



Pay As You Throw (PAYT) Systems

Introduction

Variable-rate fee (VRF) systems, also known as Pay-As-You-Throw (PAYT) programs, encourage recycling by tying the cost of waste services directly to the amount of trash a resident produces. Sometimes also referred to as unit pricing systems, variable rate fees may be weight-based or volume-based. Many commercial establishments served by private haulers pay on a volume basis. By contrast, most single-family residences in the United States pay a flat fee, although pay-as-you-throw programs are rapidly increasing in popularity.

Some reasons for selecting a VRF system for residential collection programs include:

- * Residents pay for the level of service used.
- * Residents are encouraged to reduce the amount of waste produced.

Many communities use variable rates because many residents see it as more fair than a flat fee. Combined with free or low cost recycling service, a pay-as-you-throw program can be an effective way for residents to pay for refuse collection proportionate to their use of the service. When recycling and composting services cost less for the resident than waste collection, variable rates encourage higher material diversion rates.

Variable Rate System Options

There are two major types of variable rate fee systems. The most common are *volume-based* systems in which residents pay more depending on how many and what size of bags or cans of garbage they set out each week. *Weight-based* systems require scales to measure how many pounds of waste residents set out each week.

Volume-Based Variable Rates for Cans & Bags.

Volume-based variable rate may be based on:

- * The number or size of cans used. Residents are given standardized can or cart sizes depending on their intended usage level. They also may "subscribe" to one or multiple container collection service.
- * The number of bags or tags used. Residents may buy specially-marked bags or tags from municipal offices as they need them. Tags are usually brightly-colored adhesive-backed stickers that residents place on their own trash bag. The bags are usually color-coded or imprinted to distinguish them from other bags.

Cans vs. Bags

Some communities have found that can systems are better than bag/tag systems because:

- * A community can charge a graduated fee that discourages residents from using more than one or two cans.
- * Communities can consolidate solid waste collection and disposal into one monthly bill. Many communities include these charges on water or sewage bills, which saves printing and postage costs.
- * Residents seem to prefer can systems, probably because they don't have to buy new materials to participate.
- * Standardized cans improve aesthetics.
- * Once the system is in place, the revenue stream is relatively stable, compared to bag and tag systems.
- * Communities can purchase cans or carts compatible with automatic-loading equipment, reducing the chance of injury to workers.
- * Containers are reusable and are less vulnerable to destruction by animals than bags.

Communities that use a bag or tag system report that advantages over a can system include:

- * Lower start-up costs.
- * More freedom and flexibility in changing level of service.
- * No billing system required.
- * Easier to understand.

Residents with volume-based systems sometimes become experts at compacting waste, also known as the "stomp factor." For some families the purchase of a trash compactor may be economical.

Over-compaction, however, makes programs less effective and may place collection staff at risk if they are required to lift heavy bags or cans without assistance. For this reason, many communities place a 50- or 60-pound limit on individual bags or cans.

Weight-Based Fees

In the past few years there has been growing interest in weight-based residential rate systems. Advantages of the weight-based rate systems over volume-based systems include:

- * Results are more immediate and precise. For either can or bag systems, customers must reduce their waste by an entire can or bag to see any savings.
- * Residents are not tied to pre-set levels. For both can and bag systems, customers at the lowest subscription level may not be able to opt for lower service levels, even if they only fill up half a bag or can.
- * Residents do not benefit from over-compacting their waste.

The primary disadvantages for the weight-based system is that it is relatively untested, and costly to administer. More precise billing may outweigh these costs, but these systems have not been widely implemented.

Potential Barriers

There are three main barriers to variable rate fee systems:

- * Illegal dumping
- * Unpredictable revenues
- * Administrative complexity.

Illegal Dumping

In some areas, pay-as-you-throw programs may result in the illegal use of commercial and industrial dumpsters and littering. Education and promotion programs must be designed to make it easy for people to understand how to use the variable-rate fees prior to implementation, and to discourage illegal dumping and littering. Communities are also encouraged to pass a no-burn regulation. Many businesses react by placing locks on their dumpsters to discourage illegal dumping. Most communities that experience illegal dumping report that occurrences taper off after the first few months of program operation.

Predicting Revenues

Variable-rate fee revenues can be unpredictable, particularly for bag or tag systems and weight-based systems. In addition, as the program successfully encourages people to reduce their garbage bills by recycling, composting, and reducing waste, revenues will also decrease. To make sure that the revenues are high enough to support recycling, composting and trash removal programs, communities must carefully plan for the system. Estimates of how much recycling and composting can be achieved and how much more garbage can be diverted must be made so that fees will be sure to cover all services.

Administrative Complexity

Implementation and administration of a variable-rate fee program can be complex and confusing. Extensive planning is necessary to reduce unnecessary program complexity. For example, if your community must develop a billing system, adoption of unit pricing will be much more complex than if the garbage service charges can simply be added to water or other utility bills already being distributed to residents. A comprehensive outreach campaign is key to helping municipal officials and residents adopt a successful program. Communities with successful pay-as-you-throw programs have discovered that educating the community throughout the planning process greatly enhances the acceptance of the new system. It is critical that citizens understand the new costs and savings associated with these systems.

Implementation

Under a variable-rate fee system, residents are charged for disposal based on the weight or volume of waste they put at the curb. In order to implement a variable-rate or unit-based fee, you should determine:

- * If the program is feasible given current waste hauling arrangements and available service providers.
- * How much it will cost; and
- * How accepting the community will be to a program at this time.

In addition, educating residents about the use and benefits of the program is necessary to make sure the program is successfully adopted. The following six step program is designed to lead you through this process.

Step One - Review Current Hauler Arrangements

The first step is to review the waste hauling system arrangements in your community. Answers to these questions will help you determine:

- * If a variable rate fee is possible for your community,
- * Whether a bag, can, or weight-based system is right for your community; and
- * an appropriate time line for implementation.

In areas where haulers will implement and enforce a variable-rate fee program, they must support it. If a hauler representative is not included in your planning process, think about inviting one to join if your answers to these questions indicate that hauler support for the project may be necessary for its successful implementation.

Who Collects Solid Waste?

The first step is to identify who currently provides solid waste collection in your area.

Who Pays for the Service?

The more control the municipality has over the waste hauling in their community, the more flexibility they have in implementing a pay-as-you-throw program. Some communities provide garbage collection service for residents and even some commercial businesses. Other communities grant a contract for waste collection for all residents. Costs for these services are usually covered through the municipality's general fund or are included with water or sewer charges on a regular bill. Residents in some communities contract with private haulers for their individual garbage removal service, and pay the hauler directly. You will need to know who pays for the residential solid waste disposal in your community and also how are the fees are collected.

Are Waste Collectors Willing to Participate in a Volume-Based System?

If the community provides collection service, there is probably a lot of flexibility in changing to a variable-rate fee. If the community contracts with a hauler to provide service, the community still has the flexibility to change the system. It may have to wait, however, until the waste collection contract comes up for renewal. That's okay - you can still probably use all the time to plan. If residents pay for collection services individually, the hauler's cooperation is absolutely necessary to implementing a variable-rate fee. In this case, the haulers' choices would also indicate strongly what type is feasible (can-based, bag-based, tag-based, or weight-based VRF).

Step Two - Compare Estimated Service Costs

The next step is to determine how much it will cost to implement each type of variable rate fee system, and then to decide which is most cost-effective for the community. In your calculations you will need to be mindful of some of the following considerations:

- * Some variable-rate programs have relatively high start-up costs, but lower annual maintenance costs. For example, a can-based system requires that all residents receive trash containers before the program starts. However, most can-based systems only have a 10-20% can replacement rate per year. In contrast, bag systems require the purchase of bags for each household for each week. The costs for bags are lower than the cost for cans, but bag costs won't decrease over time.
- * You will need to determine the service costs associated with each of the systems over a ten-year period including all estimations of equipment costs, administration costs, and operating and disposal costs for tag-based systems, bag-based systems, can-based systems, and weight-based systems.
- * You will probably want to include other program costs into the fee structure. For example, your recycling and composting programs will probably be funded from the revenues from your variable-rate fees, as well as any education or household hazardous waste collection programs.
- * Many communities are so successful in their efforts to reduce waste that income drops suddenly over the first couple of years. To avoid having to increase costs dramatically, estimate costs for all of waste related programs for Years 1, 5, and 10. Depending on your goals and your expectations for success, you may want to set fees so that they will pay for all services in Year 5.
- * For can systems you may also want to charge more for the second can per household than for the first, more for the third than for the second, and still more for the fourth can than for the third to encourage residents to reduce their number of cans.

Resource Recycling Systems, Inc. has several comprehensive worksheets available to assist in the calculation of service costs and to help determine fees. For more information, contact us at (734) 996-1361 or by email at rrsi@recycle.com.

Step 3 - Select a Variable-Rate Fee System

In addition to current hauler arrangements and cost-effectiveness, your selection of a unit-based system also depends on the types of containers currently used by residents. Typically, most single-family residents use plastic garbage bags or garbage cans for waste removal. Multi-family residents who live in apartments with small numbers of units per building frequently use thirty- to ninety-gallon cans for storage. Residents of larger apartment complexes usually place their waste in dumpsters. Based on the information you have compared in estimating your service costs, what variable rate fee is best? But before you finalize your choice based on the numbers, you should ask whether it is really the best system for the majority of residents in your community. You will also need to determine if special ordinances need to be passed based on your current situation and/or if local solid waste millages need adjusting to reflect system changes. Once you have finalized your choice, proceed to Step 4.

Step 4 - Make arrangements with haulers.

Once a decision has been made, you should contact the hauler or haulers that will run the program. The haulers will also help determine what types and sizes of bags, tags, or cans are best, and what other equipment is necessary. Finally, your implementation timeline should be updated to incorporate time for service negotiations, contract changes and/or ordinance implementation.

Step 5 - Educate residents.

Public education for a pay-as-you-throw program should begin before program design is even finalized. Here are a number of points to look out for that may help residents adopt the system more easily:

- * If residents are not used to paying directly for solid waste service, the concept of the garbage bill will have to be introduced. There will be an adjustment period while residents get used to and accept the change.
- * Because many residents find a variable rate to be more fair and equitable than a flat-fee system, emphasizing that they will only pay for what they throw away will probably be effective. However, some residents will resist these changes. Educational messages should explain both the benefits and costs to different types of residents.
- * All recovery options that residents may use at no charge such as recycling and composting programs should be heavily promoted at the same time as the pay-as-you-throw program is introduced.
- * For can systems, it is necessary to clearly identify the process by which residents trade in their cans for smaller sizes as they reduce waste.
- * For bag or tag systems, it is necessary to identify where residents can obtain bags or tags. Making bags or tags available at many convenient locations such as grocery stores will also help residents accept the program, and many grocery stores will willingly carry the bags or tags for no charge or a small charge because residents need them.
- * For weight-based systems, it is necessary to clearly identify how users should attach scannable labels to their waste cans.

- * For both volume-based can and weight-based systems, educational efforts should include an explanation of resident's trash bills.

It is important that residents understand the way their community's variable-rate fee program works through a pervasive promotion/education campaign. You will probably also come up with community-specific factors that will require additional education support as you go through the process.

Step 6 - Program start-up and implementation.

Your plans should include all the steps necessary to implement a pay-as-you-throw program. Tasks that should be included are:

- * Purchase of all equipment necessary, including cans, weighing scales and stocks of bags or tags.
- * Distribution of cans or weight-scanning labels to residents or bags and tags to distribution points.
- * Billing system development for volume-based can or weight systems.
- * Education materials development and distribution.
- * Ongoing data tracking to monitor your progress.
- * Ongoing feedback to community and educational efforts.
- * Revisit program progress and possible adjustments to the system.

Conclusion

Programs across the country are achieving tremendous results with ambitious material recovery programs. Recovery levels of 35%, 40%, and even 50% are being achieved in communities which have implemented a range of supporting programs, including incentives and regulations. While it is virtually impossible to recycle or compost the entire waste stream, many communities are discovering that efforts at waste prevention, reuse, composting and recycling can pay off.

This Fact Sheet is only a brief overview of how to get started with a variable-rate system for your community. For more information on the "Guidebook for Residential Recycling and Composting Participation Incentives" or to find out how RRSI can help you with your communities implementation of variable-rate fees, please call (734) 996-1361 or email us at rrsi@recycle.com.