

Pay-As-You-Throw Collection Systems



Introduction

Communities across the U.S. are radically changing their approach to garbage collection and disposal. Prompted by rising disposal costs and the emergence of state legislated recycling and reduction goals, over 3,000 local governments have adopted pay-as-you-throw systems-also known as variable rate, volume-based or unit pricing systems. Traditionally, the costs of garbage collection and disposal have been covered by residents' property taxes or through annual or monthly fixed fees charged to each household. With pay-as-you-throw systems, the fee charged for collection and disposal increases with the amount of garbage thrown away. This provides a financial incentive for residents to reduce waste, which can in turn lead to lower transportation and disposal costs for the local government.

In addition to reduced waste and waste related costs, some of the potential benefits of pay-as-you-throw systems include:

- Equitable fee structures. Communities with traditional waste fees essentially require residents who set out small amounts of trash to foot part of the bill for residents who generate larger amounts. This is eliminated under pay-as-you-throw systems as customers are charged only for the level of service they use.
- Successful recycling and composting programs. Rather than paying to dispose of recyclable materials and yard trimmings, residents under a pay-as-you-throw system have an incentive to participate in recycling and composting programs. According to a recent study by Duke University, communities experience 20% to 35% increases in the weight of materials going through their recycling and composting programs after implementing a pay-as-you-throw system.

- Increased awareness of waste management issues. Pay-as-you-throw systems help local governments bring to light the actual economic and environmental costs associated with waste generation and disposal. Once these costs are understood, residents generally become more interested in a variety of waste management issues, including reduction, collection, disposal and illegal dumping.

There also are potential obstacles to overcome when implementing pay-as-you-throw systems. For example, there have been instances of such systems leading to increased burning and illegal dumping of waste, although most communities with pay-as-you-throw systems have found these problems to be isolated, short-lived and easy to overcome. Another difficulty is that some residents might perceive, at least initially, the switch to pay-as-you-throw pricing as simply an attempt to raise garbage rates. Key to overcoming these and other obstacles is informing residents well in advance about the costs of existing waste management practices and carefully designing a pay-as-you-throw system that addresses specific needs and concerns of the community.

Types of Systems

There are several variations of pay-as-you-throw collection systems. Under a **prepaid bag system**, residents purchase specially colored or marked trash bags either at government offices or area grocery and hardware stores. Only garbage placed in these bags is collected by sanitation workers or accepted at the landfill, transfer station or convenience center. Typically, bags are no bigger than 20 or 30 gallons in capacity to ensure that residents who generate less waste pay less. The price of the bag covers a portion or all of the hauling and tipping costs involved in the disposal of that garbage.

A variation of the prepaid bag system is the **prepaid tag or sticker system**. This system requires participating residents to purchase tags or stickers to place on their own bags, with the tag/sticker identifying the size of bag it covers. Both the prepaid bag and prepaid tag/sticker systems are used in many small to medium size communities. The chief advantage of these systems is that they involve no billing and thus generate a minimal amount of administrative problems and expenses. A major drawback is the fluctuation in revenue that can occur when residents purchase several months' worth of bags or stickers on one occasion and then few or none for a long time thereafter.

Larger communities often choose a single can or variable can subscription service. Under a **single can system**, residents are provided with one type of container, usually a 50- to 60-gallon can, and charged for the number of containers they use. With a **variable can system**, residents subscribe to a particular level of service—one 20-gallon container per week, one 20- and one 30-gallon container per week, two 30-gallon containers per week, etc.—with rates increasing as the number and size of cans increase. Revenues are generally more stable with can systems than bag or tag systems, but billing and container distribution schemes are more complex and expensive. When subscribers notice reductions in waste generation, it is their responsibility to ask the local government (or private hauler) to change the number of cans for which they are being billed.

Some cities and counties have adopted **hybrid systems** that provide and charge residents for a base level of service (say, for example, a single 30-gallon can per week), then offer a prepaid bag, prepaid sticker or variable can service for waste in excess of the base level. The base level fee ensures a continuous and predictable flow of revenue while the pay-as-you-throw pricing for the excess waste provides an incentive for residents to keep that excess to a minimum.

Implementation

One of the first tasks to be performed when implementing a pay-as-you-throw system is preparing and adopting an ordinance that requires residents to use the system and makes any other form of disposal illegal. Many communities will also need to pass an ordinance setting forth the rates to be charged for collection services. In some cases, a great deal of effort may need to go into educating elected officials on the need to adopt a pay-as-you-throw system and related ordinances. Other implementation tasks include:

Educating the public. For a pay-as-you-throw system to be successful, customers of the system must be made aware of collection schedules, rates, billing cycles, penalties for noncompliance and, if applicable, locations for purchasing bags or tags/stickers. There are numerous methods for conveying such information, including press releases, public service announcements on radio and TV, newsletters, direct mailings, flyers, utility bill inserts and public speaking engagements.

Buying and distributing containers. After deciding upon the type, size and design of containers to be used, vendors of cans, bags or tags/stickers should be contacted for price quotes and other pertinent information. If bags or tags/stickers are selected, arrangements probably will need to be made with local retailers for distribution, although in some cases, government offices can serve as convenient, acceptable outlets for the sale of bags or tags/stickers. If cans are selected, a place for storing excess cans and a system for either delivering the cans or having residents pick them up will be needed.

Starting or expanding recycling programs. For most people to take advantage of a pay-as-you-throw system, they must have access to recycling programs. In some communities, implementing pay-as-you-throw has generated so much demand for recycling that additional recycling coordinators have had to be hired, new equipment purchased and new recycling markets identified. New or enhanced programs for composting and bulky waste collection are also common in pay-as-you-throw communities.

Making the necessary administrative changes. Training existing staff, hiring new employees, setting up a new billing system, developing a process for handling customer questions and complaints-these are all examples of administrative changes that may be required by the switch to a pay-as-you-throw system.

Making these changes should begin several months prior to the start of the new system. During the change-making process, EPA recommends identifying all administrative

functions to be performed once the pay-as-you-throw system is fully operational and, where necessary, hiring employees skilled in economics, public relations, financial management and enforcement.

Monitoring and evaluating the pay-as-you-throw system. Monitoring the pay-as-you-throw system should begin immediately. Participation and waste reduction rates along with cost and revenue data should be analyzed as soon as such data is available, and on a monthly, quarterly or yearly basis thereafter. When evaluating the performance of the new system, communities should consider using customer surveys and analyzing the problems and issues raised in customers' phone calls and letters.

Local governments may have to undertake numerous other implementation activities, depending on the type of collection system currently in place, the existing administrative arrangement of the solid waste department and the current level of residents' education about waste management issues. Examples of other activities frequently carried out by communities with pay-as-you-throw systems include:

- establishing full cost accounting and enterprise funds;
- developing complementary programs such as special recycling events (e.g., Christmas tree, phone book recycling) and household hazardous waste programs;
- employing qualified personnel to enforce anti-litter and illegal dumping laws;
- sponsoring anti-littering campaigns, citizen clean-up days and "adopt-a-spot" and "adopt-a-highway" programs; and
- implementing special procedures for residents of multi-family, low income, elderly and large households.

Selecting a System

Before choosing one of the systems identified in the previous section, local governments should establish goals for the system based on the solid waste management needs of the community. Some common goals of communities that have pay-as-you-throw systems include encouraging waste minimization and recycling, raising sufficient revenue to cover solid waste costs, and subsidizing other waste related activities (e.g., anti-littering campaigns).

Local governments should also consider the experiences of communities with pay-as-you-throw systems already in place. In Georgia, at least ten cities and ten counties have adopted some type of pay-as-you-throw system. Details on several of these governments' systems are provided in this publication. Additional information can be obtained by contacting these local governments or the Department of Community Affairs.

The Environmental Protection Agency (EPA) recommends communities use a six-step process when developing a pay-as-you-throw system and designing an associated rate structure. The six steps are as follows:

Step 1

Estimate the total amount of waste that will be generated once the pay-as-you-throw system is fully established.

This first step is important in light of the need to ensure that revenues received under the pay-as-you-throw system will cover the system's costs. To obtain this estimate:

- a) Examine current waste hauling records to determine the amount of waste collected from residents during the most recently completed fiscal year.

- b) Develop projections of total population and other important demographic patterns (e.g., low-income, elderly and multi-family households) to determine the demand for waste services over the coming one- to two-year period. Assistance in developing such projections can be obtained from private planning consultants, regional development centers or DCA.

- c) Estimate the likely reduction in waste generation rates that will result from implementing the pay-as-you-throw system. In forming this estimate, it is important to take into consideration such factors as the availability of recycling and composting programs, the scope and intensity of public education efforts planned, and the reductions in rates achieved in similar communities with pay-as-you-throw systems in place.

Step 2

Determine the waste collection methods and other services to be offered under the pay-as-you-throw system.

Decide on the type and size of the containers (bags, cans, tags/stickers, combination) to be used as well as the ideal frequency of garbage collection for the community. Identify additional collection services that might need to be offered, such as picking up furniture, white goods and other bulky items. Consider whether or not recycling, composting and other waste reduction programs should be started or enhanced, and determine how the community can extend pay-as-you-throw pricing to residents of multi-family dwellings.

Step 3

Estimate both the start-up and ongoing costs of the proposed pay-as-you-throw system.

Some of the one-time costs that communities typically run into when establishing pay-as-you-throw systems include developing and carrying out intensive media/public education campaigns, educating and training collection and administrative personnel, and purchasing new collection vehicles, containers and billing software. Ongoing costs are the salaries and benefits of sanitation workers, landfill tipping fees, replacement containers, fuel, vehicle maintenance, utilities and numerous other items. All of these costs should be estimated before proceeding with the remaining steps.

Step 4

Develop a preliminary pay-as-you-throw pricing rate structure.

Develop rough estimates of rates to be charged to cover the costs associated with each of the components identified in Step Two. Identify the rate discounts, if any, to be given to elderly and low-income residents. For simplicity, EPA suggests starting with rate structures already being used in communities with a similar mix of services. The preliminary rates can be adjusted as needed in the remaining steps.

Step 5

Estimate the revenues that the pay-as-you-throw system will generate once it is fully operational.

This step can be performed using the equation:

$R = (W \div V) \times P$ where, R = revenues the pay-as-you-throw program will generate;

W = waste generated when fully operational (estimated in Step One);

V = volume of bags or cans to be used (as determined in Step Two); and

P = price per bag or can (as established in Step Four).

It is relatively easy to estimate revenues for a pay-as-you-throw system offering a minimal number of services or container types and an uncomplicated rate structure. Estimating revenues for more complex systems, however, can be considerably more difficult.

Step 6

Establish a more realistic pay-as-you-throw pricing rate structure.

Modify, if necessary, the preliminary pricing rate structure set in Step Four, based on a comparison of the cost data generated in Step Three and the revenue figures calculated in Step Five. If the estimated costs and revenues are significantly different, a review and rearrangement of the program components identified in Step Two may need to occur.

Examples of Programs in Georgia

Bags . . .

The Cities of Duluth and Sugar Hill in Gwinnett County both have pay-as-you-throw "bag" systems in place. Duluth began its system in 1979 when residents were required to purchase specially marked "City of Duluth" bags for their garbage. Sugar Hill followed

suit over 15 years later with a similar setup. In Duluth, residents purchase boxes of twenty 32-gallon bags at city hall and several local grocery stores for \$20. Senior citizens (over 65 years old with an annual household income of less than \$25,000) and handicapped residents can purchase up to six boxes per year at only \$10 apiece. Sugar Hill residents purchase single garbage bags, bearing the Sugar Hill logo, at area grocery stores for \$1.13 each. Beginning in 1999, the price of the single bags will increase according to the Consumer Price Index.

Both cities contract with a private waste hauler to handle residential and commercial garbage pickup and residential curbside recycling. Recycling in Duluth is paid for by the City's general fund. In Sugar Hill, recyclable goods are collected and donated to the Recycling Bank of Gwinnett County, which is operated by Gwinnett Clean & Beautiful.

For more information on these successful bag systems, contact: Larry Rubenstein, Duluth City Administrator, (770) 476-3434, and Warren Nevad, Sugar Hill City Manager, at (770) 945-6716.

... Tags ...

The City of West Point in Troup County implemented a pay-as-you-throw "tag" system in August of 1994, following a year-long public education campaign. Residents were given a numbered tag to place on one 45-gallon garbage can, which the residents had to provide themselves.

The tag numbers were recorded and are kept on file at city hall in case of stolen or lost cans. The City only picks up garbage that is placed inside the tagged cans and charges \$8 per month for the service. Residents are billed for garbage collection on their regular monthly utility bills. Tags may be obtained to place on up to two additional 20- to 40-gallon cans at a price of \$4 per month per can. Residents can also acquire stickers for \$2 each to place on any additional bags of garbage they may want to set out.

Yard trimmings, up to five cubic yards, are picked up weekly at no additional charge. West Point does not, however, provide curbside recycling. Instead, the City has constructed a centrally located, fenced "recycling park," which is operated and maintained by a private company. The company also markets the recyclable goods collected and keeps the revenue as compensation.

Thus far, West Point's pay-as-you-throw system has not generated sufficient revenue to cover its total collection and disposal costs. The City's general fund is used to make up the difference. However, there have been very few complaints from residents about the tag system, and the City is now looking at how to possibly apply the pay-as-you-throw concept to commercial garbage collection. Contact West Point City Manager Joel Wood at (706) 645-3522 for more information.

... and Cans.

In January of 1994, **the City of Marietta**, with assistance from EPA Region IV, implemented a pilot pay-as-you-throw pricing program for residential solid waste collection. During the one-year program period, the City tested more than one type of pay-as-you-throw collection system and ultimately decided to launch a city-wide can system in March of 1995. Residents were given a 2" by 6" orange sticker to place on an existing, no larger than 32-gallon capacity, garbage can. They were then charged on a monthly basis depending on the number of cans they used. One can cost \$12 per month, two cans cost \$16 per month, three cans cost \$21 per month, and additional cans were an extra \$5 each per month. Today, most residents have an average of two cans, but the City reports that more and more residents each month are choosing only one can. Special miscellaneous items that need to be picked up for disposal cost residents an extra \$5 to \$30, depending on the item. The City offers discounts on collection services to senior citizens.

Regular garbage is picked up twice a week, while yard trimmings are collected once a week. Marietta contracts with a private company for curbside recycling, which is provided to all residents at no additional charge. Currently, the City has reduced the volume of solid waste going to the landfill by 30% and has not seen an appreciable increase in illegal dumping. For more information, contact Joan Ellers of the Marietta Clean City Commission at (770) 528-0629.

Other Programs in Georgia

The following cities and counties in Georgia have either implemented or are in the process of implementing pay-as-you-throw collection systems:

Athens-Clarke County	Pickens County
Coweta County	Tift County
Forsyth County	City of Austell
Gordon County	City of Decatur
Hart County	City of Douglasville
Jackson County	City of Snellville
Lincoln County	City of Thomasville
Montgomery County	City of Tifton
Oconee County	