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Policy Position: Opposing Recovering Energy from Mixed Resources

Adopted unanimously May 19, 2005

Whereas NCRA's overall perspective is that materials must be recovered from the supply of discarded resources according to their highest and best use; and

Whereas recovering materials for reuse, recycling and composting is a higher and better use of discards than is recovering energy; and

Whereas "mixed resources" refers to commingled materials from two or more master recycling categories that cannot be recycled together; and

Whereas "recovering energy" means ruining the physical structure of an object, not to recover the component material, but instead to ultimately produce energy; and

Whereas reuse and recycling save more energy than can be recovered using thermal approaches; and

Whereas any feedstock of mixed resources represents either a recycling service void – a development opportunity – or means that the materials are too toxic or too poorly designed to recycle; and

Whereas recovering energy from mixed feedstocks means every batch of fuel is a chemistry experiment and creates unpredictable balances of pollutants; and

Whereas no technology can make anything really disappear, the gas, smoke, and liquid and solid residues that leave a facility will have the same mass as the solid materials that enter it; and

Whereas reuse, recycling and remanufacturing industries provide 1.1 million jobs in the U.S. and 85,000 jobs in California; and

Whereas committing financial and material resources to incinerators prevents communities from increasing true zero waste strategies and the economic development that goes with them; and

Whereas energy recovery facilities require guaranteed supplies of discards, called "put or pay" contracts, they inevitably prevent maximum recycling development because recyclers either would be prevented from developing the resources that have been pre-committed to the energy facility, or the community would pay a penalty for failing to deliver enough fuel; and

Whereas instead of landfilling or first recovering energy and then landfilling mixed discards, communities can develop a zero waste economy and sustainable culture through waste prevention, including reducing resource use and maximizing development of reuse, recycling, and composting;

Therefore, the Board of Directors of the Northern California Recycling Association resolves that NCRA:

1. **Opposes any discard handling system that recovers energy from mixed resources, and**
2. **Reaffirms its mission to promote waste reduction, reuse, recycling, salvaging and composting as vital tools for resource and energy conservation and as cost-effective, environmentally-sound methods of disposal and discarding materials.**

Questions and Answers

Q: What does "energy recovery" mean?

A: Recovering energy means ruining the physical structure of an object not to recover the component material, but instead to ultimately produce energy. Recycling discarded paper to recover fibers for more paper would be high-use materials recovery. Composting soiled paper to recover fibers and carbon for soil enrichment would be lower-use materials recovery. Burning the paper to heat water would be energy recovery.

Many processes can recover energy from discarded resources. Incinerators use heat or open flame to destroy the materials rapidly and release energy for direct use or to extract gases that are then burned for energy. The technologies include mass burning, plasma arc, gasification, and pyrolysis. Other technologies include anaerobic digestion, a variation of composting done inside an enclosed container with little or no oxygen, which recovers methane gas.

Life cycle analyses demonstrate that reuse and recycling save more energy than can be recovered using thermal approaches. The calorific value of most materials is a small fraction of a product's "embodied energy": the energy that was used to extract and process raw materials, turn them into a product, and transport the product to market. The most energy-wise approach is to reuse and recycled discarded materials.

Q: What does "mixed resources" mean?

A: Discarded resources are considered "mixed" when materials from two or more master categories that cannot be recycled together are commingled. The more categories of materials are commingled in a mixture, the more mixed the resources are said to be. To recover a target category of materials from mixed resources, a recycler must either prevent the materials from being included in the mix in the first place, or separate the mixture into components to recover the target category.

Municipal solid waste is a complex mix of multiple categories of recyclables. They have usually been mixed and compressed beyond recycling's capability to separate them, just as eggs cannot be unscrambled to recover yolks.

Most energy recovery systems being marketed today claim to process these mixed resources. They often prefer that recycling remove some categories of materials such as metals and glass from their fuel, since recovering energy from these categories is impractical. Such systems require large capital investments and large volumes of feedstocks.

From NCRA's perspective, any feedstock of mixed resources measures either a recycling service void – a development opportunity – or the materials that are too toxic or too poorly designed to recycle. Even if no materials recovery has been established for this supply yet, NCRA cannot approve consigning the resources to energy recovery.

Also, recovering energy from mixed feedstocks means every batch of fuel is a chemistry experiment and creates unpredictable balances of pollutants. Mass-burn incinerators, for example, manufacture dioxins by disassembling molecules under heat and cooling the escaping molecules in the stack. The cooling molecules recombine into dioxins and other substances, depending on what was in the feedstock. It really is a case of garbage in, garbage out.

Q: Don't energy recovery facilities make garbage disappear?

A: Molecules that become gases may be invisible, but no technology can make anything really disappear. The laws of thermodynamics say that mass can neither be created nor destroyed, only transformed. The solid materials that enter a facility will have the same mass as the gas, smoke, and liquid and solid residues that leave. Masses of small particulates and gases will go up the stack, bottom ashes and stack ashes will need to go to landfill, and toxic residual liquids will need to be managed.

Q: Isn't recovering energy from residuals better than landfilling them?

A: This either-or question forgets NCRA's main point, which is that, *instead of* either landfilling mixed discards or recovering energy from them and then landfilling the ashes, communities can develop a zero waste economy and sustainable culture through waste prevention, which includes reducing resource use and maximizing development of reuse, recycling, and composting. Committing financial and material resources to incinerators prevents communities from increasing true zero waste strategies and the economic development that goes with them.

Q: What if an energy recovery plant promises to recycle everything it can before it destroys materials to recover energy?

A: Energy recovery facilities require guaranteed supplies of discards, called "put or pay" contracts. They inevitably prevent maximum recycling development because recyclers either would be prevented from developing the resources that have been pre-committed to the energy facility, or the community would pay a penalty for failing to deliver enough fuel. In the past, communities have even let recyclers go out of business rather than pay these contracts' high penalties.

Q: What about recovering energy from separated materials?

A: Some of these processes may be good ideas if they provide highest and best materials recovery in addition to recovering energy. For example, composting food anaerobically to recover methane, and then composting the residue aerobically to generate soil amendment, would be a high-use process.

But anaerobically digesting mixed materials and landfilling the residue would recover only energy while wasting the materials, so it would fall on the less-desirable end of the spectrum.

Other concepts for recovering energy from separated materials, such as burning unrecyclable plastics, are bad ideas both because they generate toxic pollutants, and because they rely on the continued production of unrecyclable materials.