

# VARIABLE DISPOSAL FEE IMPACT

**V**ARIABLE curbside disposal fees have received increasing attention as a means to fund refuse services while promoting waste reduction and recycling. Variable fees — also referred to as variable can rates or bag-and-tag fee systems — are assessed directly on users and reflect, to some degree, the cost of service. They contrast with fixed fees and tax-based systems, where the customer sees no direct financial incentive to minimize the level of service.

To more fully understand the use and extent of variable curbside disposal fees, R.W. Beck and Associates conducted a survey in 1993 of 80 cities and counties nationwide. The survey used a random sample of 40 large cities and counties (populations greater than 100,000) and 40 medium-sized communities (populations from 50,000 to 100,000).

In 68 percent of cities surveyed, a public or governmental authority is responsible for residential solid waste collection, with the remaining 32 percent served by private haulers. Household refuse pickup is usually provided weekly (for 91 percent of those surveyed) and waste collection containers are furnished in 44 percent of the communities.

Fees for disposal are charged in 65 percent of the communities; 35 percent use property taxes or other indirect means. One quarter of the cities with fees — 13 communities, or 16 percent of those surveyed — report some type of variable disposal fee for residential households in 1992.

Funding for recycling and yard trimmings programs also were explored. Recycling programs for residential households were reported in 80 percent of the communities, and of these, more than 80 percent indicated that curbside collection services are provided. Yard trimmings programs were reported by 46 percent of the communities, and about 80 percent of those included curbside service. Large cities generally report having a recycling and yard trimmings program; nearly 90 percent offer some form of recycling. Medium-sized cities were less likely to have each of these services; only 70 percent provide recycling services.

Less than 18 percent of the municipalities surveyed indicated that they charge a specific fee for collection of recyclables, and

---

*Six case studies provide a good overview of what happens when variable fees are in place for at least one year.*

*Richard Cuthbert*

less than 13 percent reported a fee for yard trimmings service. Large cities are twice as likely to charge for recycling services as medium-sized cities, but were only half as likely to charge for yard trimmings collection. Additionally, six communities (eight percent) report some form of financial rebate for participation in a recycling program and three communities (four percent) reported a rebate for participation in their yard trimmings program. The rebates may come as a surprise because in most cases, programs cost more than can be offset by revenues from the sale of collected materials, at least in the short run.

Each of the communities was asked what factors influenced its decision to implement recycling and yard trimmings programs. A legislative mandate was reported by 80 percent of those surveyed while local interest or disposal problems were cited by 36 percent.

Measuring the effectiveness of variable curbside disposal fees in promoting waste reduction is complicated by the difficulty of isolating the specific role of the collection and disposal fee from the other elements of waste reduction programs, as well as from other elements of the economy in general. In addition, many communities do not have adequate disposal data, either for their current situation or for the time before the implementation of waste reduction programs. A scientifically rigorous analysis of the causes of solid waste reduction would be time-consuming, costly and, in the end, perhaps impossible. Thus, only anecdotal information on the effectiveness of variable curbside disposal fees is available. The following six case studies provide a good overview of what happens when variable fees are in place for at least one year.

## **PORTLAND, OREGON**

In Portland, 61 independent collection companies provide residential disposal services; most have had variable can rate structures in effect for more than 10 years. Before February, 1992, residential collection rates and service territories were unregulated. A new franchise system provides for mandatory variable curbside rates, weekly recycling services on the same day as garbage services and recycling containers. In 1987, monthly curbside residential recycling collection was implemented throughout the city, and in early 1992 this

Seattle estimates that a 10 percent increase in charges for residential collection and disposal results in an approximately two percent reduction in overall solid waste disposal.

service was increased to weekly recycling curbside collection. The city also implemented monthly curbside yard trimmings collection in April, 1992.

During the last 10 years, landfill disposal costs in the Portland area rose from \$17/ton to \$75/ton. In response to this increase, collection rates for single can service more than doubled, from approximately \$7.50/month to \$17.50/month. In early 1992, a rate increase of about 25 percent was implemented in conjunction with new recycling services, including a less expensive 20 gallon mini-can service level. Eighteen percent of residents chose the mini-can. As a combined result of the higher collection fees and availability of recycling services, Portland residents increased their recycling levels from 740 tons/month in 1988 to 2,583 tons/month in 1992 — more than tripling the recycling tonnages over five years.

#### **SEATTLE, WASHINGTON**

Seattle has had variable curbside collection rates since 1981. Before that, residents paid a fixed fee charge for unlimited solid waste disposal. Both the structure and level of the city's rates changed numerous times between 1981 and 1992, with the cost of single can service more than doubling from \$6.40 in 1981 to \$14.98 in 1992. Between 1985 and 1987, rates increased by 82 percent as the city sought to cover the costs incurred from closing its landfills. Subscription levels for single-can service rose from approximately 18 percent of the city's households in 1981 to almost 65 percent of households by 1988, when residential curbside recycling and yard trimmings programs were implemented. By 1992, more than 89 percent of customers shifted to either a one can or half can subscription level.

Seattle estimates that it recycled 40 percent of its waste stream in 1991 through recycling, composting and yard trimmings programs. This compares to a 24 percent recycling rate in 1988 when curbside recycling programs were first established, and a 15 percent recycling rate before the introduction of variable can rates in 1981. In 1992, the city estimated that more than 88 percent of Seattle residents participated in the curbside recycling programs, and 67 percent in the curbside yard trimmings collection program.

Seattle has studied the effects of the fee increases on total solid waste disposal, as well as the interactive effects of other factors on disposal fees. The Seattle Solid Waste Utility has produced several studies and reports since volume-based rates were first introduced in 1981. Among other things, the city has quantitatively estimated both price and income elasticity factors for its system. Holding all other factors constant, it was determined that as rates increased, customers disposed of less waste either by recycling more or by more selective purchasing. Based on the city's past experience, the Solid Waste Utility estimates

that a 10 percent increase in charges for residential collection and disposal results in approximately a two percent reduction in solid waste disposal — because residents have the ability to reduce their overall charges through variable rates.

The city also has determined that increases in household size and income can disguise and even counteract the price elasticity effects of its rate programs. For instance, household size and income levels were positively related to solid waste disposal. The city estimates that with every 10 percent increase in household real income, roughly 5.9 percent more solid waste is disposed.

#### **TACOMA, WASHINGTON**

Tacoma has had variable curbside disposal rates for solid waste collection for more than 20 years. The city is converting its residential solid waste collection program from cans to 60 gallon and 90 gallon containers; more than two-thirds of all Tacoma residents are now provided containers. In recent years, solid waste rates have increased significantly as disposal costs have continued to rise. For instance, in 1990 the one can/60-gallon container rate was \$7.10 a month. It rose to \$8.05 in 1991, and to \$10.10 in 1992 — a 42 percent increase in two years. The two can/90-gallon container rate also jumped 42 percent over the same time period, from \$10.35 to \$14.75.

Concurrent with the implementation of these rate increases, Tacoma also began several residential recycling programs. Curbside yard trimmings service and recycling was started in 1990, both offered at no extra charge. Yard trimmings collection increased from 6,000 tons in 1990 to 7,237 tons in 1991, while the amount of recyclables collected jumped three-fold during the same period, from 507 tons to 1,854 tons.

Some of the effects of these rate increases and waste diversion programs can be seen in the landfilling data. Disposal at Tacoma's municipal landfill fell six percent between 1989 and 1991 (from 200,593 tons to 188,449 tons), despite significant population growth in the area. The city attributes some of the decrease to its refusal to accept large loads of demolition materials beginning in 1989. Tipping fees also have risen significantly. The fee for city residents rose from \$22/ton in 1990 to \$32/ton in 1992. At the same time, the tipping fee charged to noncity residents rose from \$64/ton in 1990 to \$80/ton in 1992.

#### **WILKES-BARRE, PENNSYLVANIA**

Wilkes-Barre operates a residential volume-based rate program that differs significantly from the other case studies. The city first introduced a voluntary bag program for multifamily (five units or more) customers in 1988. The bags cost \$1 each and are sold to residents in packages of eight. With this program, the city estimates that the average household living in a multi-

family residence spends \$95.90/year for solid waste and recycling services. Currently, 50 percent of all multifamily households participate in the bag program, while the other 50 percent contract with private haulers for solid waste collection services. Single family households (four units or less) are charged an annual flat fee of \$50/household. However, the city hopes to expand its bag program to include the single family residences in the future because the program has proven to be popular.

During the first year of the multifamily bag program, there was a 15 percent reduction in the total amount of waste collected city-wide. Recycling services for all residential customers have been increasing each year since 1985 as new programs are added and others expanded. Wilkes-Barre now has both curbside recycling and yard trimmings collection, as well as a home composting program. The recycling participation rate reached 65 percent in 1992, and residents are now diverting an estimated 20 percent of the waste stream. Between the bag and recycling programs, the city has seen more than a 25 percent decrease in total solid waste disposal at the local landfill. Tipping fees at the landfill increased six-fold since 1985, climbing from \$8.65/ton to \$51/ton by 1992.

#### **BOTHELL, WASHINGTON**

Before February, 1991, the suburban Seattle community of Bothell charged a flat fee for disposal services of \$8.11/month. Then the city implemented curbside recycling and yard trimmings collection programs and, to support them, set variable curbside collection rates. The rates were implemented at \$10 for one can, \$14 for two, \$18 for three, and \$24 for four. These covered all collection services, including recycling and yard trimmings. This choice was made in lieu of an increase in the monthly flat fee to approximately \$13 to cover the same services.

When the programs were first started, initial subscription levels in Bothell were 71 percent at the one can level, 28 percent at the two can level, and less than one percent using three or four cans. One year later, subscription levels were at 78 percent for one can, 21 percent for two, and less than one percent using more than two cans.

Significant waste reduction resulted from the program. Initially, an estimated 40 percent of Bothell's residential waste stream was collected in the curbside recycling and yard trimmings programs, leaving 60 percent going to disposal. By 1992, the two programs were collecting 48 percent of the residential waste stream.

#### **MINNEAPOLIS, MINNESOTA**

Minneapolis charges a flat fee for unlimited residential solid waste collection but has a rebate for participation in its curbside recycling program. Residents were not specifically charged for solid waste collection services until October, 1987,

when the city instituted a \$5 monthly fee for solid waste collection and disposal. The original fee was a direct result of rising disposal costs. In 1982, disposal costs were \$21/ton; by January, 1988, the tipping fee was \$38/ton. With an increase to \$42/ton in January, 1989, the residential charge was increased to \$7/month. When forced to respond to a \$75/ton tipping fee in June, 1989, the city increased the residential fee to \$12/month, and added a recycling rebate of \$5/month to stimulate the waste reduction program that had begun in 1983. Further increases in the tipping fee that resulted in higher residential costs were mitigated by increases in the residential recycling rate. The 1992 tipping fee of \$99.55/ton was supported by a \$17.50 monthly residential fee, accompanied by a \$7 monthly recycling rebate.

As disposal costs rose in the 1980s, Minneapolis began making additions and refinements to its recycling programs that complemented the rebate. The first curbside recycling pilot program began in 1982, when 1,026 tons of recyclables were collected, less than one percent of the total of 131,995 tons of solid waste. A yard trimmings program was added in 1987, and the city began collecting large metal items (such as major appliances) in 1990. By 1992, the participation rate in the curbside recycling program reached 90 percent. More than 40,375 tons of recyclables, including yard trimmings and major appliances, were collected in 1992 (approximately 28 percent of the waste stream), and solid waste disposal dropped 21 percent from the 1982 level to 104,561 tons.

To be fair, the city's recycling efforts are one factor in this reduction: A large drop in tonnage occurred between 1989 and 1991 when the city changed from cans to carts. A number of people stored their cans under the driplines of their garages, causing them to gather water and snow that made the waste heavier. Switching to covered carts reduced the amount of water collected, which the city estimates lowered tonnages significantly.

#### **CONCLUSIONS**

Taken together, these case studies provide evidence that variable curbside disposal fees do assist and support waste reduction efforts. Although the specific effects depend on social, demographic and economic factors where they are implemented, communities that have variable disposal fees tend to be enthusiastic about them. Most of these communities report that the variable fee structures have supported other waste reduction activities and have consequently helped reduce solid waste disposal levels. ■

*Richard Cuthbert is an executive economist with R.W. Beck in Seattle, Washington, where he conducts demand forecasting, financial impact analyses, rate studies and statistics for electric, water and solid waste utilities nationwide.*

Portland residents increased their recycling levels from 740 tons per month in 1988 to 2,583 tons per month in 1992 — more than tripling the tonnages.