



STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
Division of Solid and Hazardous Waste Management
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**MUNICIPAL COST BENEFIT ANALYSIS
PROPOSED WASTE REDUCTION GOAL
RULE 1200-01-07-.09**

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Introduction

This document will explore the cost benefit of the proposed waste reduction goal and rules as it affects municipalities in the State of Tennessee. Existing waste reduction and recycling systems and funding will be reviewed and compared with the expected impact of the draft rule when promulgated. Because of the uncertainty of the final rule language that may be passed, this document will only explore concepts presented in the most current rule revision as of June 2, 2010. Revisions that may come about related to changes suggested by the Solid Waste Disposal Control Board at the August 2, 2010 meeting cannot be considered as all possibilities cannot be foretold.

The first section in this report will review existing conditions with the municipal solid waste planning regions, the county and then the municipalities within the regions. As there are well over 340 municipalities and 95 counties, this document does not explore every jurisdiction's position and need. However, general analysis of the conditions across the state will be explored. References supporting the general analysis are included at the end of this document for reference purposes. The possibility of partnerships will be further reviewed for opportunities of reduced expenses from leveraging existing systems.

Funding provisions from the inception of the Solid Waste Management Act (SWMA) of 1991 through the Solid Waste Management Fund (SWMF) is reviewed. This review includes grants to local governments for key pieces of recycling equipment and recycling rebates for general recycling efforts. Further economic impact from waste reduction and recycling activities is discussed with a review of potential job creation and retention and increased revenue sources from these practices.

Where possible and space available raw data will be provided in the appendix to provide greater insight into the impact of the proposed rule.

Municipal Solid Waste Planning Regions

In 1989, the Tennessee General Assembly passed the Tennessee Solid Waste Planning and Recovery Act that called on the State Planning Office to establish a comprehensive solid waste management plan for the state. “The plan shall have as its priority the reduction of waste volume going into incinerators and landfills by local and regional recycling programs, mulching and composting of yard wastes and other suitable materials, and other means of insuring that incinerators and landfills operate in an environmentally and economically sound manner”.

The research team, aided by the State Planning Office, UT’s Waste Management Research and Education Institute, representatives from industrial and commercial organizations, and citizens from the private sector, adopted a comprehensive solid waste management bill for legislative consideration and, during its 1991 session, the Tennessee General Assembly adopted two pieces of legislation entitled the “Solid Waste Management Act of 1991” and the “Solid Waste Authority Act of 1991”. Both of these acts deal with the handling of municipal solid waste, each in its own distinctive way.

The SWMA recommended that the state’s counties form multi-county solid waste regions, sharing use of the landfills within those regions and taking advantage of lower tipping fees and other related costs. The Act called for the initiation of the following nine programs, which would be funded by a landfill surcharge: (1) local governments must establish regional solid waste planning regions to assure waste disposal capacity and to achieve waste reduction goals; (2) to assure adequate collection systems, counties must provide services to residents currently not receiving them; (3) the state must adopt a 25% waste reduction goal to be achieved by July 1, 1994; (4) to meet the goal, source reduction and recycling need to be initiated; (5) problem wastes must be separated for the solid waste stream and managed separately; (6) public information and education efforts should ensure an informed and dedicated public; (7) technical assistance should be provided the local government officials to assist them in making solid waste choices; (8) research efforts should be supported and data files maintained in order to identify and anticipate potential problems; and (9) local governments should be required to maintain their solid waste accounts on full-cost basis.

County

Since the SWMA became law, the primary responsibility for fulfilling the Act has fallen to the county governments. Because of this, county governments, with few exceptions, have been the back bone of the municipal solid waste planning region’s integrated solid waste management systems. In the last twenty years, county governments implementing the SWMA have built a network of manned convenience centers servicing their entire geographic boundaries or have provided a higher level of service by providing access to door-to-door collection to at least 90% of the residences in their counties.

Material recovery facilities or MRFs have been established to collect reclaimed materials such as cardboard, paper, plastics, glass, metals and other commodities. Recycling drop off sites has been established in all 95 counties to include municipalities to provide convenient material drop off for local residents. Household hazardous waste collection events have been sponsored by counties in partnership with Tennessee’s Department of Environment and Conservation, Division of Solid Waste Management to provide their constituents a means of eliminating improper disposal of dangerous chemicals from the private households. Electronic scrap (E-scrap) collection services have been established with vendors addressing a growing waste stream and providing, in most cases, free collection for residents and modest revenue stream for the county.

In the next phase, the county government stakeholders will continue to provide the backbone of collection and waste reduction services. In many cases the counties will continue to manage the solid waste systems for all of their local citizens. With the infrastructure in place, counties will be positioned to assist local municipalities in implementation of solid waste plans by sharing resources, technical knowledge and experience to those municipalities that are new to solid waste planning and waste reduction systems and infrastructure.

Municipality

These municipalities were identified by the Waste Reduction Task Force as a key stakeholder in the process to reduce waste in Tennessee. For the most part, municipalities were not required statutorily to participate in the waste reduction efforts of their solid waste planning regions unless the region failed to meet the 25% waste reduction and diversion goal.

In most cases, the municipalities contained the greatest portion of residents in a county. Without the municipalities' participation, county governments were unable to meet the 25% waste reduction and diversion goal. By including municipalities in the rule definition of "covered local governments," the participation and buy in of these local governments in the implementation of waste reduction strategies will bring about great result towards meeting the goal.

Municipalities should identify needed resources for waste reduction and partner with other local governments including the county to avoid duplication of services. They should also develop their comprehensive solid waste/waste reduction plan that will aggregate into the region's solid waste/waste reduction plan. The use of technical assistance providers with expertise in planning like the University of Tennessee's Municipal Technical Advisory Service (MTAS) and the local development districts will be important to developing an effective plan for implementation. Specific waste reduction and recycling responsibilities of the municipality would be decided when partnering with the county and the other local governments to provide the comprehensive integrated solid waste management system needed to accomplish the waste reduction goal.

Unincorporated Areas

Waste reduction and recycling in unincorporated areas has traditionally been handled by the county and generally brings little or no infrastructure to the municipal solid waste planning region. The Waste Reduction Task Force identified this group and designated that their solid waste needs as being managed by the county. With no centralized government or taxes being sent to the county, this was a logical choice. Under the proposed waste reduction rule this would continue to be the case.

Partnerships

Since 1991 the SWMA has been influencing solid waste practices in the state in many ways. Local governments have been able to build infrastructure towards an integrated solid waste management system with their regions from funds authorized by the SWMA. Many local governments have leveraged the infrastructure in nearby communities and have been able to reduce and avoid costs to their solid waste systems while creating respectable revenue streams from these partnerships.

Under the proposed waste reduction rules, the partnership concept is expected to continue and expand because of a growing network of solid waste professionals, existing solid waste systems, and the desire to leverage available resources.

Partnerships were originally proposed in the SWMA when the act targeted local governments to be a part of municipal solid waste planning regions. While this concept has expanded and contracted over the years, the practice has continued within sixty-eight municipal solid waste planning regions in the state. While most solid waste planning regions are single county regions, economic regions have developed through networking of solid waste professionals. These economic regions are partnerships between local governments that developed to reduce costs and improve moderate funding streams created through recycling. As these are economic partnerships, their design often steps beyond the SWMA and contiguous counties, to other municipal governments in the geographic region.

Inter-local Agreements

Inter-local agreements continue to be a resource for local governments to cut costs and leverage resources. These agreements formally define partnerships between local governments. These partnerships still allow for the benefits of shared resources but specifically define the terms and responsibilities of these partnerships. Further they eliminate any questions of responsibilities and generally extend past changes in administration for continued success in waste reduction.

Municipalities can and should seek these inter-local agreements to take advantage of other local government's resources. This allows municipalities to work towards the waste reduction and recycling goal by the most efficient means. The strongest inter-local agreements will be municipalities leveraging the resources of their county. This reduces transportation costs and creates the strongest economic partnerships. In most cases the county has all the resources needed by the municipality with no additional systems needed.

In cases where the municipality does not have a solid waste collection system, an inter-local agreement with the county may already be in place or may be newly developed. New inter-local agreements may give the county jurisdictional power over the solid waste collection system and allow the municipality to focus on education and outreach to their citizens.

Municipal Solid Waste Planning Regions

The municipal solid waste planning region, in some cases, is an extension of the inter-local agreement. The region brings together the resources of several municipalities and their county or counties in a common solid waste plan. These local governments plan solid waste systems and share resources to keep costs at a minimum while increasing the amount of recyclable commodities collected to receive a higher premium price on the commodity markets. Efficient solid waste planning regions' marketing of materials

results in having a modest revenue stream to purchase expansion equipment or replace existing equipment that has worn out. This model is currently being played out across the state on both a small and large scale.

Municipalities that leverage these resources can realize benefits of cost savings, the avoidance of duplicated resources, and build a revenue stream that funds future equipment purchases. Over time, with the purchases of equipment from these proceeds, the municipal government can steadily build their integrated solid waste management system and be a major player in the region's solid waste and waste reduction activities.

Private Partnerships

Another source of partnerships is the private sector. Great opportunities exist to partner with local industries, commercial ventures or other private sector partners. Companies like Coca-Cola Recycling, or non-profits like Southeast Recycling Development Council (SERDC) are regularly soliciting applicants for grants to promote waste reduction activities for entities seeking to recycle. These private companies reap the benefits of an increase in quality recovered materials within their region or meet other targeted objectives set by their board of directors. Aside from financial partnerships like this, companies will often step up and contract for services or entrepreneurs will start businesses to fill the need. In these cases the local government may set parameters through local ordinances with no financial investment or with commitment of providing land or other services to facilitate the growth of these partnerships.

Funding Sources

As with all activities in government, the question remains as to how much something will cost or how will the local government pay for it. This is ultimately the bottom line of all services that are expected by the citizenry of its government. Solid waste is no different. Solid waste, unlike many other services provided by local governments, is generated by all citizens and all use the service. Solid waste should be considered a utility much like electricity, water and natural gas. The main difference between these utilities and solid waste is that there is no one provider locally for the collection of solid waste in most cases. Because it is like a utility, it has multiple providers and in some cases the local government is one of the providers.

Economy of scale and reduced costs keep solid waste management a service that is manageable for challenged budgets. Many times the economy of scale comes from partnering with a greater geographic region at large. More households serviced means less expensive rates or better bids for solid waste collection services. Often local governments negotiate a rate to cover all its residents. In other cases, local governments allow residents to contract directly with the collector of their choice at whatever rate is advertised without cost to the government.

While economy of scale provides reduced costs for solid waste collection and disposal, so does recycling and other waste reduction services. Recycling provides two means of savings. First, recycling helps local governments avoid the cost of tipping fees and the surcharges. Tennessee's average gate fee is approximately \$32 per ton. For every ton of material that is not disposed, \$32 may be added back into the budget for other purposes. Further, adding to these savings, a recyclable commodity like sorted office paper could add an additional \$300 per ton to the local government's revenue stream producing a net return of \$332 per ton for every ton recycled. Many local governments who regularly collect and market recyclables add thousands of dollars to their budgets in a year's time from recycling revenues and landfill cost avoidance.

To further expand upon the concept of solid waste as a utility, Pay-As-You-Throw (PAYT) programs (also called volume based billing, fair billing, etc.) can be implemented at no cost to the municipalities. These programs are highly effective towards meeting waste reduction goals, improving recycling within the community and tying behavioral choices into waste reduction. This allows the user to make the choice to participate or not. It further prevents elderly single member households who are often on a fixed income and generate little trash from subsidizing large generators of household wastes. As there are several models that can be implemented from a hybrid system to a full PAYT program, one can be easily adapted to meet the needs of a specific local government.

Grants

Numerous grant opportunities abound for local governments seeking to establish, build or augment their integrated solid waste management systems. Sources for these grants come from a variety of sectors. State, federal and the private sector routinely offers grants to promote waste reduction activities for various reasons. The private sector often offers grants to promote specific commodities to help the private sector with their materials management goals.

Annually the Department of Environment and Conservation offers recycling equipment grants to local governments for key pieces of recycling equipment. Since the SWMA was enacted, over eight million dollars were offered to local governments for this purpose. Out of that, over a million and a half dollars have been paid to municipalities to purchase key pieces of recycling equipment. These key pieces of equipment are currently in place and being utilized for recycling and waste reduction purposes.

Recycling equipment grants are routinely offered for all local governments that do not qualify for recycling rebates (eleven counties and their municipalities that generate the greatest amount of solid waste on an annual basis). Municipalities' participation in the recycling equipment grant program has been low because most rely on county governments to provide access to recycling and waste reduction infrastructure. Most of the larger municipalities had recycling and waste reduction programs in place in early 1991 and have continued to expand and improve those systems. Additional grant programs to further recycling and waste reduction are expected in the near future to augment the recycling equipment grant program.

Other TDEC grants that have directly or indirectly helped the local governments with recycling and waste reduction initiatives include technical assistance grants, waste reduction grants, convenience center grants, waste tire recycling, and used oil recycling grants. The technical assistance grants provide agencies funding to assist local governments at no cost in the design and implementation of waste reduction systems including recycling. The other noted grants have augmented both the local government's systems and integrated solid waste management system of the solid waste planning regions across the state. These grants have provided a strong network of equipment and resources that can handle the increased demand from implementation of the proposed waste reduction rule.

Future grants will continue to augment and strengthen the network of equipment and resources that are currently in place. The Department will develop additional funding programs to meet this need in the future, and upon promulgation of the final waste reduction rule.

Rebates

Recycling rebates are not grants nor are they earned on a competitive basis. Recycling rebates are funds that are offered to local governments in the top eleven counties that generate waste in Tennessee to assist them in managing their material streams. As the top generators of waste, these local governments lobbied to have in the SWMA a mechanism that would allow guaranteed funding to be returned back to these local governments from the surcharges collected at the landfills. These top eleven counties, for the most part and with little exception, contain municipalities identified in the proposed waste reduction rule to meet the municipal threshold population of over 20,000 people. Since its inception, the SWMF has expended nearly ten and half million dollars to these municipalities to support their recycling and waste reduction programs. This funding has provided salary support, program support, purchase of equipment, trucks and educational initiatives. The recycling rebate has a matching requirement of fifty percent. To date twenty-one million dollars have been expended to prepare for and promote recycling and waste reduction activities. These services are expected to continue and to be expanded through funding associated with recycling rebates offered by TDEC.

Commodity Revenues

Since the inception of the SWMA recyclable commodity pricing has continued to trend upwards. Industry has found that recycled content saves money. Virgin material like aluminum gets very expensive to extract and prepare for use compared to recycled materials. In some cases this difference is five to ten times the savings. Because of this recognized savings, the recycling markets have been trending upwards. China and India are both on an industrial growth explosion that provides strong markets for recycled commodities. Commodities such as sorted office paper and old news print provide revenues of two to three hundred dollars per ton depending on grade. Pricing for old corrugated cardboard is back in the neighborhood of pre-recession highs. For every ton of recyclable commodity that is sold a revenue enhancement of \$32/ton (average tipping fee and surcharge at Tennessee's Class I landfills) is added to the commodity price.

A recent article in the Marshall Tribune discussed how a middle Tennessee local government that had relied on landfill host fees to support its solid waste program would have been in great financial trouble due to a severe decline in these host fees had it not been for the revenue stream from recycling. The recycling program was actually supporting or paying for the county's solid waste program.

While many local government's recyclable commodity revenues may only be in the tens of thousands of dollars, some local governments working the system and maximizing revenues bring in hundreds of thousands in revenues. This source will pay for activities related towards implementation of the proposed waste reduction goal.

Property Tax Base

The vast majority of local governments rely on their property taxes to fund the services associated with solid waste management. While this does not promote waste reduction, it does hide the true cost of solid waste management from the community. The community merely places the trash at the end of the driveway and in a few hours it disappears and no one asks where it went or how much it costs to go away. Thus there are no behavior changes. This method of payment does not promote cost efficiency nor does it promote waste reduction.

To be successful at this method of funding, local governments will need to effectively use education and outreach programs to teach residents about waste reduction to assist in cost reduction. Aggressive approaches towards source separation will assist in cost control. Promotion of subscription based recycling or a ready abundance of convenient recycling drop off locations will further assist in cost reduction. Profits from the sales of commodities can help offset program costs and assist in building infrastructure for recycling.

For local governments that choose to continue a property tax based funding system, costs will continue to rise. Local governments utilizing an enterprise fund type accounting will have a better grasp on the costs associated with solid waste management and might help keep costs better in check. These systems do not promote efficiency or cost savings as the cost is blind to the public at large.

The current tax climate is to not raise taxes. Unless there is an adequate increase in the tax base to offset costs of inflation and the normal expansion of services, local governments will have to absorb greater amounts of the cost of solid waste management or be pushed to lower costs through promoting recycling and using commodity revenues to subsidize program needs.

Fee for Service

If a solid waste management program transfers away from tax based funding, increases in costs of service is more palatable to the residents as it is associated specifically with the service and the normal rising cost of doing business. Statistics have shown that this type of program tends to keep the costs down as customers work to dispose less to keep their bills lower.

Service fees may be implemented by the local government or by a contracted collection provider. Combination services may also be instituted where the local government collects the fees and then pays a provider for services to the local government.

These service fees keep costs low and promote recycling. In many cases the local government may never have to touch the fees or worry about costs as they are taken care of by the local hauler/collector of the

solid waste. Leveled billing that promotes recycling provides a fair method of billing users of this service while keeping costs low.

Economic Impact

Recycling programs cannot be truly considered until the full economic impact is reviewed. There is a growing amount of information and studies looking into the economic foot print created by recycling. Recycling has a greater, positive impact on the economics of the local governments than disposal practices. Not only does recycling create local jobs but also jobs in the region.

The Institute of Local Self Reliance has completed several exhaustive studies on the economic impact of recycling jobs compared to disposal related jobs. Their research suggests that recycling creates both local and regional jobs. These jobs come from the collection, separation, transportation, remanufacturing, and distribution of products from recycled content. Below is a table that reflects the creation of jobs based on 10,000 tons of material either from recycling or disposal.

Job Creation: Reuse and Recycling Vs. Disposal

Type of Operation	Jobs per 10,000 TPY
Product Reuse	
Computer Reuse	296
Textile Reclamation	85
Misc. Durables Reuse	62
Wooden Pallet Repair	28
Recycling-based Manufacturers	25
Paper Mills	18
Glass Product Manufacturers	26
Plastic Product Manufacturers	93
Conventional Materials Recovery Facilities	10
Composting	4
Landfill and Incineration	1

TPY = tons per year

Note: Figures are based on interviews with select facilities around the country.

Source: Institute for Local Self-Reliance, Washington, DC, 1997.

An additional resource relative to recycling's economic impact is the REI project by the Environmental Protection Agency¹. According to the study, the recycling and reuse industry consists of approximately

¹ <http://www.epa.gov/epawaste/conserves/rrr/rmd/rei-rw/result.htm>

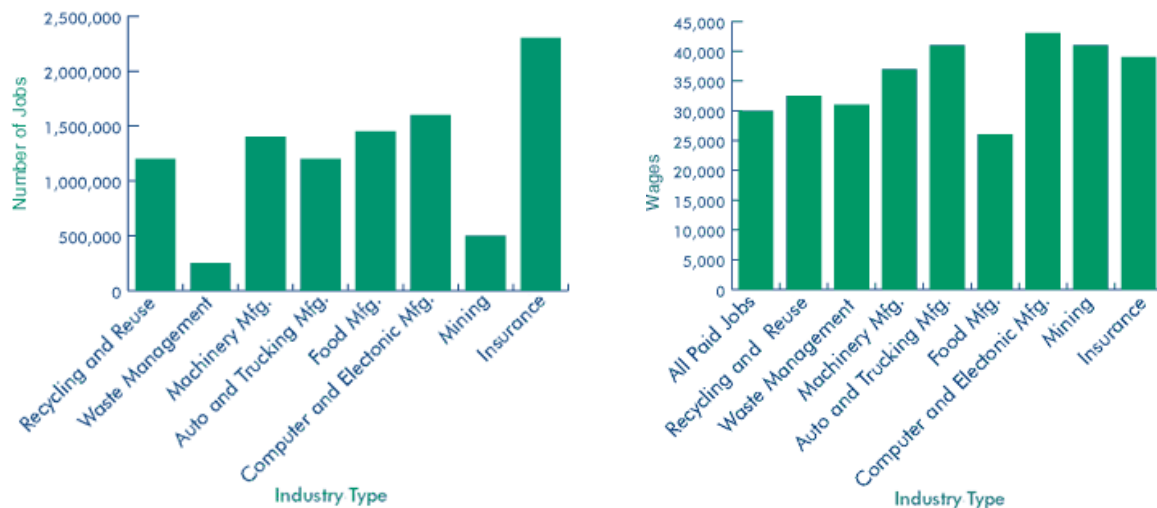
56,000 establishments that employ over 1.1 million people, generate an annual payroll of nearly \$37 billion, and gross over \$236 billion in annual revenues. This represents a significant force in the U.S. economy and makes a vital contribution to job creation and economic development. The estimate of direct economic activity is shown in the table below.

Annual Payroll and Estimated Receipts are in \$1,000. Throughput is in Thousands of Tons.

Data Type	Recycling Collection	Recycling Processing	Recycling Manufacturing	Reuse and Remanufacturing	Industry Total
Establishments	9,247	12,051	8,047	26,716	56,061
Employment	32,010	160,865	759,746	169,183	1,121,804
Annual Payroll	956,875	3,826,360	29,181,749	2,747,498	36,712,482
Estimated Receipts	1,974,516	41,753,902	178,390,423	14,182,531	236,301,371
Estimated Throughput*	191,082	191,082	157,545	N/A	N/A

*Throughput is amount of recovered material recycled and includes manufacturing scrap sent for recycling. It excludes materials prepared for fuel use and in-house process scrap returned to the manufacturing process. Throughput estimates are summed to avoid triple counting at collection, processing, and manufacturing stages.

The following national data is also taken from EPA’s REI project and compares recycling related jobs versus other sectors including waste management.



Another important aspect is the generation of revenues related to recycling. The REI project also analyzed this aspect and breaks down the revenue projection from a federal, state, and local perspective. Spending by employees of the recycling and reuse industry also contributes indirectly and adds another 1.5 million jobs with a payroll of \$41 billion and produces receipts of \$146 billion. The recycling and

reuse industry also generated roughly \$12.9 billion in federal, state, and local tax revenues, with 80 percent going to federal and state government.

Contribution of Recycling and Reuse to Government Revenues - Total Effects Revenues
(in \$ millions)

Industry Sector	Federal	State	Local	Total
Recycling Collection	300	200	100	600
Recycling Processing	1,700	800	600	3,200
Recycling Manufacturing	20,500	9,900	7,800	38,200
Reuse/Remanufacturing	2,100	1,000	800	3,900
Total	24,600	11,900	9,400	45,800

In Tennessee, the economic impact similarly reflects the national trends. The following table analyzes the economic impact of Tennessee's disposal compared to lost revenues and revenue enhancement from missed opportunities from recycling programs. This information is extrapolated from information submitted by the municipal solid waste planning regions and reviewed by the Department.

Category In 2007 (Most current information)	Tons	Cost or cost avoidance of landfilling commodities at average gate fee charge of \$32/ton	Estimated revenue from sales of recyclables	Lost revenue based on current market conditions of landfilled materials (Worst Case)	Lost revenue based on July 2008 market conditions of landfilled materials (Best Case)
Disposal	6,818,074	\$218,172,368	\$0 ²	N/A	N/A
Recycled	1,319,553	\$42,225,696	\$39,697,162	\$150,256,731	\$612,992,634

The economic impact for Tennessee not only extends from missed opportunity for revenues and cost savings from implementing these practices, but also extends to the economic impact of lost revenues from jobs and businesses that may or may not be supported. The Southeast Recycling Development Council (SERDC) has identified twenty-four large scale end-users of recycled content. These mills prepare recycled content materials for market and sell to manufacturers across the state, region and country. These large scale Tennessee mills like Alcoa, Gerdau-Ameristeel, Bowater, and Packaging Corporation of America employ thousands of workers. These mills depend on recycled content to produce their materials. Failing to supply these end users the materials they need increases operating expenses and increase the likelihood of downsizing, plant closure, or relocation. These jobs (and the tax base they represent) are extremely important to the local governments that rely on these end users' presence. The economic impact of these facilities closing or relocating can decimate the local economy of the communities. In these economic times every advantage to support these operations must be made. Local government recycling programs directly support Tennessee end user mills and every opportunity to

² Unable to track down estimated revenues from landfill gas projects. This should be considered a benefit though.

increase this support must be continued and expanded. States that have strong recycling programs attract these kinds of operations and expand the economic benefits to their communities.

A further economic impact to consider is the attractiveness of communities that have strong waste reduction components to their solid waste programs. Large manufacturing companies seeking to comply with ISO requirements look for infrastructure that can support these requirements. Further, their stock holders and target markets are increasingly pushing for greener production. New and existing programs like the ISO requirements previously mentioned, LEEDS, Energy Star, WasteWise, Pollution Prevention Partnerships all point to these demands.

The following table explores in more detail the economic impact as it relates to jobs, wages and manufacturing output. This information also comes from the Economic and Environmental Impact document noted above. Each job that is supported by recycling adds to the tax base of the local governments that are impacted by these operations. Note the average wage of employees in each sector. These wages are above average, contributing significantly to the local tax base. Manufacturing output also is significant and could impact the surrounding geographic regions in a positive manner.

Sector by sector that uses recyclable materials	Existing Jobs	Average Wage/Employee (Salary)	Manufacturing Output
Fiber/paper	19,100	\$57,800	\$548,700,000
Plastics	29,400	\$39,200	\$2,243,000,000
Glass	16,600	\$36,600	\$1,191,000,000
Metals	12,000	\$48,600	\$1,357,000,000
TOTAL ALL SECTORS:	77,100	\$45,550	\$5,339,700,000

Current commodity market conditions are good and looking positive into the future. China and India are creating a robust overseas market for materials. In some cases, this robust market is causing the price to be too high for local consumption. There is a national movement to try and regionalize the “recycling shed” of end user mills. This is an effort to look to recycling collections in the geographic region of these end users and eliminate the cost of transportation and use the material near at hand.

As of the date of this report, the following is a table of current price points for the most frequently collected recyclable materials. According to the Recycling Marketing Cooperative for Tennessee, the market outlook for the near future appears to be steady. This shows that respectable revenue streams may be achieved by local governments that collect the standard post consumer recyclables. Couple this revenue stream with the expected cost of avoided landfill fees, recycling programs can be sustained by the current and expected market.

Commodity	July 2010 Price Point
Old Corrugated Cardboard (OCC)	\$115-130/ton
Old Newsprint (ONP)	\$95-107/ton
Mixed Office Paper (MOP)	\$95-100/ton
Sorted Office Paper (SOP)	\$200-205/ton
PET #1	\$300-380/ton
HDPE #2	\$180-280/ton
Mixed Plastics	\$60-100/ton

The State of Tennessee buries millions of tons of materials each year that could be used to manufacture new goods representing hundreds of millions of dollars of lost manufacturing sales. These goods represent unrealized local jobs, missed opportunities, and lost tax revenues for local governments. The majority of these recyclable materials can be inexpensively, easily, and efficiently collected through drop off sites. Higher volume collection may be achieved through single stream curbside collection. This is more expensive but yields higher quantities and may generate higher revenues to offset the added expense.

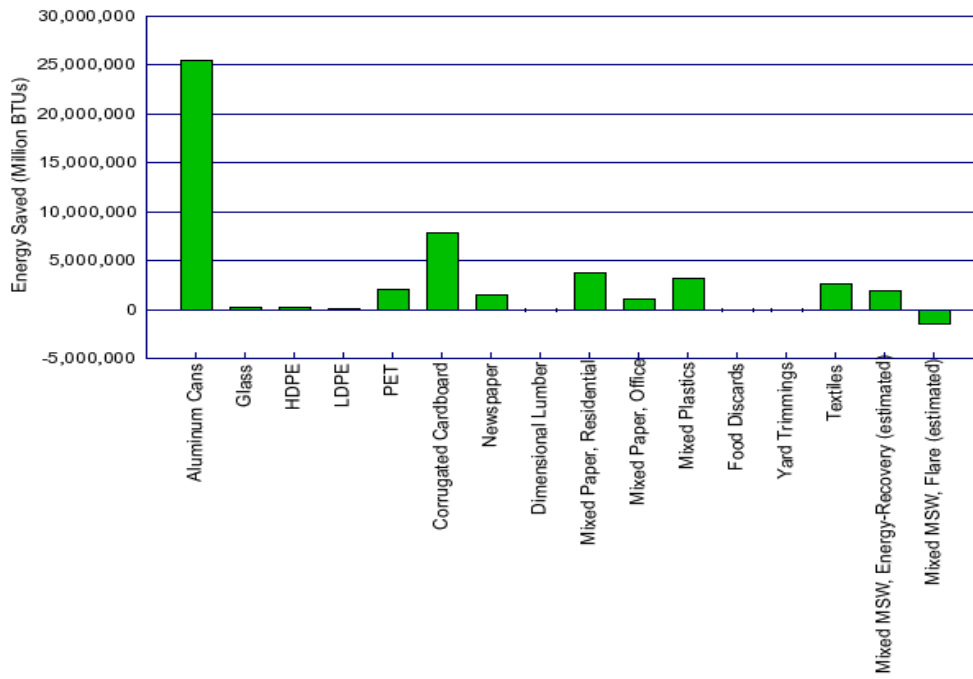
The cost for the local governments' programs to comply with the new waste reduction rule will vary widely based on existing infrastructure, plan of service, the level of service, and local government efficiency in implementation. The least expensive method of implementation to local governments would be passage of an ordinance that institutes a variable rate billing based on the principles of PAYT and the requirement of the hauler/collectors to provide recycling to the citizens. Once passed, local haulers/collectors would then implement the program across the municipality at no cost to the local government. From this model variations or hybrid systems may be implemented at varying costs based on the existence of infrastructure. The more infrastructure available, the less expense these efforts would be.

Another cost effect method of implementation would be to leverage existing county resources. Most county governments have the infrastructure in place to handle expansion in waste reduction programs. In many cases the county is already servicing the municipalities in their county. By defining the terms of these operations in the regional solid waste plan and passing inter-local agreements, the expectations of the waste reduction goal may be realized. The Department along with its technical assistance providers is available to assist these local governments in the plan preparation.

If municipalities have no infrastructure in place the above approaches are the recommended direction. If existing infrastructure is in place, the above methods, a combination of these methods or an expansion may be in order. Drop off collection is the least expensive collection method. Single-stream curbside is still the most expensive method of collection of recyclables. Any purchases of trucks and processing equipment may cost tens of thousands of dollars to purchase if not currently in the possession of the local government. The return on investment for this new purchase of recycling equipment may take several years to be realized. However, once in place and a recycling program implemented, the steady cost avoidance savings and growing revenue stream will provide favorable results.

Based on a recent survey conducted of the twenty-nine municipalities that would be required to meet the quantitative waste reduction goal, many already had curbside recycling in place. Others had partnerships with the county in place with drop off collection sites. Only two municipalities reported having no recycling in place at all. These few municipalities could implement programs based on the above methods with little or no expense with a moderate recycling program or step into the area and aggressively implement programs at greater expense.

The energy and environmental savings related to recycling are extensive. Just in Tennessee alone in 2008 44,960,948,000,000 BTUs of energy were saved because of recycling. This is the equivalent of 143,487 cars not driven, 88,926,506 gallons of gas saved, 1,821,959 barrels of oil, or 103,767 households use of electricity for a year based on EPA's WARM model. The following graph from Annual Progress Report data submitted by the solid waste planning regions in 2008 shows these energy savings by commodity grouping. Aluminum cans and old corrugated cardboard provide the greatest energy savings and are the easiest commodities to collect. These also provide the greatest return on commodity pricing.



These savings translate to lower prices for materials created from petroleum products, lower energy costs from power consumption. Aluminum costs a tremendous amount of energy to extract from the bauxite ore. This energy is stored in the metal and can be recycled many times at a much lower cost. These savings are passed on to end consumers.

Conclusion

Local municipalities are the population centers for the State. These centers make up sixty percent of the total state population. In most cases these same municipalities make up the greatest concentration of the population within each county. It would be very difficult to achieve any statewide or county waste reduction goal without the participation of these local governments and their citizens.

Solid waste planning regions through inter-local agreements can plan a cost effective strategy to meet the needs associated with the proposed waste reduction goal. Through planning efforts redundant systems can be avoided and maximization of equipment can be realized. By maximizing the use of the equipment, costs are kept low and revenues are increased. Larger loads destined for markets can be sold increasing the revenue streams to continue and expand operations.

There are many funding and revenue opportunities that are available for municipalities to accomplish the waste reduction goal as proposed. These include grants and rebates from federal, state, and private sources. Further, there are opportunities to partner and leverage existing systems or expand these systems with the same partnerships. Other funding methods would be to shift the costs and treat solid waste like the utility that it is and have the end user fund the service based on volume usage either by private collectors or through an existing public collection system.

Because of the economic impact of recycling, local governments cannot afford to not have a recycling program. The ease of disposal, cost of new equipment, and the current status quo are far out-weighted by the avoidance of the high costs associated with landfilling, new revenue streams, expansion of the tax base from productivity and business opportunities, job support and creation, and the ever growing public awareness for green initiatives provided by recycling.

With an average unemployment rate at 10.4% across Tennessee, sustaining jobs, attracting new jobs with new manufacturers, and creating business opportunities for entrepreneurs is very important. New and expanded recycling operations can give individuals opportunities to start recycling collection, sorting, and hauler businesses, all of which are locally based. Expanding on this, transporters to end user mills, inspectors, auditors, area support of jobs in the region and other indirect jobs are also created or supported.

The gain in implementing programs to fulfill the proposed waste reduction goal is definitively less expensive than the alternative. Programs may be implemented with little or no expense and achieve results that meet the requirements of the proposed rule. Doing nothing will cost more to the citizens of Tennessee through higher taxes, increased disposal costs, lost opportunities for new business startups and relocating manufacturing operations. Infrastructure is in place to handle the expansion needed to implement the waste reduction goal if a proper effort for planning is expended. The proposed waste reduction goal provides a target to accomplish and encourages existing systems to grow in efficiency and cost savings through economy of scale.

In short the economic benefits of the waste reduction rule if passed in the current form outweigh the costs incurred for disposal of the same materials.

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