner.
- Composting**—biological decomposition of solid organic materials (e.g., yard waste, paper) by microorganisms (mainly bacteria and fungi); “compost” is the humus- or soil-like product.
- Cullet**—crushed waste glass.
- Curbside collection**—collection at individual households or commercial buildings by municipal or private haulers, for subsequent transport to management facility.
- Demand-limited materials**—secondary materials for which buyers are relatively scarce even though supplies may be available.
- Dioxins**—a family of chlorinated chemicals, some of which are toxic to animals under certain exposure and dosage conditions.
- Drop-off-transport** of individual MSW materials (e.g., newspaper, cans, bottles) by individuals to specified area, for subsequent processing and transport to recycling facility.
- Dry injection**—injection of a dry reagent such as lime powder into an incinerator boiler or the original MSW, to aid in control of acid gases.
- Economies of scale**—increases in production capacity that reduce the average cost per ton of output.
- Electrostatic precipitator (ESP)**—emission control device that electrically charges particles, which are drawn to oppositely-charged plates; particles fall from the plates and are collected for management.
- Energy recovery**—retrieval of energy from MSW by converting heat from incineration or methane gas from landfills.
- Fabric filter**—see **baghouse**.
- Fixed costs**—Costs that do not vary with level of output of a production facility (e.g., administrative costs, building rent, mortgage payments).
- Flaring**—burning of methane emitted from collection pipes at a landfill.
- Flint glass**—clear glass.
- Flow control ordinance**—Ordinances that require delivery of collected MSW to specific management facilities.

Fly ash-particles that are carried off an incinerator grate by turbulence or volatilized material that condenses in the flue gas into particles.

Furnish—the pulp used as raw material in a paper mill.

**Glassphalt-an** asphalt product that uses crushed glass as a partial substitute for aggregate in the mix.

**Heavy metals-metals** of high atomic weight and density, such as mercury, lead, and cadmium, that are toxic to living organisms.

**Home scrap--waste** produced and reused inside a production facility.

**Household hazardous** waste-products used at residences that are discarded in MSW and that contain substances already regulated under RCRA as an industrial hazardous waste.

Incineration-burning of fuel under controlled conditions, ideally **converting all carbon to carbon dioxide** and all hydrogen to water.

**Integrated waste management-coordinated use of a hierarchy of management methods, including waste prevention**; OTA does not use the term because prevention is fundamentally different than management.

**Investment tax credit—a tax credit** that allows businesses to subtract a portion of the cost of qualifying capital purchases from their Federal or State tax liability, thus reducing the net after-tax cost of capital.

**Landfilling-disposing of solid** waste on land in a series of compacted layers and covering it, usually daily, with soil or other materials.

**Leachate-contaminated water emanating from a landfill.**

**Leachate collection and removal system—pipes** used to collect leachate that settles on a liner and prevent it from migrating into groundwater.

Liner—a protective layer, made of soil or synthetic materials, installed along the bottom or sides of a landfill to reduce migration of leachate into groundwater beneath the site or laterally away from the site.

**Loan guarantee-government-funded** insurance that protects lenders against the failure of a project to pay back the principal and interest on a loan.

**Low-interest** loans-government subsidy that allows loans for specific purposes to be offered at below market interest rates.

Mass burn—incineration without prior sorting or processing of MSW, in a one-chamber combustion system under conditions of excess air; built on-site.

**Materials management—an MSW** management approach that would: 1) coordinate product manufacturing with different management methods (e.g., design products for recyclability); and 2) manage MSW on a material-by-material basis, by diverting discarded

materials to most appropriate management method based on their physical and chemical characteristics.

**Materials** recovery-retrieval of materials from MSW.

**Materials recovery facility (MRF)**-facility for separating recyclable from mixed waste or for separating commingled recyclable.

**Mixed MSW—trash** that is not sorted into categories of materials.

Modular-incineration without prior sorting or processing of MSW, in relatively small two-chamber combustion system; usually fabricated elsewhere and then delivered to incineration site.

Monofill--a sanitary landfill for one type of waste only.

**Municipal solid waste (MSW)**—solid waste generated at residences, commercial establishments, and institutions; as used here, MSW excludes construction or demolition debris and automobile scrap.

**Nonferrous metals-metals** other than iron and steel that are found in MSW.

Old scrap-waste generated by the product's final consumer.

**Open dumping-disposing** waste in an open, uncovered area that lacks pollution controls and associated design features.

**Opportunity** cost-the cost of foregoing alternative uses of a resource.

Paper converting operations—manufacturing facilities that transform paper into products such as envelopes or boxes.

**Participation rate-portion** of a population participating in a recycling program.

**Photodegradable plastic-a** plastic that will breakdown in the presence of ultraviolet (UV) light.

Post-consumer waste-waste generated by the product final consumer.

Pre-consumer waste-waste generated in processing materials or manufacturing them into final products.

Prevention/reduction-activities by manufacturers (e.g., modifying products) and consumers (e.g., modifying purchasing decisions) that reduce toxicity or quantity of products before they are purchased.

Primary material—a commercial material produced from virgin materials.

Processing-preparing individual or mixed MSW materials for subsequent management, using processes such as baling, magnetic removal, shredding.

**Procurement-the** purchase of materials and services, usually, in the case of government procurement, through awarding contracts to low bidders.

**Product fee—a tax** or fee on materials or products that can be designed to add the cost of their disposal to the purchase price.

**Prompt industrial scrap-waste** produced in an intermediate stage of processing and returned to the basic

- production facility for reuse.
- Pyrolysis-chemical decomposition of a substance by heat in the absence of oxygen.
- Quantity reduction-changing the design** of a product so that less MSW is generated when the product or its residuals are discarded, or so that the product is more durable or repairable.
- Recycling--collecting components** of MSW and processing them into forms in which they can be reused as raw materials for new products.
- Recycling/recovery/diversion rate-the tonnage** of recyclable collected and processed into new products, divided by total tonnage of MSW generated.
- Refuse-derived **fuel (RDF)**---fuel produced from MSW that has undergone processing; fuel can be in shredded, fluff, or densified pellet forms.
- Resource recovery-retrieval** of materials or energy from MSW, for purposes of recycling or reuse; the term “waste-to-energy” is used here for incinerators that recover energy.
- Reuse-taking a component of MSW and, possibly with some slight modification (e.g., cleaning, repair), using it again for its original purpose (e.g., refillable beverage bottles).
- Sanitary landfill-a specially designed and operated landfilling facility that meets local, State, and Federal regulations and permit requirements.**
- Scrubber-mission** control device that adds alkaline reagents to react with and neutralize acid gases; resultant products are then collected for management.
- Secondary material**—a commercial material recovered from the waste stream for reprocessing and remanufacturing.
- Sensitivity analysis-an analysis** that compares changes in a dependent variable resulting from incremental changes in independent variables.
- Solid waste**--defined in RCRA as “garbage, refuse, sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semi-solid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities. . .“
- Solid waste management—planning and implementation of systems to handle solid waste.**
- Source separation**—separation at a household or commercial establishment of MSW into different recyclable components.
- Source-separated recyclables-recyclable materials separated** from each other and from mixed waste at the point of generation.
- Subsidy-direct or indirect payment from government to businesses, citizens, or institutions to encourage a desired activity.**
- Supply-limited materials-secondary materials that are not collected in sufficient amounts or are too highly contaminated for current manufacturing processes.**
- Tipping fee-price charged for delivering MSW to landfill, incinerator, or recycling facility; usually expressed in dollars per ton.**
- Toxicity reduction--eliminating or reducing (including using benign substitutes) substances in products that pose risks when the products are discarded as MSW.**
- Transfer station-facility at which MSW is transferred from collection vehicles to larger trucks or rail cars for longer distance transport.**
- Virgin material—material extracted from nature in its raw form.**
- Waste-to-energy facility (WTE)**-MSW incinerator that converts heat from combustion into energy (i.e., steam or electricity).
- Waste paper utilization rate-ratio of waste paper consumption to total production of paper and paperboard.**
- White goods-large, metal household appliances (e.g., stoves, dryers, refrigerators, etc.).**