United States Environmental Protection Agency

Solid Waste and Emergency Response (5306W)

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http://www.epa.gov/mswclimate

Pay-As-You-Throw
A Cooling Effect on Climate Change

Pay-As-You-Throw (PAYT) is a program that encourages residents to reduce the amount of waste they generate and to recycle more. The benefits of this program go beyond the obvious advantages of generating less waste. The manufacture and distribution of products and the subsequent management of municipal solid waste (MSW) contribute to the formation of greenhouse gases. To lower greenhouse gas emissions from these actions, as well as for other environmental benefits, EPA is encouraging waste prevention and recycling (jointly referred to as waste reduction) through the PAYT Outreach Initiative.

What Is PAYT?

PAYT programs break with tradition by ensuring that households see and feel the cost of waste disposal services. Under a traditional system, residents pay indirectly for these services through their property taxes or through a flat fee. With PAYT, residents pay directly for trash services based on the amount of waste they throw away—similar to the way they pay for electricity, gas, and other utilities.

When consumers pay for every bag or can of waste they generate, they are motivated to recycle more and look for creative ways to prevent waste in the first place. In communities that implement PAYT, overall waste disposal can decline by 14 to 27 percent on average. In addition, recycling rates often increase dramatically in these communities, sometimes reaching double or even triple what they had been before the program was implemented.

Some residents in PAYT communities change their behavior in other significant ways. While shopping, they are more likely to purchase items in bulk and to select products with the least amount of unnecessary packaging. Rather than throw items away, a PAYT household is likely to look first for ways to reuse these goods or to give them away, as charitable donations, for example. Rather than bag yard trimmings and leaves, households might choose instead to compost these materials in their backyards.

How Does PAYT Help Reduce Greenhouse Gas Emissions?

PAYT programs are based on a simple premise: trash services are not free. One important cost of solid waste, in addition to its other environmental effects, is climate change. Whenever products are made, distributed, and disposed of, greenhouse gases are released and contribute to climate change. Community PAYT programs—which spur residents to prevent and recycle more waste—can reduce greenhouse gas emissions significantly.

When we reduce, reuse, and recycle products, we decrease the greenhouse gas emissions associated with making, distributing, and disposing of these products. For example, when we buy in bulk, we purchase less packaging. That means lower energy requirements for manufacturing. It means less waste that

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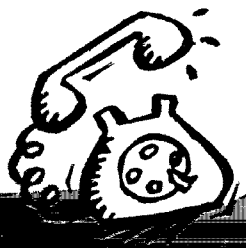
might create methane emissions in landfills, and, if paper products are at issue, it means more trees standing in the forest to absorb greenhouse gases from the atmosphere.

Is it possible to measure the climate change benefits of PAYT? Yes! To help quantify the climate change benefits of waste reduction programs such as PAYT, EPA conducted a comprehensive study of the relationship between solid waste management and climate change. The study estimated the greenhouse gas emissions associated with managing major commodity types in the MSW stream. The study resulted in the development of greenhouse gas emission factors that can be used to calculate the climate change benefits of various waste management practices.



For more information on climate change and waste reduction, including EPA's study on greenhouse gases and waste management, access EPA's Web site at <www.epa.gov/mswclimate>. To order EPA's tool kit for planners interested in implementing PAYT, as well as a video, fact sheets, guidebooks, and other materials, call the PAYT Helpline toll free at 888-EPA-PAYT. Or find it all online at <www.epa.gov/payt>.

To analyze the specific climate change benefits of PAYT programs, EPA used these greenhouse gas emission factors in combination with the results of a PAYT study conducted by researchers at Duke University. The Duke study analyzed program statistics from 212 PAYT communities across the country and calculated the average amount of per capita waste reduction experienced by these communities. EPA then calculated the per capita climate change impact of PAYT using this average PAYT waste reduction percentage and the greenhouse gas emission factors.

EPA estimates that for each person participating in a PAYT program, greenhouse gas emissions are reduced by an average of 0.088 metric tons of carbon equivalent (MTCE, the basic unit of measure for greenhouse gases). This means that a community of 100,000 people could potentially reduce greenhouse gas emissions by 8,800 MTCE by implementing a PAYT program. This calculation is based on the assumption that residents in PAYT communities recycle a mix of the most common recyclable materials (e.g., plastic bottles, newspapers, steel and aluminum cans).

How Can I Measure Greenhouse Gas Emission Reductions?

Along with the more obvious recycling and waste prevention impacts of PAYT, measuring its climate change benefits can help describe a program's full environmental advantages to elected officials, residents, and other stakeholders. Also, waste reduction programs such as PAYT can play an integral part in a community's climate change action plan. Here's how you can calculate the potential climate change benefits of your PAYT program:

Use the National Average. If you wish to use the national average for greenhouse gas reductions, you can multiply the number of program participants by 0.088 MTCE as illustrated in the example above. The resulting number is the estimated average annual reduction in greenhouse gases for your program.

Use Local Data. If you wish to obtain an estimate tailored to your community's specific PAYT program, you can apply your own data by using EPA's WAste Reduction Model (WARM). This easy-to-use spreadsheet applies the same greenhouse gas emission factors mentioned above to your community's specific waste management situation. Please note that in order to use WARM, you will need to have data on the amount of waste your community generated and reduced both before and after PAYT was implemented. WARM is available on EPA's Climate Change and Waste Web site at <www.epa.gov/mswclimate>.

Should your community consider PAYT? If your community's planners are looking for ways to get residents to put more recyclables out at the curb and generate less trash, then the answer is probably yes. The additional climate change benefits enjoyed by PAYT communities show that it can be an environmentally sustainable way to manage our nation's solid waste.

Pay-as-you-throw gives individuals an incentive to generate less trash and recycle more.