



Variable-rate or "Pay-as-you-throw" Waste Management

Answers to Frequently Asked Questions

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Executive Summary

As landfills fill up and recycling opportunities increase, more communities across the nation are interested in reducing waste disposal and its costs. City managers are considering a variety of strategies to improve incentives to recycling and composting, as well as to increase the variety of materials that can be recycled or composted.

Currently, in most parts of the country, garbage is removed once or twice a week with revenues coming from a portion of property taxes or from a flat fee-for-service system that does not vary with respect to the amount of garbage taken away.

Neither of these methods provides any incentives to reduce waste, and, facing large volumes of solid waste, areas using these payment methods have sometimes implemented mandatory recycling programs to reduce the volume of their solid waste stream.

Variable-rate pricing, or "pay as you throw," is a market-based strategy with a growing number of advocates. Under a

variable-rate system, customers are provided an economic signal to reduce the waste they throw away because garbage bills increase with the volume or weight of waste. Variable-rate pricing is being adopted in thousands of communities to create incentives for additional recycling in the residential sector.

Variable-rate programs are very flexible and have been implemented by communities in many different forms. The most common types of variable-rate programs are can programs, bag programs, tag and sticker programs, and hybrid programs. Each type of variable-rate system has strengths and weaknesses, as will be discussed in this study. The study also provides information on appropriate program selection, implementation issues and tips, and rate setting for communities that wish to implement a variable-rate waste disposal system.

Rate incentives in solid waste have strong and measurable effects on waste-disposal behavior and waste disposal.

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Towns implementing variable-rate programs can expect to see reductions of more than 15 percent in tons disposed as well as increases in recycling and yard-waste diversion.

Variable rates can help reduce the burden on solid-waste disposal systems and lead to more efficient resource use, reduced environmental burden, and lower solid-waste system management costs. While these programs may not be appropriate in all communities, many communities can benefit from variable rates.

What is variable-rate waste disposal, and what are its benefits?

Systems of pricing trash for disposal are known by a variety of names: variable rate, pay by the bag, variable-can rate, volume-based, pay as you throw, among others. However, the basic concept underlying all these terms is very straightforward: customers that put out more waste for collection pay more than those who put out less.

Variable-rate programs provide a number of advantages for communities and residents including greater equity, stronger economic linkage with behavior, unrestricted consumer choice, cost-effectiveness, waste reduction, ease of implementation, flexibility, and environmental benefits.

Using variable rates to reduce the burden on the disposal system can lead to more efficient use of services, improved environmental and resource use, and lower long-run solid-waste system management costs.

What are the different types of variable-rate waste-disposal pricing systems?

Variable-rate systems can be categorized into five major types:

- In Variable Can or Subscribed Can systems, customers select the appropriate number or size of containers (one can, two cans, etc., or 30–35 gallons, 60–65 gallons, etc.) for their standard weekly disposal amount.
- In Bag programs, customers purchase bags imprinted with a particular logo, and any waste they want collected must be put in the appropriately marked bags.
- In Tag or Sticker programs customers affix a special logo sticker or tag to the waste they want collected, but can use whatever bags they wish.
- Hybrid systems combine elements of the current collection system with new incentive-based elements. Instead

of receiving unlimited collection for payment of the monthly fee or tax bill, the customer gets only a smaller, limited volume of service for the fee, and must pay extra for additional volume.

- Weight-based systems use truck-based scales to weigh garbage containers and charge customers based on the actual pounds of garbage set out for disposal.

Who is implementing variable-rate waste-disposal pricing?

As Figure 1 shows, the program count and population coverage for variable-rate programs have increased dramatically in the 1990s, and variable-rate programs are now available to more than 20 percent of the national population. Figure 2 shows the distribution of these programs by region.

How much waste reduction will variable-rate programs produce?

The key impact communities have found from implementing variable-rate programs include reduction in disposal tonnage and an increase in recycling and yard-waste diversion as well as source reduction.

Studies using data gathered from over 500 communities across the nation show that variable-rate programs decrease residential disposal by about 17 percent in weight, with 8–11 percent being diverted directly to recycling and yard programs, and another 6 percent decreased by source-reduction efforts.

How does variable-rate waste-disposal pricing relate to source reduction?

A significant amount of source reduction currently results from the existing variable-rate programs in operation across the United States. Even though these rate-incentive programs cover only 20 percent of the population, an estimated 1.3 million tons are being source-reduced from the existing variable-rate communities. To date, residential disposal has been reduced by 1.7 percent and residential waste-generation by 1.2 percent nationwide from just the source-reduction impact of these existing programs.

A town implementing variable-rate programs can expect to see reductions in tons disposed on the order of 16 percent, with one-third going to increased recycling, one-third to increased yard-waste diversion, and about one-third being

avoided entirely through source reduction. Additional diversion (5-7 percent) can be realized from the source-reduction impact of variable rate programs.

Which types of variable-rate waste-disposal programs are more effective at increasing recycling?

Although variable-rate waste-disposal programs in general lead to higher recycling than communities without variable rates, bag programs deliver significantly more recycling than can programs—up to 4 or more percentage points of residential recycling. Hybrid programs are also strong performers, delivering 4 or more percentage points of diversion than can programs. Sticker and tag programs were not common enough to provide reliable separate results for these programs.

Does variable-rate waste disposal automatically increase recycling?

Conversion to a variable-rate program results in the single most effective change that could be made to a curbside (or drop-off) program. Implementing variable rates has a larger impact on recycling than adding additional materials, changing frequency of collection, or other changes and modifications to programs. Variable-rate programs increase recycling by 5–6 percent (with similar increases for both curbside and drop-off programs). A survey in Iowa found that recycling increased by 30 percent to 100 percent, and averaged about 50 percent.

How does variable-rate waste-disposal programs reduce waste volumes at the curb?

Variable rates reduce set out garbage dramatically—from 90 gallons to 30–45 gallons in many communities that also have active recycling and yard-waste programs.

Some of this is accomplished through actual tonnage reductions, and additional decreases are due solely to deliberate compaction. Research from variable-rate program communities shows that in areas with curbside recycling and yard-waste programs, households set out between 30 and 45 gallons of garbage on a weekly basis; in rural areas this figure can be lower because some bring waste directly to transfer stations and some burn their waste. “Set-out” decreases are important because they reflect the new unit of revenue and are crucial to rate-setting.

What are the implementation and administration costs of variable-rate waste-disposal pricing?

Concerns about costs are an issue for every community. Studies conducted by the states of Wisconsin and Iowa found that for two-thirds of the communities implementing variable rates, costs stayed the same or decreased. Only one-third had an increase in costs. This demonstrates that 1) these programs do not have to be expensive to implement, and 2) communities can find program types that fit well with their existing or planned solid-waste management system.

What are the key elements of a variable-rate pricing waste-disposal program?

There are two key elements to a successful variable-rate waste-disposal program: rates that vary and provide an

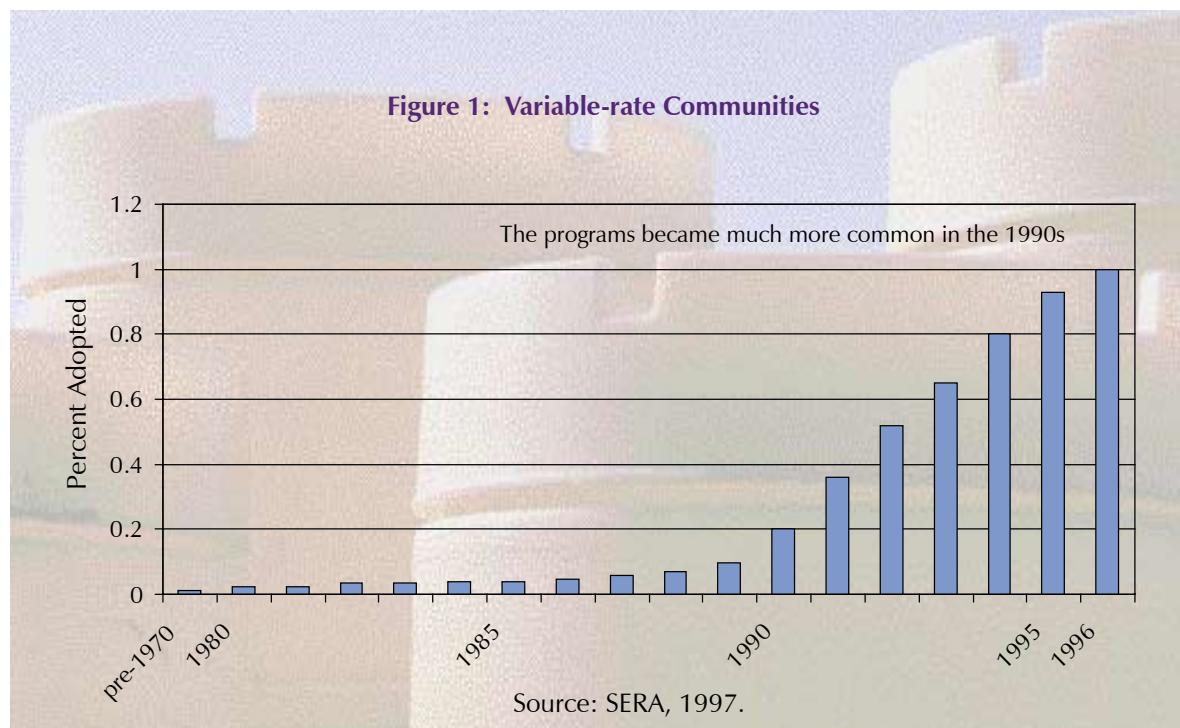
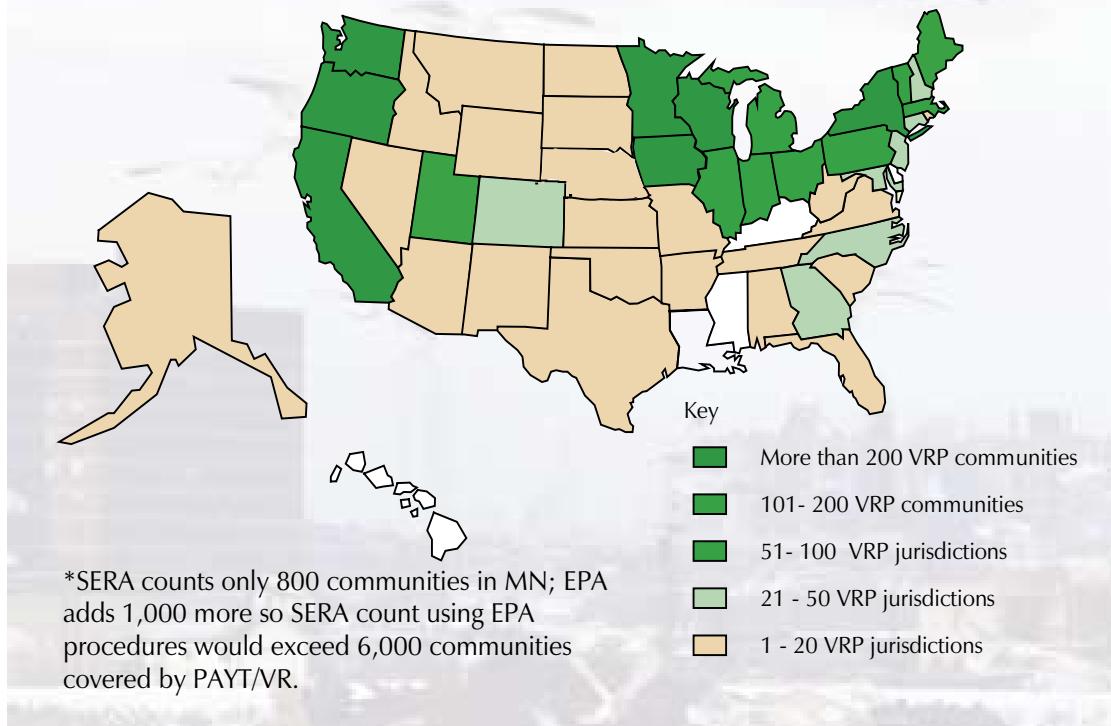


Figure 2: Variable-rate Communities

SERA's 2000 survey found more than 5,000* variable rates communities and only 4 states without programs. Programs are available to 20% of population.



incentive, and legal alternatives for materials, including recycling, reduction, and composting information and programs. Each system type presents its own rate-setting opportunities and challenges, but there are several rate-setting issues that are common to all the systems.

Rates accomplish two basic functions: recovering revenues, and creating incentives for customers to handle their solid waste as efficiently as possible. Because of these dual functions of solid-waste rates, it is critical the planners review their solid-waste goals and priorities during the rate-setting process. There is no best way to design rates, and choices will need to be made based on an assessment of key priorities.

How can people get variable-rate waste-disposal programs implemented in their community?

Getting variable-rate programs approved is often harder than designing and running the actual system. The most important issue is to provide information to residents, the press, and stakeholders about the purpose of the change, what the community hopes to achieve through the change, and how to make the program work for residential customers.

Several key strategies and activities may be useful in helping communities move in this direction, including the pursuit of political support, hauler input, customer education, and creation of a "starter kit" distributed free to potential customers. In addition, people wanting to bring variable-rates to their community are encouraged to find a "policy champion" within existing waste-management institutions; meet with editorial boards to drum up positive press coverage of the idea; and to consider establishing a broad-based task force composed of people from supportive and oppositional interest groups.

ABOUT THE AUTHOR

Dr. Lisa A. Skumatz, an economist, is principal of the Colorado-based research and consulting firm Skumatz Economic Research Associates, Inc. (SERA). She is especially known for her work in variable-rate waste disposal, and her quantitative work measuring the impact of recycling, yard waste, and source-reduction programs. Much of Dr. Skumatz's recent work has focused on developing strategies and programs to revitalize recycling at the state level. SERA (www.serainc.com) specializes in the economics of solid-waste management, especially program evaluation and cost-effectiveness, rate studies, incentives, integrated planning, and modeling/forecasting. SERA has worked with community, state, and federal solid-waste agency clients across the nation, and has published numerous documents and reports on solid-waste economics. Dr. Skumatz received her undergraduate degree from the University of Wisconsin at Madison and her Ph.D. from Johns Hopkins University. □