Pay-As-You-Throw

Offering Residents a Recycling and Source Reduction Incentive

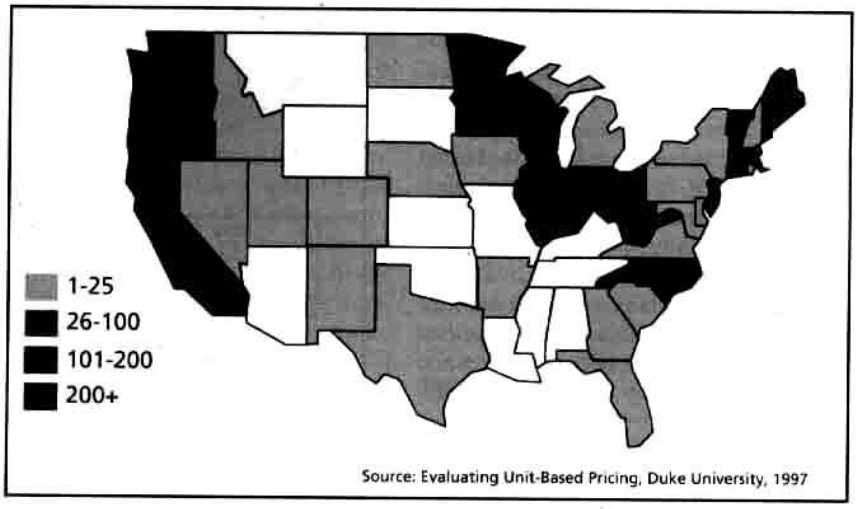
Unlimited MSW disposal and the concept of "free" disposal by residents has been depleting municipal budgets and natural resources for years. In almost every other area of public service—electricity, gas, heating oil, water—people pay for what they use. It's more equitable that way, and it gives citizens a tangible incentive to conserve these valuable resources.

Janice L. Canterbury

Through pay-as-you-throw (PAYT) programs—also known as variable-rate pricing, unit pricing, or user fees—garbage collection and disposal can be handled as a utility. PAYT programs ask residents to pay for trash services based on the amount of waste they generate. Typically these programs charge fees for each bag or can of trash a household puts out for collection or brings to the drop-off station. Growing numbers of communities are considering charging residents for trash collection based on the weight of the filled containers. However it is structured, a PAYT program just makes sense: residents have control over garbage costs because they pay only for the level of service they actually use. Reducing trash may not be as simple as remembering to turn off the lights, but if it saves money, logic says most people will try it.

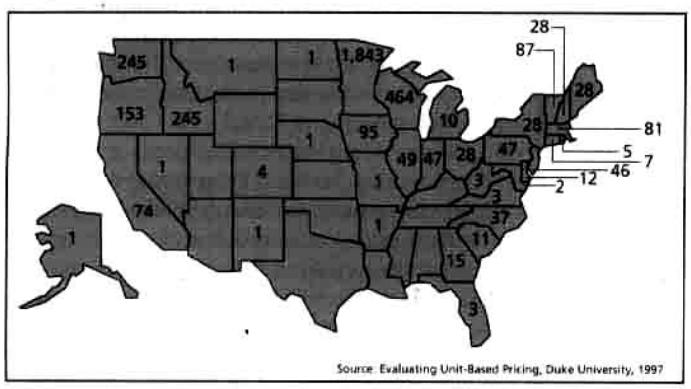
Although the concept sounds new, PAYT programs have existed for decades in a few communities. The oldest-known program is in Richmond, CA, and was launched in 1916. Since then, a recent study found that as of 1995, nearly 3,400 communities have adopted programs of their own. The EPA-funded research, conducted by Marie Lynn Miranda and Sharon LaPalme of Duke University's Nicholas School of the Environment, found that the total population served by PAYT systems has more than doubled since 1990, from less than 10 million to more than 20 million in 1996. This trend points to some interesting attitude changes from the early days of MSW management. While specific issues may vary, local officials recognize that old waste management programs must change. These managers need more reliable funding sources, expanded recycling programs, and less waste to deal with in the first place. The challenge is no longer just disposing of waste—it's addressing the economic and environmental costs of MSW, which have been rising under traditional MSW management programs. It is a basic economic tenet that services offered for a fixed fee will encourage maximum consumption: the more service used, the lower the cost per unit. Under traditional trash service programs, therefore, residents are encouraged to generate as much waste as they choose—a signal exactly the opposite from the one they should be receiving. This disincentive to reduce waste has become a serious cost burden for many municipalities, particularly those paying tipping fees to landfill operators or other disposal facilities for each ton of residential trash collected. More waste means higher costs to cover rising expenses for most communities. Yet while these costs increase, raising residents' taxes is usually out of the question. In fact, shrinking budgets are far more common: communities often need to do more with less. Faced with this dilemma, local

Current PAYT Communities



Source: Evaluating Unit-Based Pricing, Duke University, 1997

Geographic Distribution of Pay-As-You-Throw Communities



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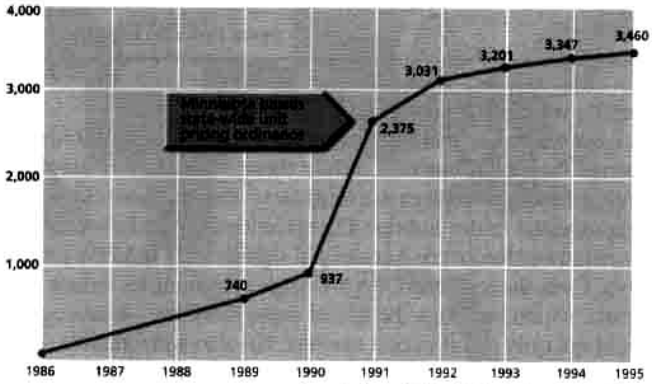
officials are searching for ways to assist residents in generating less trash. For these officials, the spotlight has turned to PAYT pricing systems, which flip the incentive back in favor of recycling and preventing waste.

After implementing PAYT, communities typically report 20% to 35% reductions in waste generation, often resulting from significant increases in recycling. In fact, according to Brenda Platt at the Institute of Local Self-Reliance (ILSR), PAYT is a major factor in achieving high recycling rates. In its Waste Reduction Record Setters Project for EPA, ILSR found that over half the programs that achieved recycling rates of 50% or more credit PAYT for their success.

The cost benefits of increased recycling and reduced waste can be substantial, particularly in communities with curbside trash collection. In some cases, collection frequency can be reduced from twice to once per week, and the time it takes to collect trash may also decrease. The use of standardized containers (cans or bags) can also help speed up collection. Each of these benefits leads to savings through reductions in equipment and overhead costs, such as labor, fuel, and maintenance. Some communities find that fewer trucks are required to do the work. Even communities with PAYT drop-off programs see labor and equipment savings from reduced trash generation.

The City of Dover, NH established a drop-off recycling center, curbside recycling, and PAYT. It also started a special revenue fund to cover the collection, disposal, and administrative costs of service. Fees generated through the sale of bags and tags go into the revenue fund. The result is a recycling rate well over 50% for res-

Growth of PAYT Programs



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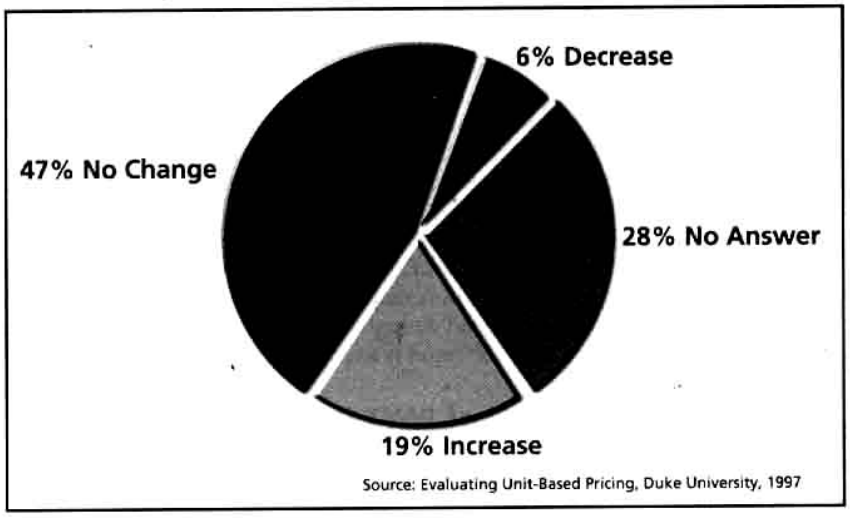
Community Experience With Illegal Diversion



Source: Evaluating Unit-Based Pricing, Duke University, 1997

idential waste.

Less waste also can be a major advantage for communities that operate their own landfills. While these communities may avoid paying direct tipping fees to a third party, the extensive closure process required under Subtitle D regulations of the Resource Conservation and Recovery Act can add significantly to MSW program costs. Over the long term, PAYT helps communities reduce waste inputs, which prolongs the life of these facilities—a strategy that could not only result in cost savings, but also add valuable time to develop a way to pay for closure. Prolonging the life of their landfills also allows these communities to postpone the day when they must pay the full market cost for sending trash to a regional disposal facility. In addition, the need to increase recycling is motivating many communities to explore new approaches. One reason for the growing acceptance of PAYT might be a willingness on the part of the community's most committed recyclers to take the next step and pay for the waste they can't recycle. In Poquoson, VA, the city formed a committee in 1991 to take a hard look at ways to reduce waste with the least cost. They came up with this mission statement: "To review every aspect of waste management in Poquoson, to maximize reduction, reuse, and recycling, and to recommend ways to accomplish this with the minimum cost to the taxpayer." As a result, the community switched to PAYT. Poquoson now boasts a higher recycling rate than any of the other nine cities and counties that participate in the area's regional recycling program.

Of course, not everyone diligently recycles. Most communities must keep urging their residents to drop more stuff into their recycling bins. These exhortations are necessary because recycling programs tend to rely on a personal interest in helping the environment. PAYT relies on another, often more compelling motivator: money. This incentive focuses the entire community on preventing waste. By linking personal financial interests with broader environmental goals, PAYT makes the choice to reduce waste easier. What's good for the environment ends up being good for the wallet, too.

Saving money by preventing waste shouldn't be any more unusual than turning down the thermostat before leaving the house for the day or turning off the lights in unoccupied rooms. It makes sense for a service such as trash collection and disposal to be a separate monthly utility expense. In fact, electricity as a utility went through a similar process in its formative years. Electric power for light initially was offered to residents in the late 1870s, even before Thomas Edison invented the incandescent light bulb. In the first communities with service, customers were often charged a flat rate for each pre-incandescent "arc lamp" they installed, regardless of how much the lamp was used. By the time the incandescent bulb was introduced, the nascent electric companies were already switching to a more accurate (and more equitable) arrangement—measuring usage with newly perfected household electricity meters—and charging customers accordingly. Shortly after this switch, the two-tiered system most of us recognize today (a flat fee for equipment and metered charges for consumption) was adopted. This system of covering fixed costs with a fixed charge and asking customers to pay a variable amount for the level of usage is now common with public utilities and is increasingly popular among communities concerned about covering their solid waste collection and disposal costs. In

Pay-As-You-Throw Tool Kit

A number of products have been developed based on the experience of pioneering PAYT communities. One is the *Pay-As-You-Throw Tool Kit*, a collection of resources that includes two guidebooks, a workbook, a videotape, and software designed to help MSW decisionmakers learn more about PAYT and, if they choose, plan and implement a program of their own. Another important product for communities is *Pay-As-You-Throw Success Stories*, a collection of testimonials offering interested MSW planners stories of how other municipalities made the program work for them. To learn more about the products and tools that are available free of charge from EPA, simply call the *Pay-As-You-Throw Helpline* toll free at (888) EPA-PAYT. You also can assess most of these same items on-line through the Pay-As-You-Throw Homepage located at: **www.epa.gov/epaoswer/nonhw/payt**

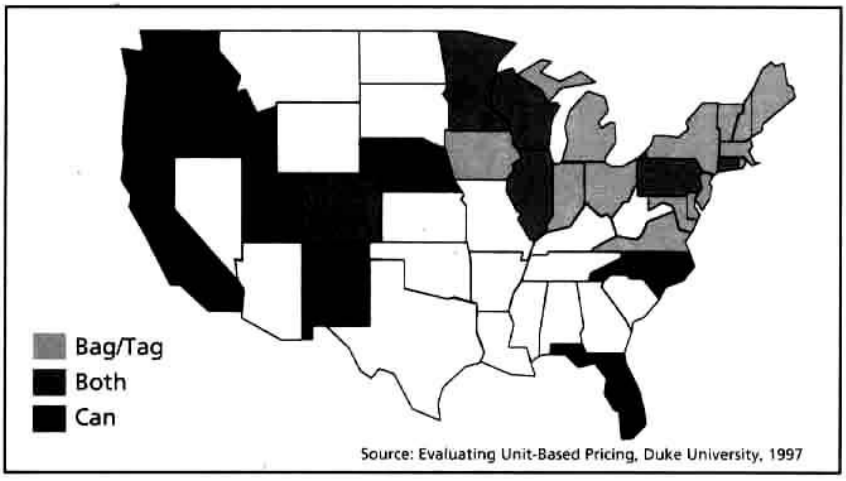
essence, PAYT is the energy conservation program for trash. What's surprising is that it hasn't happened sooner. Potential roadblocks exist. Some communities fear that illegal dumping will increase, although most communities with programs in place have not experienced an appreciable change. In some cases, illegal dumping actually declined after PAYT began. Another potential concern is the challenge presented by multifamily housing (often defined as buildings with five or more units), whose residents typically are required to place trash in a common dumpster. This makes it difficult to charge accurately for each unit's waste generation. Many communities with PAYT simply allow these residents to continue using the traditional system while bringing user fees to the rest of the community. Ultimately, however, costs are inevitably the overriding concern. By informing residents about how much more equitable the new fees are, and about how they can use the program to save money, many communities have turned this issue around and won support for their new program.

Educating residents about the connection between PAYT and recycling can also help to earn residents' approval. Market prices for recyclable materials continue to be volatile, making sustaining recycling programs difficult. Compounding this problem is the inefficiency of some recycling programs, which leads to higher costs than anticipated. PAYT can help to secure revenues for recycling and other programs while at the same time boost recycling rates and reduce garbage setouts.

Of course, PAYT is not suitable for every city or town. Some communities have established put-or-pay agreements with disposal facilities, which raises concerns about fluctuations in the level of trash their residents generate. Others may have recently undergone significant changes in other service areas and are therefore reluctant to design another new program to sell to residents. Typically, however, these concerns are temporary. A more consistent stumbling block is the simple resistance to change that can make switching to a new program seem more daunting than it really is.

The City of Vancouver, WA used volume-based rates to encourage residents to examine their disposal habits, recycle more, and decrease their garbage service levels. Garbage collection in Van-

State Summary of Container Types



Source: Evaluating Unit-Based Pricing, Duke University, 1997

Benefits of PAYT

- *Reduced collection frequency*
- *Less time per stop*
- *Reduced equipment and overhead costs*
- *Fewer trucks required for trash collection*
- *Reduced tipping fees (for municipalities that pay a tipping fee)*
- *Prolonged landfill life (for municipalities that own a landfill)*

couver is mandatory and is a contracted service for both residential and business waste.

In 1990 the city introduced a linear rate structure that made the rate for a second can 84% greater than that of the first can. In just 15 months, the city experienced a 13% increase in the number of customers choosing the one-can basic service and a corresponding decrease in customers choosing the two-can service. Since then the city has expanded the number of service options and increased the price of the options by the Consumer Price Index each year. Now residents can choose from the following: one 32-gal. cart per month at $5.18, one 20-gal. mini-can every other week at $6.90, one 32-gal. cart every other week at $8.63, one 20-gal. mini-can every week at $8.63, or one 32-gal. cart every week at $11.51. In addition, residents are charged $4.60 for each 32-gal. equivalent that is set out for collection. For billing purposes the trash collection contractor uses a computerized database system to record the overfill amounts set out by each resident.

Since some residents prefer to haul the waste themselves, they pay the minimum amount for the mandatory collection program, $5.18 per month for one 32-gal. container. At the transfer station, there is a minimum charge of $5.18, although the tipping fee is $74.50 per ton. In 1992 the city implemented a curbside recycling program in cooperation with the county. The program is mandatory for single-family households, which are billed $3.10 per month for weekly recycling collection as part of their garbage service. A separate city contractor operates a voluntary yard debris collection service for

Typical PAYT Pricing Systems

Linear Pricing: Households pay a set price for each can or bag set out. Fixed costs typically are incorporated into the variable rate by basing the unit fee on estimated average costs.

Two-Tiered Pricing: The fixed costs of a community's MSW program are financed by a flat fee or through taxes, while residents pay a set per-container fee that covers disposal charges and other variable costs of the program. In some communities, the fixed costs include some level of trash collection per week before the per-container fees are levied.

Multitiered Pricing: As with two-tiered pricing, residents pay a fixed cost plus a per-container fee for each bag or can collected. Multitiered systems also charge different fees for containers of different sizes.

$5.69 per month for up to 96 gal. of debris. Each household is supplied with a 64-gal. cart for biweekly collection. Residents can place up to an additional 32 gal.'s worth of material out with the cart, but they are billed $2.50 for every 32-gal. equivalent in excess of 96 gal. Since the program is voluntary, it does not conflict with residents' efforts to compost at home or to self-haul to a local compost facility. By the end of 1995, Vancouver had achieved a 51% recycling rate.

In Mount Vernon, IA, PAYT plays a major role in motivating waste reduction. The town began directly billing residents for trash collection in July 1991. At the same time, bins were distributed to begin curbside collection for recycling. The city expected these two steps to work together: charging for each container would provide financial incentive to move material from trash containers to recycling bins since recyclables would be collected free of charge.

Under the new program, residents receive weekly garbage pickup from the contract waste hauler, Freiburger Waste Services, and can use either bags or containers that do not exceed 33 gal. or 40 lb. Each container must have the Mt. Vernon garbage tag attached to it. Tags can be purchased for $1.75 from City Hall and participating local businesses. Homeowners are also billed $7 per month for solid waste service. This monthly fee and the tags are discounted for low-income households.

The city decided on tags because they cost little to print, permit residences to continue using their containers within the volume and weight limits, adhere securely at all temperatures, are convenient for participating merchants to handle, and can be easily removed when the trash is collected. Tag theft has not been a problem. Illegal dumping, subject to a $1,000 fine, also has not become a problem.

From March through November, the city provides weekly yardwaste pickup. Again the material must be in a 33-gal. container not exceeding 40 lb. (no bags are allowed for yardwaste) with a garbage tag attached. The price for yardwaste pickup is the same as for solid waste, $1.75 per container. Brush and leaves, however, are collected at no charge. Brush that is stacked neatly in piles no more than 4 ft. wide and 4 ft. tall is collected once a month from March through November. Leaves that are piled by the curb are collected every Monday in April and October at no charge. The city also provides residents with a price list for bulky waste collection too. Residents must call to schedule a pickup and attach from one to eight tags, depending on the item.

In addition to putting more into recycling bins, residents have reduced waste by recycling appliances; using drop-off facilities in Cedar Rapids and places of employment to recycle items the city rejects; backyard composting organic wastes; purchasing reusable rather than disposable materials; and conducting more yard sales. Actually, the city insists that informing households about alternative ways to deal with wastes goes hand in hand with PAYT to maximize the effectiveness of the financial incentives. The city estimates that the trash the typical resident sent to the landfill has decreased by 40%, from 45 lb. per week in 1990 to 27 lb. in 1995. The total reduction of residential trash and all yardwaste per household exceeds the 50% waste reduction goal set by the state legislature for 2000.

Altogether, by recycling and reducing trash and by leaving grass cuttings on the lawn or composting them, the average household saved $47 last year in fewer tags purchased—a total savings of some $46,000 for the city's 980 households. **MSW**

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