

The Region 3 eCycling Pilot

Final Report on the Mid-Atlantic States Electronics Recycling Pilot Project

October 1, 2001 – December 30, 2002

1. Executive Summary

Introduction

Electronic waste encompasses a broad and growing range of electronic devices ranging from large household appliances to cellular phones, stereo equipment, and personal computers. Currently, electronic waste makes up roughly 2% to 5% of the U.S. municipal solid waste stream, and is the fastest growing category of the municipal solid waste stream. The U.S. Environmental Protection Agency estimated that in 1997 more than 3.2 million tons of electronic waste ended up in U.S. landfills. Experts estimate that by 2005, the number could reach more than 12 million tons, more than four times greater.

What's Wrong With This Picture?

With the current rate of growth of the electronic waste stream and the current management practices, we could end up with a situation like this. Primarily because of their rapid obsolescence, toxicity, and management cost, personal computers and televisions are the electronic products of greatest concern in the electronics waste stream. The computer industry introduces new technologies and upgrades to market on average of every 18 months, with the average lifespan of a personal computer cut in half from roughly four years to approximately two years. (Picture courtesy of the Silicon Valley Toxics Coalition.)



In 1999, the National Safety Council reported that only 11% of all discarded computers were recycled compared to 28% of overall municipal solid waste. Furthermore, by 2007, the number of stockpiled obsolete and unused personal computers will reach nearly 500 million. What this means is that the majority of these wastes could end up in municipal landfills or incinerators that are not equipped to properly manage the amount of toxic material expected to come from this growing electronic waste stream. Rather than disposing of obsolete and unused electronics, the nation would be better served by recycling electronics at the end of their useful lives. The purpose of the Mid-Atlantic States Electronics Recycling Pilot was to collect as much data and information as possible over a multi-State jurisdiction on the feasibility of a large scale electronics recycling program.

Overview

In 2000, the U.S. Environmental Protection Agency in Philadelphia (EPA Region 3), and the environmental agencies of the Mid-Atlantic States (Delaware, Maryland, Pennsylvania, Virginia, and West Virginia) and the District of Columbia (DC) joined forces with electronics manufacturers to find a sustainable approach to remove end-of-life computers and televisions from the municipal waste stream. Through the Region 3 eCycling Pilot (eCycling), government and industry collaborated to demonstrate the feasibility of a multi-State, public/private, residential electronics collection, reuse, and recycling program that is based on a model of shared responsibility among government, industry, and consumers.

Partners

The eCycling partners included:

- Panasonic
- Sony
- Sharp
- Canon
- Hewlett Packard
- JVC
- Kodak
- Nokia
- Philips Consumer Electronics North America
- Thomson Multimedia
- Envirocycle, Inc.
- Elemental, Inc.
- Polymer Alliance Zone of West Virginia

Purpose

The intent of eCycling was to collect empirical data about the cost of managing end-of-life electronics as well as to:

- Divert electronics from the waste stream for recycling and reuse,
- Help spur the growth of electronics recycling markets,
- Demonstrate the feasibility of a multi-State electronics collection and recycling program,
- Learn how to harmonize regulations across States boundaries, and
- Test the use of a third-party organization to manage private-sector contributions.

Collection Results

At its conclusion on December 31, 2002, the eCycling Pilot resulted in:

- 58 residential electronics collection events,
- 9 permanent collection programs
- Over 2,700 tons (5.5 million pounds) of end-of-life electronics diverted from the municipal waste stream, and
- More than 26,000 cathode ray tubes (CRTs) from televisions and computer monitors diverted from the municipal waste stream.

Collection Costs

The two largest recyclers for the eCycling Pilot were Envirocycle, Inc. of Hallstead, Pennsylvania and Elemental, Inc. of Philadelphia, Pennsylvania. The EPA-contracted electronics recycler was Envirocycle, Inc., while Elemental, Inc. provided recycling services for the Delaware drop-off program.

Envirocycle's Costs

- Average collection, transportation, and recycling costs were 6 cents per pound, 4 cents per pound, and 14 cents per pound, respectively;
- The contracted rate was 25 cents per pound
- The contracted rate included "turnkey" electronics collection and recycling services, ensured domestic dismantling, and ensured the use of safe environmental and human health management practices.

Overall Pilot Costs

- Approximately \$1.1 million, and
- An average price of 20 cents per pound.

Lessons Learned

Key lessons learned from the 58 one-time events, 1 state-wide/permanent collection program, and 8 county-wide permanent collection programs held over the 14-month period were that:

- Aggressive advertising was critical to the success of all the eCycling events and programs.
- The residents who attended the collection events expressed a willingness to pay a small end-of-life fee of \$2 or \$5 per item.
- Permanent collection programs were more cost-effective than single-day events.
- The eCycling Pilot was a catalyst in expanding electronics collection opportunities for residents and small businesses in the Mid-Atlantic States. One local government in Pennsylvania and one in Maryland each started a permanent collection program as a result of eCycling.
- The permanent collection program in Delaware demonstrated that a consistently high volume of residential and small business electronics is available for collection and recycling. Delaware's monthly pickups exceeded 100,000 pounds each month and averaged 160,000 pounds per month.

Accomplishments

The major accomplishments of the Region 3 eCycling Pilot were:

- Development of a unified application of hazardous waste regulations for end-of-life electronics across State boundaries in the five Mid-Atlantic States and DC,
- Partnerships with electronics companies who helped cover some of the costs to operate the Pilot,
- Partnership with a third-party organization who managed the financial contributions from the private-sector, and helped with data management and analysis,
- Establishment of a contract vehicle (via the U.S. Army Corps of Engineers) through which 4 States and the District of Columbia could use public-sector funding, and
- Expansion of the electronics recycling infrastructure throughout the Mid-Atlantic region.