



A JOINT RESOLUTION OF THE SENATE AND THE HOUSE OF REPRESENTATIVES OF THE STATE OF MONTANA REQUESTING AN INTERIM STUDY TO EVALUATE METHODS FOR INCREASING RECYCLING AND SOLID WASTE RECOVERY WITHIN THE STATE OF MONTANA.

WHEREAS, increased recycling rates will provide substantial economic and environmental benefits to Montanans; and

WHEREAS, recycling is a value-added manufacturing process that provides jobs for Montanans; and

WHEREAS, recycling reduces energy consumption associated with the manufacturing of products from raw materials and reduces landfill usage by diverting solid waste; and

WHEREAS, rural areas have a need for infrastructure support to increase recycling; and

WHEREAS, electronic waste and household hazardous waste present unique recycling challenges that may require additional programs; and

WHEREAS, the Montana Integrated Waste Management Act proposes increasing Montana solid waste recycling rates to 19% by 2011 and 22% by 2015 using a variety of methods, including source reduction, reuse, recycling, and composting.

NOW, THEREFORE, BE IT RESOLVED BY THE SENATE AND THE HOUSE OF REPRESENTATIVES OF THE STATE OF MONTANA:

That the Legislative Council be requested to designate an appropriate interim committee, pursuant to section 5-5-217, MCA, or direct sufficient staff resources to:

- (1) evaluate and propose potential methods for increasing the recycling rates in the state of Montana;
- (2) analyze methods to promote market development of recycled materials;
- (3) analyze options to address rural recycling challenges;
- (4) propose programs to address electronic and household hazardous waste; and
- (5) evaluate funding alternatives.

BE IT FURTHER RESOLVED, that if the study is assigned to staff, any findings or conclusions be

presented to and reviewed by an appropriate committee designated by the Legislative Council.

BE IT FURTHER RESOLVED, that all aspects of the study, including presentation and review requirements, be concluded prior to September 15, 2010.

BE IT FURTHER RESOLVED, that the final results of the study, including any findings, conclusions, comments, or recommendations of the appropriate committee, be reported to the 62nd Legislature.

- END -

I hereby certify that the within joint resolution,
SJ 0028, originated in the Senate.

Secretary of the Senate

President of the Senate

Signed this _____ day
of _____, 2009.

Speaker of the House

Signed this _____ day
of _____, 2009.

SENATE JOINT RESOLUTION NO. 28

INTRODUCED BY J. PETERSON, LASLOVICH, ZINKE, BRUEGGEMAN, HENDRICK

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Montana Recycling

Environmental Quality Council

September 10-11, 2009

Using the draft work plan tasks for Senate Joint Resolution No. 28, approved by the Environmental Quality Council, as a guideline, a discussion of recycling laws, rates, and incentives in Montana and a selection of Western states is outlined below. An evaluation of recycling funding mechanisms and an overview of rural recycling obstacles and successes in Montana are also included.

Montana's Recycling Framework

Waste management hierarchy

There is a hierarchy to waste management, of which recycling is just one part, according to Montana's Integrated Waste Management Plan. The first consideration in waste management is source reduction, or simply taking steps to reduce waste in the first place. The next step is reuse, giving some item, like an unwanted piece of furniture, a second life. The focus of this report, is third in line -- it's recycling. Recycling is a process. It's taking a product that has been used and introducing it into the manufacturing process to produce something new. Compositing is next in the pecking order, and finally landfill and incineration round out the waste management hierarchy. The hierarchy, as outlined in the waste management plan, is not based on economics, but rather is based on the long-term benefits of reducing energy and pollution.

Senate Joint Resolution 28 requested a study that focused on increasing recycling and solid waste recovery.

Before diving into a discussion of recycling, it is important to consider Montana's solid waste regulations and where recycling fits into the picture. The federal Resource Conservation and Recovery Act (RCRA) of 1976 required the Environmental Protection Agency (EPA) to adopt rules that define and prohibit open dumping and establish criteria for states to use in the regulation of solid waste disposal. Subtitle D of RCRA provides for the regulation of municipal solid waste and encourages resource recovery or recycling.¹ State laws guiding the regulation of solid waste include the Montana Solid Waste Management Act (Title 75, chapter 10, parts 1 and 2, MCA) and, discussed in more detail below, the Integrated Waste Management Act (Title 75, chapter 10, part 8, MCA). The Department of Environmental Quality (DEQ) has adopted administrative rules to implement the federal regulations contained in RCRA, granting the state the primary responsibility over disposal of solid wastes.

Local governments play a key role and are responsible for financing, planning, constructing, and operating solid waste management systems that comply with state and federal regulations. Private contractors, cities and towns, and counties all provide this function. Counties have the ability to create solid waste management districts that can include cities, towns, and one or more counties. The Solid Waste Management Act

¹ 40 CFR Part 258.

also notes the critical role of the private sector stating, "private industry is to be utilized to the maximum extent possible in planning, designing, managing, constructing, operating, manufacturing, and marketing functions related to solid waste management systems."²

In 1991, the Montana Integrated Waste Management Act was established by the Montana Legislature, and set a goal to reduce the amount of waste land filled in Montana by 25% by 1996, a goal that was not reached. It also established a hierarchy for waste management discussed earlier -- reduction, reuse, recycling, composting, and land filling or incineration. The 1995 Legislature also moved solid waste responsibilities from the Montana Department of Health and Environmental Sciences and placed them with the permitting and compliance division of the DEQ.

The 2005 Legislature approved House Bill No. 144, which eliminated the 25% requirement and instead added the incremental steps now outlined in the law. It is noteworthy that the 25% goal, was a waste reduction goal, not a recycling goal. Source reduction and reuse are difficult to measure. H.B.144 established a goal that was considered to be current and measurable, and includes recycling and composting targets.

Recycling in Montana, however, falls under the "Montana Integrated Waste Management Act". The DEQ develops and implements the Montana Integrated Solid Waste Management Plan (IWMP). The state's Solid Waste Plan Task Force reviews the plan and makes recommendations to update the plan every 5 years, with the next update required in 2010. The act requires the involvement of local officials, citizens, solid waste and recycling industries, environmental organizations, and others involved in the management of solid waste.

The IWMP includes a discussion of policies, potential legislation, education, technical assistance, and other suggestions in the areas of source reduction, reuse, recycling, and market development. Targets for the rate of recycling and composting, which aim to reduce the amount of solid waste that is generated by households, businesses, and governments and that is either disposed of in landfills or burned in an incinerator, currently include:

- (1) 17% of the state's solid waste by 2008;
- (2) 19% of the state's solid waste by 2011; and
- (3) 22% of the state's solid waste by 2015.

The 2006 Integrated Waste Management Plan identifies both barriers and recommendations for recycling in Montana. Those recommendations may serve as a useful starting point for the EQC's discussion of recycling in Montana. The barriers and recommendations are outlined below.

2006 IWMP Identified Barriers:

- Montana's relatively small population, which is spread out across a large geographic area, makes recycling efforts more challenging.
- The lack of nearby industries that use recyclables as raw materials in their

²75-10-102(1)(c), MCA.

- operations poses another obstacle.
- It is difficult to measure recycling without mandatory reporting.
- Landfills are convenient and relatively inexpensive in Montana, making it difficult for recycling to be an economic choice based on the cost of disposal.
- There is a lack of funding for recycling programs.
- There is a lack of commitment by the public to fully support recycling in all its forms.

2006 IWMP Identified Recommendations:

- Develop local markets for recyclable goods, by collaborating and forming partnerships between private and public entities. This could require changing state regulations to allow an alternative source of material.
- Provide additional economic incentives for recycling. The 2009 Legislature approved EQC-proposed legislation that made the current tax credits and deductions permanent.
- Support national legislation that requires manufacturers to take back their products at the end of their useful life.
- Expand recycling opportunities through additional funding mechanisms with support from the solid waste industry, such as increasing solid waste fees to help pay for recycling programs. "Increasing solid waste fees would only be done with support of those involved, particularly the fee payers."³

Solid Waste Characterization

While recycling efforts have increased over the last few years, solid waste generation in Montana also continues to increase. In 2001, about 1.02 million tons of solid waste went into Montana's landfills, or about 6.1 pounds per day. In 2008, the DEQ estimated that about 1.35 million tons of waste was disposed of during the calendar year. Based on Montana's population, the annual generation rate is about 7.4 pounds/person per day. If only waste in Class II landfills, which serve Montana's larger communities, is considered, the rate drops to about 7.1 pounds. Montana's generation rate is higher than the national average, which is about 4.62 pounds per day. However, this rate is worthy of further review.

Pegging a number on how much truly goes into Montana's landfills is tricky. Some landfills simply estimate waste tonnage as a function of population. It's also noteworthy what actually is

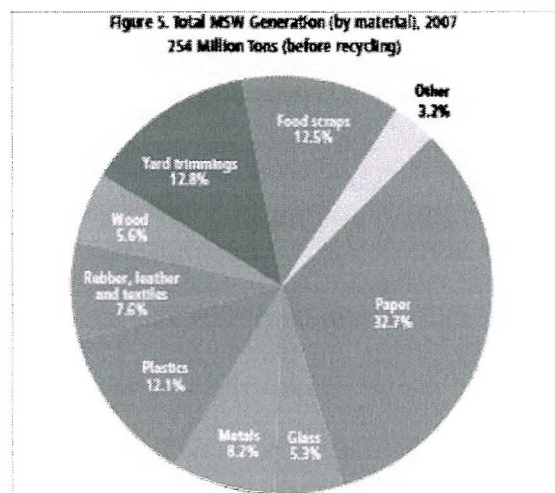


Figure 1
Source: EPA

³"Integrated Waste Management Plan (IWMP) 2006", Montana DEQ, Air, Energy and Pollution Prevention Bureau, September 2005, page 59.

classified as solid waste in arriving at the numbers noted above. The definition of municipal solid waste includes packaging, newspapers, paper, magazines, plastics, glass, yard waste, wood pallets, food scraps, cans, appliances, tires, electronics, furniture, and batteries. It does not include construction and demolition waste or agricultural wastes. In Montana, however, these materials are often disposed of in municipal solid waste landfills. They are then included in the total landfilled tonnage, which inflates the tonnage reported above. All agricultural waste from leased Bureau of Land Management land, for example, is landfilled with municipal solid waste. Debris from hailstorms, snowstorms, and even forest fires can even be added to the totals in Montana's landfills.

Montana imports and exports some waste. In 1993, a prohibition on the importation of out-of-state waste ended. In 2008, Montana imported about 39,767 tons of out-of-state wastes from communities in Idaho, Wyoming, North Dakota, Washington, Canada, and Yellowstone National Park. Facilities that accept out-of-state waste are charged 27 cents per ton in addition to the 40 cents per ton access on in-state wastes. The state is estimated to export a similar amount (the total is not tracked by the DEQ) to other states.

Construction and demolition waste generated varies from community to community, based on differences in construction style and growth. "In Montana, most construction and demolition waste is discarded at Class II landfills," according to the DEQ. "Operators may separate construction and demolition waste from the rest of the waste stream, but they are not required to do so." A growing number of landfills in Montana are starting to build construction and demolition waste cells at landfills in an effort to better track tonnage in the future. On a national scale, construction and demolition waste usually represents about 30% of total waste -- the largest single source in the waste stream. An average, new construction project yields about 3.9 pounds of waste per square foot of building area.

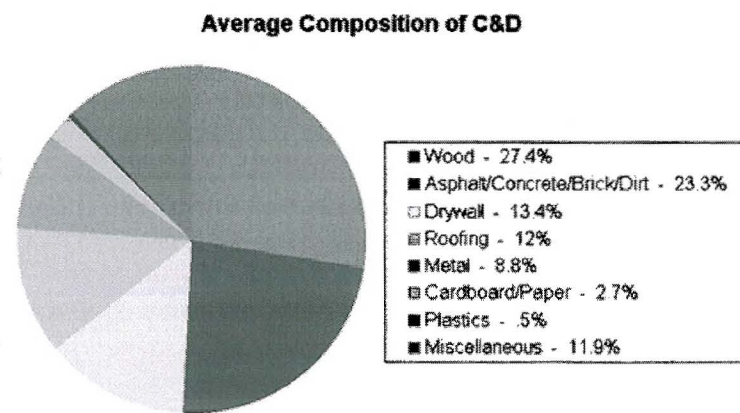


Figure 2
Source: EPA

Figure 2 provides a breakdown of that waste. Using the national number as a baseline, one could estimate about 380,111 tons of construction and demolition waste is generated in Montana.

Recycling in Montana

In 1916, Carl Weissman started buying and selling buffalo bones, furs, steel scrap, and junk car parts -- officially becoming the first organized, professional recycler in Montana. By 1919, Pacific Hide and Fur opened operations in the state, and by the early 1950s expanded into steel sales.

Household recycling started in 1971 when Montana Recycling Inc. started collecting aluminum cans and bottles. As markets changed, paper products and nonferrous scrap were also collected. During the 80s and 90s recycling increased across the state and private buy-back centers started to pop up. Composting also increased in popularity.

In Montana, recycled materials are collected and typically shipped to out-of-state markets. The distance to these markets and Montana's small population have always hindered recycling efforts. The markets for recyclables also are easily and quickly influenced by international markets. By the early 1990s, the cost of shipping and market prices curtailed the recycling of many products, specifically plastic and glass.⁴ Two cement companies, however, started to use glass as a source of silica for the manufacturing process, and DEQ regulations were altered to accommodate the change.

Local solid waste managers also increasingly started to collaborate in the 90s to encourage recycling. In late 1997, for example, Headwaters Cooperative Recycling Inc. was established. Only three landfills remained in a 10-county region, largely in southwestern Montana, that the cooperative served. Headwaters has become a nonprofit cooperation that enables recycling by linking rural and urban communities. It is now the largest recycling cooperative in the United States, serving 190,000 Montana and Wyoming residents, as well as millions of visitors to Yellowstone National Park.

By 2006, Montana's recycling rate was over 18%, ahead of the goal currently established in state law. The DEQ continues to direct resources toward recycling, working closely with private businesses and other entities. Electronics recycling events, pesticide plastic recycling collections, and mercury thermostat and thermometer collections have been pursued in the last two years.

By 2006, Montana's recycling rate was over 18%, ahead of the goal currently established in state law.

Measuring the amount of waste that is recovered through recycling, however, is a challenge. The DEQ follows EPA guidelines, which only measure municipal solid waste recycling. This means Montana's rates may appear lower than other states that measure and include other recycling activities. As noted above, Montana's Integrated Waste Management Act sets goals for recycling rates that the DEQ is expected to achieve. The Act does not require recyclers, brokers, processors, or other recycling businesses to report data to the DEQ. This means that Montana's recycling rate is based on data that is voluntarily provided. "DEQ recognizes that the voluntary reporting in Montana is not as complete or as accurate as some states that have mandatory reporting," according to the DEQ. This is also noted in the IWMP recommendations.

⁴ "Integrated Waste Management Plan (IWMP) 2006", Montana DEQ, Air, Energy and Pollution Prevention Bureau, September 2005, page 22.

Montana's Recycling Incentives

The EQC spent time during the 2007-08 interim examining the issue of recycling during its Climate Change study, focusing on tax incentives to encourage recycling and Montana's solid waste management fees. The EQC discussed four specific concepts and House Bill No. 21, requested by the Council and approved by the 2009 Legislature, eliminated the pending termination dates on Montana's recycling tax incentives.

- **Recycled Materials Tax Deduction.** (15-32-610, MCA) Taxpayers who purchase recycled material as a business-related expense can deduct 10% of the expense of the purchase from federal adjusted gross income in arriving at Montana adjusted gross income. The deduction is to encourage the use of goods made from recycled materials. The definition of recycled material is determined by the Department of Revenue.
- **Credit Against Air Permitting Fees for Certain Uses of Post-Consumer Glass.** (75-2-224, MCA) The amount of the credit is \$8 for each ton of post-consumer glass used as a substitute for nonrecycled material. The maximum is \$2,000 or the total amount of fees, whichever is less. Anyone with a beneficial interest in a business can apply for a credit against the air quality fees imposed in 75-2-220 for using post-consumer glass in recycled material. The post-consumer glass used in recycled material may not be an industrial waste generated by the person claiming the credit unless:
 - the person generating the waste historically has disposed of the waste onsite or in a licensed landfill; and
 - standard industrial practice has not generally included the reuse of the waste in the manufacturing process.
- **Tax Credit for Investments in Property or Equipment Used to Collect or Process Reclaimable Materials.** (15-32-601, MCA) An individual, corporation, partnership, or small business corporation may receive a tax credit for investments in depreciable property used primarily to collect or process reclaimable material or to manufacture a product from reclaimed material according to the following schedule:
 - 25% of the cost of the property on the first \$250,000 invested;
 - 15% of the cost of the property on the next \$250,000 invested; and
 - 5% of the cost of the property on the next \$500,000 invested.The credit may not be claimed for investments in depreciable property in excess of \$1 million, an investment in property used to produce energy from reclaimed materials, or an industrial waste generated by the person claiming the tax credit unless:
 - the person generating the waste historically has disposed of the waste onsite or in a licensed landfill; and
 - standard industrial practice has not generally included the reuse of the waste in the manufacturing process.

- **Deduction for Purchase of Montana Produced Organic Fertilizer (15-32-303, MCA)** Taxpayers may deduct expenditures for organic fertilizer, such as compost, that is produced in Montana and used in Montana. The deduction is allowed if the expenditure was not otherwise deducted in computing taxable income. The deduction is in addition to all other deductions from adjusted gross individual income allowed in computing taxable income under Title 15, chapter 30 or from gross corporate income allowed in computing net income under Title 15, chapter 31, part 1.

A Snapshot: Western States Recycling

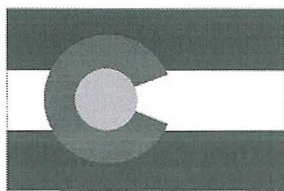


Wyoming

Recycling Rate: Wyoming pegs its recycling rate at about 5.1% for commodities, including aluminum and newspaper. That number is bumped up to about 12%, if other types of reuse like composting and waste tires are included.⁵

Legislative Action: The 2006 Wyoming Legislature provided \$1.3 million to help local government entities prepare Integrated Solid Waste plans. The final plans were due to Wyoming's Department of Environmental Quality by July 1, 2009. Each plan addresses a 20-year period. While the state doesn't have a specific recycling goal, several of the Integrated Solid Waste plans proposed by local government entities are setting a 30% diversion goal, marked by 2% annual growth. The plans also will examine the potential costs of lining future landfill sites or hauling trash to other locations. The recycling goals will be increasingly incentivized as local governments review those potential costs.

Incentives: Wyoming, like Montana, struggles with recycling largely because of the distance to markets. There are currently no tax incentives for the recycling industry in Wyoming.



Colorado

Recycling Rate: In 2007 the State of Colorado reported a 16.6% recycling rate for municipal recycling. The total diversion rate, which includes diversion of construction and demolition waste, bumps that rate up to 28.5%. The state also has taken several steps in the last two years to bolster its recycling efforts.

Legislative Action: The Colorado "Climate Action Plan" calls for a 75% reduction in state waste by 2020, and in an effort to reach that goal, the 2007 Colorado Legislature approved the Recycling Resources Economic Opportunity Act. (House Bill 07-1288)

⁵ Information provided by Craig McOmie, Wyoming recycling coordinator, June 2009.

The Act implemented new landfill surcharges, which went into effect in July 2007 in order to fund a recycling grant program. The additional surcharges fund implementation projects that promote economic development through recycling. Projects designed to implement source reduction, recycling, beneficial use/re-use, anaerobic digestion, or composting, are all eligible for grant funds.

The additional surcharge, a 10 cent tipping fee, has generated about \$2.5 million. A tipping fee is a charge levied on a given quantity of waste received at a waste processing facility. Of the total, about \$1.8 million has been awarded in grants and \$600,000 has been used for a rebate program. The rebate program directs money back to Colorado's large recyclers, or those who are paying the most due to the surcharge. A Pollution Prevention Advisory Board administers the grants.⁶

To date, the program has been a success. During the first grant cycle, the department received 60 applications. That number of applicants has increased to 110. The grant program sunsets in 2010, however, Colorado's Department of Public Health and Environment, Pollution Prevention Program, indicated efforts are underway to continue the program.⁷

In 2008 Colorado completed a "Roadmap for moving recycling and diversion forward in Colorado: Strategies, recommendations, and implications." The report identifies gaps in the state's recycling efforts and recommends funding mechanisms and policy changes.⁸

Incentives: Colorado also offers a plastic recycling investment tax credit that is equal to 20% of the first \$10,000 of net expenditures to third parties for rent, wages, supplies, consumable tools, equipment, test inventory and utilities made for new plastic recycling technology in Colorado. The credit is available to Colorado residents only.⁹



Idaho

Recycling Rate: Idaho does not require facilities to track their recycling rates, and the state does not maintain recycling rates.¹⁰

Incentives: Recycling incentives include a property tax exemption for qualified equipment utilizing postconsumer waste or

⁶http://www.cdphe.state.co.us/el/p2_program/ppab.html

⁷ Information provided by Patrick Hamel, Colorado sustainability coordinator, June 2009.

⁸http://www.cdphe.state.co.us/el/p2_program/grantreports/sow1finalreport.pdf

⁹39-22-114.5, Colorado Revised Statutes.

¹⁰Information provided by Dean Ehlert, Idaho Department of Environmental Quality, solid waste program coordinator, June 2009.

postindustrial waste used to manufacture products.¹¹ Idaho also offers a tax credit for 20% of the cost of equipment used in manufacturing products that consist of at least 90% post-consumer waste. The credit is limited to no more than \$30,000 in a single tax year, and unused portions may be carried forward up to seven years. It is non-refundable.¹²



Washington

Recycling Rate: Washington has been collecting recycling data since 1986, through the Solid Waste and Financial Assistance Program's annual Recycling Survey and annual reports from recycling facilities. The Department of Ecology tracks about 30 recycled materials to calculate the municipal solid waste recycling rate. In 2007, the rate was calculated to be about 43%.¹³

A plan called "Beyond Waste", issued first in November 2004, is the state's long-term strategy to eliminate most wastes and the use of toxic substances in 30 years. The plan consists of five initiative areas - industrial wastes, moderate risk waste, organics, green building, and measuring progress. A 2007 study in Washington also provided a comprehensive estimate of statewide costs and revenues from solid waste management activities and services. The study identifies gaps and limitations in existing revenue and expenditure data.¹⁴

Legislative Action: For the last three decades, the Washington State Legislature has explored recycling laws and incentives, establishing in state law everything from a recycling database and hotline to recycled paper goals. The Washington State Legislature in 1969 first enacted a Solid Waste Management Act that placed responsibility for waste management in the hands of local government.¹⁵ In 1989 the Waste Not Washington Act was passed, establishing waste reduction and source-separated recycling as a fundamental goal for the state. A recycling goal of 50% diversion by 1995 was established. In 2002, the Legislature renewed the 50% recycling goal to be reached by 2007.

The Washington Legislature continues to be active in the area of recycling legislation. The 2006 Legislature approved an extensive e-waste program. The 2007 Legislature approved House Bill No. 2056 requiring vendors to provide recycling

¹¹63-602CC, Idaho Code.

¹²63-3029D, Idaho Code.

¹³<http://www.ecy.wa.gov/programs/swfa/solidwastedata/recyclin.asp>

¹⁴http://www.ecy.wa.gov/beyondwaste/BWDOCS_consultantStudy.pdf

¹⁵Chapter 70.95, Revised Codes of Washington.

services at official gatherings and sports facilities located in communities where there are established curbside or other recycling services and programs.¹⁶

Incentives: There are a wide variety of recycling incentives in Washington. Those incentives range from grant and loan programs to variations in permitting and revenue-sharing arrangements for varying types of entities. The Department of Ecology administers a Coordinated Prevention Grant program that helps local government develop, enforce, and implement solid waste management plans. The grant program is funded by the Model Toxics Control Act.¹⁷

Motor vehicles are exempt from rate regulation when transporting recovered materials from collection to reprocessing facilities and manufacturers. Various permitting and reporting requirements for recyclers are also established.¹⁸ A "Pay as You Throw" program is also regulated into the local solid waste rate structures and is regulated by the Washington Utilities and Transportation Commission.

Funding Mechanisms

Solid Waste Fees

Solid waste management facilities in Montana are regulated by the Solid Waste Management Act and the administrative rules promulgated under the Act. DEQ's Solid Waste Program oversees the implementation of the Act. The program licenses, regulates, and provides compliance assistance to the solid waste management facilities in the state. In 1993 the program received approval and program authority to adopt and implement the federal EPA RCRA Subtitle D regulations into the solid waste administrative rules. The federal regulations provided nationwide standards for the siting, design, and operation of municipal solid waste, or Class II, landfills in Montana.

In the early 90s, the Montana Legislature approved a series of bills that dealt with solid waste management and fees in Montana. The 1991 Legislature authorized license application, renewal, and license transfer fees to pay for solid waste programs. A solid waste management system must be licensed by the DEQ's solid waste program. The annual license renewal fees range from \$4,200 to \$480 depending on the type and size of the facility. In addition to the annual license renewal fees, each facility is required to pay 40 cents per ton of solid waste disposed of or incinerated per year.¹⁹ A list of the different solid waste facilities is included in **Figure 3**.

During the 2009 fiscal year, the fees are expected to generate \$713,726 for the state. Of that total, operating and personnel expenses are projected at \$592,971. Operating expenses also include about \$80,000 per biennium that is paid through the Montana Association of Counties to pay for training programs for local solid waste

¹⁶70.93.093, Revised Codes of Washington.

¹⁷70.105D.070, Revised Codes of Washington.

¹⁸70.95.430, Revised Codes of Washington.

¹⁹Administrative Rules of Montana, 17.50.411.

managers and operators. Of the fees, \$135,658 also is transferred to the DEQ's Planning, Prevention, and Assistance division, which includes the Energy and Pollution Prevention Bureau and the state's waste reduction and recycling program. About \$39,131 of the fee total is transferred into the DEQ's attorney pool.

The base solid waste annual, renewal and transfer fees were last increased in 2005. The tonnage fee was also increased from 31 cents to 40 cents per ton at that time. The increase was vetted through the Solid Waste Advisory Committee and then approved by the Board of Environmental Review. The above mentioned fees have allowed the solid waste program to maintain a consistent funding source for operating and personnel expenses. The program also received \$123,000 in general fund appropriation to cover program administration.

Figure 3

Number of tipping fee paying solid waste management facilities in Montana	
Classification	Number
Class II Major	11
Class II Intermediate	13
Class II Minor	9
Major Transfer Station	5
Minor Transfer Station	5
Large Composters	5
Major Soil Treatment Facility	4
Class III Major	16
Class III Minor	38
Class IV Major	1
Class IV Minor	1

Source: Montana DEQ

When contemplating recycling and solid waste costs, the costs of a landfill also must be reviewed. The information included is based on the development, design, construction, collection, digging, and engineering costs for a new landfill. All new landfills must comply with EPA regulations. The average cost for a Class II landfill is:

- Fully-lined (artificial liner): \$580,000 -- \$635,000 per acre
- Clay liner only construction: \$250,000 -- \$255,000 per acre
- No migration landfill: \$155,000 -- \$175,000 per acre

The DEQ estimates that if the costs are amortized over their lifetime, landfill costs are about \$4 -- \$10/ ton of trash that is buried. If one anticipates recycling costs based on space saved at a landfill, diverted waste saves \$4 -- \$10/ton of trash that is

not buried, plus transportation costs. (Example: 100 tons of cardboard diverted = \$400 - \$1,000 saved in landfill costs)

Monitoring costs also must be considered at a landfill. Monitoring must be done to detect any contaminants entering groundwater because of leachate produced at landfills. Groundwater testing and methane monitoring are required. Communities that contract for such monitoring, pay about \$20,000 to \$40,000 a year. Wells must be sampled, and sampling must be done twice a year

The 2006 Integrated Waste Management Plan recommends implementation of full-cost accounting and reporting at landfills. "Local waste managers should set garbage disposal fees based on a full-cost accounting method. It differs from the common current practice in which fees are largely based on operating costs only. It requires local governments or private landfill operators to estimate future costs and set up reserves."²⁰

Additional General Fund

The DEQ's Energy Prevention and Pollution Bureau is responsible for increasing recycling at the state level. General fund revenues for the bureau in fiscal year 2009 were \$146,000, with roughly \$90,000 focused on supporting the Integrated Waste Management Act and \$56,000 for supporting general recycling activities, such as the issues outlined in SJ 28.

The 2007 Legislature approved House Bill No. 555, which also directed additional funding toward recycling. The bill provided \$16,500 for electronics recycling education. The department is required to implement a statewide household hazardous waste public education program, in accordance with 75-10-215, MCA. The electronic waste recycling education program was included in those duties.

Additional Fees -- Curbside Pickup

Bozeman initiated the first, municipal curbside pick-up program in Montana. The program started December 1, 2008. For \$10 a month, city residents, who are solid waste customers, can have recyclables picked up once a week. The city collects paper, plastics 1 through 7, tin, aluminum, and cardboard. Businesses also can participate, but are required to separate recyclables and can acquire larger boxes at an additional cost. A recycling truck, which the city purchased for about \$200,000, collects the 18-gallon buckets. The operator sets the bucket on a rack, where it is separated and placed into one of four compartments in the truck. The recyclables are taken to Four Corners recycling in Belgrade. "The key to recycling in the state of Montana is having a processor within 30 miles," said Steven Johnson, superintendent of Bozeman's solid waste division.²¹ "If you don't have a processor within 30 miles, it doesn't make sense."

²⁰ "Integrated Waste Management Plan (IWMP) 2006", Montana DEQ, Air, Energy and Pollution Prevention Bureau, September 2005, page 40.

²¹ Information provided by Steven Johnson, June 29, 2009.

Bozeman estimated that it needed 800 customers to break even on the curbside recycling endeavor. The city, as of late June 2009, had 771 customers, and had 800 customers by August. "People respond to opportunity and access more than laws and mandates," Johnson said. The city paid for the truck using solid waste funds that had accrued because the city operated a landfill. The landfill, which closed June 30, 2009, generated excess revenue.

The city of Helena offers a limited curbside pickup program, allowing residents to pick up "blue bags" and collect aluminum, steel, newspapers and magazines. The city picks up the bags on the first Monday of the month.

There are a number of private recycling firms in Montana that offer curbside recycling pickup programs -- primarily in larger communities. Earth First Aid Recycling in Billings, for example, charges a set up fee of \$35 and \$11.50 a month to residents. Service is provided twice monthly in conjunction with a resident's regular garbage pick-up schedule. Paper, plastic, aluminum and steel cans, and corrugated cardboard are collected. Missoula Valley Recycling offers curbside pickup for \$12 a month. Paper, cardboard, aluminum and steel cans, and various plastics are accepted.

Pay as you Throw

Pay as you Throw (PAYT) is the concept of treating household trash the same way utilities treat electricity or gas consumption. Residents pay for solid waste based on the amount the resident throws away. The idea is recycle more and generate less waste. Typically, a resident is charged based on each bag or can of trash that is thrown away.²² In 2006, there were 14 PAYT communities in Montana, representing about 5% of all the communities in the state, according to the EPA.

"Ultimately, PAYT can help reduce the burden on the disposal system and lead to more efficient resource use, reduced environmental burden, and lower long-run solid waste system management costs. The programs enhance community recycling and waste reduction programs."²³ There are different types of PAYT programs, noted in **Figure 4.**

In 1991, Bozeman implemented a PAYT program -- the first in Montana. Initially Bozeman used a "tag and bag" system where residents put tags on bags of garbage that were collected. Tags were sold for 20 pound or 30 pound bags and were tracked. Items that didn't fit into bags were tagged based on estimated weight. Bozeman now offers residents totes -- 35, 65, or 100 gallon totes for waste disposal. Those who have a 35 gallon tote can choose from weekly or monthly pickup, with fees scaled accordingly.²⁴

²²<http://www.epa.gov/waste/conservation/tools/payt/index.htm>

²³ "Pay as you throw (PAYT) in the US: 2006 Update and Analyses, EPA Office of Solid Waste and Skumatz Economic Research Associates, Inc., December 2006, page 8.

²⁴<http://www.deq.state.mt.us/recycle/PAYT/BozemanPayt.asp>

The Lincoln Refuse District container site is another example of a community that has put the PAYT system to work. In the early 90s, new EPA rules for waste disposal, left Lincoln with no option but to close its 30-year-old landfill. A container site, operated by an outside contractor, was selected and a computerized system was developed to operate at the site.²⁵ Residents haul their own waste to the site, where waste is separated by type. Those who use the site have a card that is scanned when visiting the site. The volume of the waste is also estimated and entered into a computer. The amount of waste taken to the site by each cardholder is totaled annually and corresponding dollar amounts are sent to the county assessor and added to tax bills. A cardholder then only pays for the amount of waste disposed of during the year. "One benefit of the system is that it encourages recycling. A rural recycling cooperative placed containers in Lincoln to collect aluminum and steel cans and newspapers."

Figure 4

PAYT Programs	
Program	Description
Variable or Subscribed Can	Customers select the number or size of a container for their standard disposal amount. Rates are set according to size and rate of pickup.
Bag Program	Customers purchase bags imprinted with a certain logo, such as a city or hauler. The bag cost incorporates the cost of collection, transportation, and disposal of the waste in the bag.
Tag or Sticker Program	Almost identical to the bag program, except instead of using a special bag a tag is fixed to the waste that the customer wants disposed. Tags are usually good for 30-gallon increments, similar to the bag program.
Hybrid System	Instead of receiving unlimited collection for a monthly fee or annual assessment, the customer gets a smaller, limited volume of service for a set fee. Disposal of anything extra is only available using a program like the tag or bag system. This serves as an incentive for large disposers to reduce, if the fee-based volume is set appropriately.
Weight-based System	This is called a "garbage by the pound" system and uses truck-based scales to weigh garbage containers and waste. On-board computers record waste per household, and customers are billed on that basis. This system is only used in one U.S. community.

Source: U.S. EPA

Those living in the Scratch Gravel Hills Solid Waste District in Helena pay an annual assessment on their tax bill for disposal of solid waste at the City of Helena Transfer Station. They only pay for the solid waste they dispose of, unlike other county residents who receive a permit and can dispose of up to 1.5 tons annually without paying an additional fee.

²⁵ "Pay a\$ you Throw . . . works for Lincoln," Montana DEQ, April 1998.

Grants

During the 2007-08 interim, the EQC discussed creating a recycling and waste reduction grant act, similar to the Colorado grant program, to create more markets for recycled materials.

Grants would have been used to assist in purchasing equipment, promoting the expansion of waste reduction and recycling businesses, researching and demonstrating how waste reduction and recycling can be applied to Montana markets, assisting in market development activities that develop local uses for recycled materials, and conducting educational activities.

Two alternative funding mechanisms were reviewed to provide about \$440,000 for the program. The first funding mechanism was a 35 cent per ton fee on solid waste. The second funding mechanism would have allocated 1.2% of the coal severance tax revenue to fund the program.

With the downturn in the economy, the EQC ultimately agreed not to pursue this concept during the 2009 Legislative Session.

Loans

The EQC has explored the concept of a recycling loan program and pursued House Bill No. 35 during the 2009 Legislative Session. The bill proposed to create a loan program to assist political subdivisions of the state, including local and tribal governments, and private entities in developing recycling technologies and equipment at local landfills.

The bill created a \$1 million recycling equipment revolving loan account to the credit of the DEQ. The money was a one-time transfer from the junk vehicle disposal fund into the new account. Loans of up to \$50,000 could have been offered to assist in the purchase of equipment and machinery. The bill died.

Stimulus

The federal American Recovery and Reinvestment Act of 2009 includes money that may assist recycling efforts in Montana. The DEQ's State Energy Program has about \$300,000 that will be used for a recycling grant program. It's likely that units of local government and private entities will be able to apply for grants. The DEQ is developing a detailed framework for administering and awarding the grants.

Energy Efficiency and Conservation Block Grants also could be used for recycling. While they are expected to largely be used for energy efficiency in public buildings, recycling programs also would qualify, as long as they can show substantial energy savings. The 10 largest cities and towns in Montana received money based on a federal funding formula, with \$1 million going to Billings and \$50,000 going to Miles City. Smaller cities and towns will apply for grants through the DEQ, with \$6 million available. The DEQ plans to award grants of up to \$200,000.²⁶ However, it should be noted that is unlikely that recycling proposals will be able to compete against energy savings from buildings for the limited dollars available.

²⁶Information provided by Lou Moore, DEQ, June 2009.

Extended Producer Responsibility (EPR)

States and local governments are implementing a growing number of waste reduction programs that require producers to integrate "cradle to cradle" expenses into the product cost. This is an issue that will be discussed in-depth, as the EQC begins its electronic waste (e-waste) discussion in 2010. An EPR program means that designers, suppliers, manufacturers, distributors, retailers, consumers, recyclers, and disposers take responsibility for the environmental and economic impacts of a product. Montana currently has a variety of EPR programs in place.

- **Mercury-Added Thermostat Collection Act (75-10-1501, MCA)** Senate Bill No. 424, approved by the 2009 Legislature, requires thermostat manufacturers to create a take-back program for consumers in order to reduce mercury pollution caused by improperly disposed of thermostats. The program launches in 2010. After January 1, 2010, thermostats that contain mercury also may not be offered for sale in Montana.
- **Department of Agriculture and DEQ** work with producers to collect and recycle unused pesticides. The DEQ works with national associations that operate a voluntary take-back program for the plastics.
- **The Rechargeable Battery Recycling Corporation** provides free recycling and partners with retailers, like Radio Shack and Staples, to place drop off bins in their stores.
- **Electronics manufacturers** have created take-back programs that are operational in Montana. The EQC will look at these programs in January 2010.

Other

The 2007-08 EQC also reviewed a proposal to increase the allocation to the Montana Manufacturing Extension Center from \$200,000 to \$300,000 (through extension of the Coal Severance allocation). The draft required that 35% (\$105,000) of the Montana Manufacturing Extension Center funding be used in collaboration with the DEQ to encourage manufacturers and commercial business owners to recycle. The bill died, and ultimately the allocation of coal severance was extended through June 2019, with the current \$200,000 going to the Montana Manufacturing Extension Center.

Rural Recycling Challenges

Recycling in rural communities can often be an uphill effort. In a rural state such as Montana, it is one of greatest challenges in advancing recycling efforts across the state. Obstacles include distance to recycling centers, lack of economies of scale, and lack of funding. Numerous efforts are moving forward to give the residents of smaller communities the opportunity to recycle common household items.

A case study: Eureka, MT

Eureka is located in the Tobacco Valley about 65 miles from Kalispell. The 2000 Census, listed the population at 1,017. In late 2007 a handful of residents initiated a program that evolved into the nonprofit, volunteer effort "Recycle Eureka" to encourage recycling in the small community -- a community that is about 70 miles from the nearest

recycling center. Recycle Eureka illustrates the ups and downs experienced by one rural Montana community in developing a successful recycling program.

Shortly after forming, in January 2008, Recycle Eureka connected with the DEQ. The two entities started researching options and reasons recycling programs hadn't worked in the past in the Tobacco Valley. They found the top three challenges for rural recycling to be:

- Lack of funding
- Market
- Reliance on volunteers

"The public perception in our area was that recycling efforts didn't work and were at best only embarked on by a bunch of tree-hugging, left-wing liberals who didn't have good business judgment," said Carole Tapp, who led the volunteer effort in Eureka.²⁷ "So we attempted to learn from history and vowed not to repeat it. And even though we were a nonprofit organization, we approached Recycle Eureka with a strictly business and marketing mind set."

Recycle Eureka started an outreach program, by contacting the local newspapers, school board, civic organizations and developing a website: www.recycleeureka.org. The group worked closely with the school district, involving local students, and also launched an e-waste program in the spring of 2008 to raise money and awareness.

Initially volunteers looked at purchasing a 30-yard roll-off container that would be hauled to Kalispell or Libby and emptied twice a month. However, the container would have come at a projected annual cost of \$12,000, and based on estimated recycling efforts only generated about \$2,600 annually. Volunteers were faced with finding a way to triple the amount recycled in the community for each shipment in order to have a self-sustaining program. The group also investigated purchasing a vertical baler and found it would be cost prohibitive. "I was trying to bring a city recycling mentality to a remote, rural community, and it just didn't work, mainly due to geography, being a border town, and having a sparse population," Tapp said.²⁸



Supersacks: Photo courtesy of Carole Tapp.

Volunteers turned their focus to working with the post office in Eureka to initiate a campaign to stop junk mail at the source. Flyers were circulated in the community showing people how to register online and stop junk mail. The DEQ also suggested the Eureka volunteers start out with quarterly recycling drives and assisted the group in

²⁷ Waste Not Montana Conference, Billings, May 2009.

²⁸ Ibid

acquiring "supersacks" or lightweight, large, easily transportable containers for the drive. In August 2008, the first recycling drive resulted in the collection of plastic, paper, cardboard, aluminum, tin, and e-waste. Recyclables were separated and loaded into the supersacks and hauled to Kalispell -- with the exception of cardboard. The cardboard had to be broken down and separately baled, which was a time consuming process.

Eureka, however, had caught the recycling bug by that time. The post office initiated a program to recycle junk mail and newspaper that was left at the office. The school district formed a recycling committee to address paper recycling efforts. Recycle Eureka started planning for its next quarterly recycling drive.

The group also learned that Stein's Family Foods in Eureka was building a new store and planned to acquire a vertical baler to handle its cardboard waste. Lincoln County officials agreed to donate two, used bins that would be set behind the new store and open for cardboard collection. Stein's has recycled 103,000 pounds of cardboard since December 2008, but volunteers still see a great deal of cardboard going into the Libby landfill.

Recycle Eureka continues its efforts to improve recycling opportunities and spread the word about recycling. Volunteers have a strategy for meeting the three challenges noted above:

- Lack of funding
 - applying for multiple grants
- Market
 - tracking current efforts to determine their effectiveness
- Volunteer effort
 - working with the county to establish a permanent drop location



Cardboard recycling. Photo courtesy of Carole Tapp

Hard times: Flathead County, MT

During the last 12 years, Flathead County has made a profit only twice while operating its recycling operation. Those were good years, when commodities were up. That, however, doesn't mean that recycling is a losing endeavor in Flathead County. For the last 12 years, the program has continued to grow every year. The county, in late 2008, took over recycling bins previously operated by the city of Kalispell. The county also has stepped in in other areas of the county, because Evergreen Disposal is no longer providing recycling services.

In 2009, the county expects to collect 2.3 million pounds of recyclables, compared to 1.9 million pounds in 2008 and 1.3 million pounds in 2007. The financial picture, however, doesn't match up. The county expects to lose \$110,000 in 2009, compared to \$33,761 in 2008 and \$1,580 in 2007. While recycling doesn't pencil out financially, the county continues because there is a public demand and because it also saves space in the public landfill, said Public Works Director Dave Prunty.

"In a pure profit and loss scenario, our expenses are more than our revenues," Prunty said. "But our program continues to grow each and every year. Our board of

directors firmly believes that the district has an obligation to provide a service for recycling to our ratepayers."²⁹

The county contracts with Valley Recycling, a private recycler, in order to place recycle bins at various collection sites. Valley Recycling charges a rental fee on the bins as well as for hauling, processing, and marketing the materials. The county gets the revenue from the recyclables that are sold.

Recycling efforts are largely focused on cardboard, newspaper, aluminum, and a few other items. Glass is not recycled, simply because there is no nearby market for it. There are no bottling plants in or near Montana, which are the most common purchasers of crushed glass. Recycling glass in Montana often means costly out-of-state treks. Prunty also notes that glass is something that when crushed takes up relatively little landfill space.

"We have commodities that have a greater value that take up far more space," he said. "Let's focus on that."

In the month of June, however, because of declining commodity prices, the county lost \$11,241 in its recycling efforts. During that time period, the county collected 229,223 pounds of recycled material, generating \$7,530 in revenue. The costs to haul and handle the materials, along with the site maintenance and bin rentals, totaled \$18,469.³⁰

Prunty said in the future, he is hopeful the program will become more cost effective. And overall, the losses aren't a burden to ratepayers -- in budgeting, the program is not expected to be profitable. The loss also factors out to be less than 2% of operational expenses.

Flathead County's landfill has an estimated 45 to 50 years' worth of space remaining, depending on the amount of trash generated in the expanding county. The estimates are based on a 2% to 4% growth rate. Prunty notes that at one time the county had 16% growth in one year, and most recently felt a 15% contraction.

Flathead County, however, isn't the only one in the recycling business in the area. There are private recyclers, like Valley Recycling, which recycles about 8 million pounds a year, according to manager Bob Morrow. They collect cardboard, mixed paper, some plastics, aluminum cans, and nonferrous metals. Most of the material is taken to markets on the west coast. Morrow said hauling costs are the most expensive aspect of the process. Higher gas prices and tanking commodities have taken their toll in the last year.

"It's mostly a loss," he said. "We don't make a lot of money, but we do it as a service."³¹

There are also at least two curbside recycling entities in Flathead County. New World Recycling started offering the service 7 years ago, when owner Cory Cullen used

²⁹ Information provided by Dave Prunty, August 7, 2009.

³⁰ "County recycling program losing money," Daily InterLake, August 2009.

³¹ Information provided by Bob Morrow, August 7, 2009.

a \$5,000 loan and a Subaru to lead the way. Cullen charges \$10 a month for residential curbside pickup and \$15 a month for pickup that includes glass. He initially would drive glass to Idaho, where it was used in a road reconstruction project. He later built his own glass crusher. With a \$25,000 loan, Cullen purchased a glass pulverizer. He averages 400, 32-gallon garbage cans a month -- an estimated half to 1% of the glass in the valley.³² In July 2009, he collected 647 garbage cans of glass. The markets for glass cullet and glass aggregate are slowly growing. Cullen is working to connect with a concrete business owner to use cullet to make countertops.

A "Freecycle Flathead" web site also is maintained in Flathead County, allowing, among other things, residents to post information about items they wish to "recycle" or get rid of. The site is open to all county residents, and is not a charity or online shopping service. It serves as a type of information resource for those looking to give an item a second life (reuse) or find a used item. The site has more than 1,400 users.

³² "Shattering obstacles to glass recycling," Flathead Beacon, April 2008.