



November 2006

## Inside this Brief

- **Background**
- **How the Laws Evolved**
- **Expanding Resource Recovery**
- **Recovery Rate Challenges**
- **Current Recycling Requirements for Local Governments**
- **Oregon's Recovery Rate**
- **Staff and Agency Contacts**

Legislative Committee Services  
State Capitol Building  
Salem, Oregon 97301  
(503) 986-1813

Background Brief on ...

# Recycling

*Prepared by: Sandy Thiele-Cirka*

## Background

Oregon has been a national leader in the area of recycling. The following outlines recycling legislation beginning in 1971:

*The Bottle Bill* – In 1971, Oregon enacted the “bottle bill.” This bottle deposit law has been called the most effective recycling program in American history and is the nation’s longest-standing deposit law. Within two years of its implementation, more than 90 percent of all carbonated beverage containers were being recycled, and more than 80 percent of the roadside container litter disappeared. Container recovery continues to be much higher in Oregon than in states that do not have bottle deposit laws.

*Opportunity to Recycle Act of 1983* – A perceived shortage of landfill space contributed to passage of Oregon’s first Opportunity to Recycle Act in 1983. This act also established solid waste management policies that recognized the environmental benefits of waste prevention, reuse, and recycling; stating that in order to conserve energy and natural resources, solid waste management should follow a hierarchy:

- Reduce the amount of waste generated
- Reuse materials for their original intended use
- Recycle what can’t be reused
- Compost what can’t be reused or recycled
- Recover energy from what cannot be reused, recycled, or composted
- Dispose of residuals safely

The 1983 act also required wastesheds (usually counties, except for the City of Milton-Freewater, which is its own wasteshed, and Metro, which comprises parts of Clackamas, Multnomah, and Washington counties) to have recycling depots. It required cities of over 4,000 population to provide monthly curbside recycling collection service to all garbage service customers.

## How the Laws Evolved

While the 1983 Opportunity to Recycle Act led to many new curbside residential recycling programs and the establishment of recycling depots, Oregon policy makers recognized that there was a lot more to

be done. The 1991 Oregon Recycling Act (Senate Bill 66) strengthened and broadened recycling requirements and, for the first time, added activities to develop markets for recycled materials. The 1991 act:

- Set a statewide recovery goal of 50 percent by 2000 and interim recovery goals for individual watersheds by 1995
- Expanded the opportunity to recycle requirements to incorporate optional program elements
- Established a household hazardous waste program
- Required recycled content in glass containers, directories and newsprint publications and set requirements for recycling rigid plastic containers to promote market development
- Established government procurement requirements for recycled products
- Required the Department of Environmental Quality (DEQ) to calculate recovery rates annually to measure progress toward the 50 percent goal and established the Material Recovery Survey of all waste collectors and private recycling companies in Oregon for recovery data collection
- Required DEQ to conduct a waste composition study every other year to determine what materials are being disposed of, which helps plan local government recycling programs
- Required DEQ to develop a solid waste management plan
- Required and provided funding to develop a school curriculum on recycling and waste reduction
- Funded programs through tipping fees at landfills, including grants to local governments

To help divert reusable or recyclable materials from Oregon's landfills, the 1991 act banned from solid waste disposal sites:

- discarded or abandoned vehicles
- large home or industrial appliances
- used oil
- tires (tires chipped to DEQ standards can be landfilled)
- lead-acid batteries

## Expanding Resource Recovery

During the 1997 Session, a coalition of recycling and solid waste management interests came together to expand Oregon's resource recovery efforts beyond recycling and to find a way to give local governments' recovery rate credit for programs higher up the solid waste management hierarchy. The result was a program of 2 percent credits for watersheds that establish and maintain programs in waste prevention, reuse, and backyard composting. DEQ established guidelines and evaluation criteria for watersheds that allowed them to earn up to 6 percent total credits toward their recovery goals for qualifying programs.

## Recovery Rate Challenges

Solid waste generation (the total amount of materials counted as "waste," whether they are recycled, composted, or disposed of) grew each year through the 1990s, while the amount of materials recovered also grew steadily. However, by the year 2000, Oregon had not met its ambitious recovery goal of 50 percent, although most watersheds were meeting their individual goals. Because of this, in 2001, DEQ confirmed to legislators that the original watershed goals, in total, would not produce a statewide recovery goal of 50 percent. Some watersheds, particularly large ones, would have to do more to enable the state to meet its goal.

This reality was reflected in House Bill 3744, unanimously passed in 2001. The measure set a statewide recovery goal of 45 percent for 2005 and 50 percent for 2009. In order to help meet the statewide recovery goals, all watersheds set new voluntary recovery goals for 2005 and 2009 and submitted plans to DEQ for how they planned to meet their new goals. These watershed plans must be updated by Dec. 31, 2006 and Dec. 31, 2010. The Metro watershed's waste reduction plan meets this planning requirement. If a watershed does not achieve its 2005 or 2009 waste recovery goal, the measure requires the watershed to conduct a technical review of existing policies or programs and determine revisions to be implemented to meet the recovery goal.

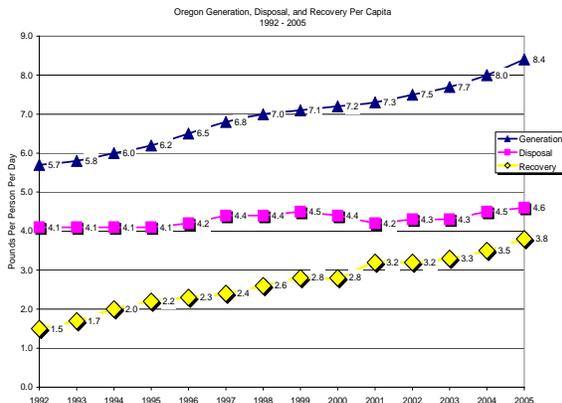
To recognize additional waste reduction efforts that cannot be measured, House Bill 3744 added

three new ways a watershed could qualify for a two percent credit toward its recovery rate. It allows watersheds to apply for *more than two* percent credit for residential composting programs if they can document that more than 2 percent of the waste generated is being diverted by the programs. Finally, the measure gave watersheds that burn mixed solid waste for energy recovery some additional credit toward their recovery rates under certain conditions.

**New goals:** Perhaps most importantly, HB 3744 set Oregon’s first statewide waste generation goals and added waste prevention goal language to ORS 459.015. The waste generation goals are:

- By 2005, there will be no annual increase in *per capita* municipal solid waste generation
- By 2009, there will be no annual increase in *total* municipal solid waste generation

In 2005, Oregon failed to meet the first goal, as outlined in the chart below. Per capita waste generation continues to increase, reaching 8.4 pounds per person per day in 2005.



### Current Recycling Requirements for Local Governments

To encourage recycling participation and increase the amount of material recovered from the waste stream, the 1991 Oregon Recycling Act (Senate Bill 66) enacted a menu of recycling program elements or options (numbers one through eight), and the 1997 Legislature made changes to some of these program options and added one more (number nine). Oregon Administrative Rules (OAR 340-090-0040)

clarify requirements for each of the following program elements:

1. Weekly, residential curbside collection of source-separated recyclable materials, on the same day as garbage service.(If this program element is not implemented, a minimum of monthly curbside collection is still required). Local governments must also give notice to each person of the opportunity to recycle and encourage source separation of recyclable materials through an education and promotion program
2. An expanded recycling education and promotion program that includes, among other things, recycling collection promotion directed at residential and commercial solid waste service customers and generators at least four times a year
3. Provision of at least one durable recycling container directly to each residential collection service customer
4. Recycling collection service provided to multi-family dwelling complexes having five or more units
5. Residential yard debris collection program for collection and composting of residential yard debris
6. Regular, on-site collection of source-separated principal recyclable materials from commercial generators
7. Establishment of an expanded system of recycling depots which are conveniently located to the population served
8. Garbage collection rates established as a waste reduction incentive, including a mini-can option
9. A collection and composting program for commercial and institutional food waste, non-recyclable paper and other compostable waste

All cities with 4,000 or more residents must provide a minimum of three recycling program elements and basic recycling education and promotion. All cities of 10,000 or more population must provide additional one or two recycling program elements, depending on the activities chosen. DEQ can also approve alternative recycling programs that comply with administrative rules adopted by the Oregon Environmental Quality Commission.

### Oregon's Recovery Rate

The statewide recovery rate has increased steadily since 1992, when the rate was first calculated. In 2005, Oregon recovered 2,510,914 tons, or 45.3 percent of the actual total "counting" (municipal) waste stream. This is an 8.2 percent increase in recovery tonnage from 2004, when 2,305,066 tons (44.1 percent of the total waste stream) were recovered.

The 2005 statewide total rate including two percent credit calculations was 49.1 percent, exceeding the statutorily mandated 2005 goal of 45 percent recovery statewide. While recovery has increased over the years, so has total waste generation, which is the sum of disposal and recovery. It is a rough measure of the total discards in a watershed. The average per capita waste generation in Oregon during 2005 was 3,050 pounds, an increase from 2,917 in 2004. In 1992, average per capita waste generation was only 2,075 pounds per person.

DEQ is able to use the results of the Material Recovery Survey to estimate the energy savings resulting from recycling, as well as reductions in greenhouse gases associated with recycling, composting, and "counting" energy recovery.

*Energy* - When recycled materials replace virgin feedstocks in manufacturing, energy savings can be significant. For example, making aluminum from old beverage containers uses 93 percent less energy than making aluminum from bauxite. Newsprint made from old newspapers requires 46 percent less energy to make than newsprint made from wood.

DEQ estimates that recycling by Oregon households and businesses in 2005 (counting only wastes generated in Oregon, not those generated elsewhere and shipped to Oregon for recycling) led to energy savings of roughly 30 trillion British thermal units (BTUs), a seven percent increase over 2004. To put this number in context, total energy use in Oregon across all sectors (transportation, electricity, heating, industry) in 2000 was estimated at 1,089 trillion BTUs. If per-capita use remained constant through 2005, then the energy savings from

recycling in 2005 equates to a 2.6 percent offset of total energy use. Alternatively, the 30 trillion BTU savings can be expressed as equivalent to 237 million gallons of gasoline saved in 2005. Although both of these comparisons are imperfect, the energy savings from recycling in Oregon is significant.

*Greenhouse Gases* - Net greenhouse gas reductions associated with materials recycled, composted, and burned for energy in 2005 are estimated at 3.3 million metric tons of carbon dioxide equivalent. This includes only materials that are counted toward the state's recovery rate and excludes any materials that are generated in other states but shipped to Oregon for recycling. To put this number in context, net greenhouse gas emissions for Oregon for 2005, based on an estimate of 2000 emissions and projections for 2015, are estimated at 72.6 million metric tons of carbon dioxide equivalent. As such, recycling, composting, and "counting" energy recovery provide a greenhouse gas offset or "credit" equivalent to 4.6 percent of net statewide emissions (from all sources).

Another way of thinking about greenhouse gas reductions is to express emission offsets in terms of "average cars." Using data from the EPA, Oregon Department of Transportation, and Oregon Department of Energy, DEQ estimates that the 3.3 million metric tons of carbon dioxide equivalent is comparable to the greenhouse gas benefit of removing 710,000 "average" passenger cars from Oregon roads. As with energy savings, the greenhouse gas benefit of recycling, composting, and energy recovery is significant.

*Waste prevention benefits* - Waste prevention and reuse (as well as recycling) can significantly reduce environmental impacts associated with raw materials extraction, materials manufacturing, and transportation. In many cases, these environmental benefits "upstream" of the consumer may be significantly larger than the "downstream" benefits of waste reduction. Reducing the overall generation of solid waste is not just about saving landfill space. The value of achieving the new statutory waste generation goals was affirmed in 2004 by the Governor's

Advisory Group on Global Warming. In its “Oregon Strategy for Greenhouse Gas Reductions,” the Advisory Group identified achieving the waste generation (and recovery) goals as a top priority (“Category 1”) recommendation. Achieving the statutory waste generation goals contributes more than 15 percent of the total greenhouse gas reductions projected to result from the Advisory Group’s entire package of recommendations.

**Staff and Agency Contacts**

Loretta Pickerell, Dept. of Environmental Quality  
Solid Waste Policy & Program Development  
503-229-5808  
800-452-4011 (toll-free in Oregon)

Sandy Thiele-Cirka, Committee Services  
503-986-1286

*The DEQ assisted with the development of this document.*