

# Paying Up Front for Disposal of Special Wastes

*Jeff Hughes*



COURTESY OF THE NORTH CAROLINA DIVISION OF WASTE MANAGEMENT

**H**ow will we pay for it?” has become a common question asked by local governments across North Carolina. Finding funds for services has become particularly difficult in the last few years as many revenue streams of local governments have decreased or leveled off while service requirements and costs have continued to climb.

The effect of falling revenues on waste management and recycling services has received attention in both North Carolina and the nation. Many local governments that have traditionally relied on general fund revenues to finance their programs have begun imposing special fees or reducing services. For example, within a few months of taking office in New York, the mayor made national news by suspending some of the city’s

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household recycling services.

For disposal of some goods—namely, large appliances and tires—North Carolina has introduced an innovative funding method. This article reports the state’s reasons for introducing the method and discusses its features. The method also may work with electronic goods, which present similar environmental risks and costs.

## Background

As part of the 1989 Solid Waste Management Act, North Carolina set ambitious goals for waste reduction.<sup>1</sup> The act authorizes the use of “reasonable fees” for waste disposal at government facilities. The act does not specify what types of fees to charge.

Properly disposing of special wastes such as large appliances, computers, fluorescent lights, and scrap tires costs money, sometimes a lot. Deciding how to pay for disposal raises fundamental

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policy concerns: Should the individuals and the groups that generate the waste pay the full cost, or should the cost be spread across society? What if the people who create the need cannot afford to pay the cost? What role should

manufacturers, retailers, consumers, and local and state governments play in ensuring that funds are available to pay for waste management and recycling?

In North Carolina, most recycling and solid waste management programs are managed and funded entirely at the local level (by counties and municipalities). However, North Carolina has established two special programs in which the state plays a key role by collecting special taxes and distributing the revenues directly to local governments. The programs cover scrap tires and “white goods”—“refrigerators, ranges, water heaters, freezers, unit air conditioners, washing machines, dishwashers, clothes dryers, and other similar domestic and commercial large appliances.”<sup>2</sup>

In 2000–01, counties reported spending about \$8.85 million managing scrap tires and \$5.59 million managing white goods.<sup>3</sup> Most of these expenditures were covered by proceeds from “advance disposal taxes,” taxes paid on certain items by consumers at the time of purchase.<sup>4</sup>

### Problems Managing Special Waste

Illegal and inappropriate disposal of waste often leads to public health and environmental problems that cut across local government boundaries. In the 1980s, discarded refrigerators were a common sight alongside highways or at rural, unstaffed solid-waste collection centers. Publicized cases of children becoming trapped and suffocating in refrigerators highlighted how dangerous ill-managed waste could be. This knowledge, coupled with the realization that Freon

gas and other chlorofluorocarbons contained in refrigeration and air conditioning units could endanger the atmosphere, contributed to making the disposal of white goods a public health issue as much as an aesthetic concern.



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Illegal or unmanaged disposal of scrap tires led to similar problems. Uncovered tires became breeding grounds for mosquitoes, including the aggressive Asian Tiger mosquito, a carrier of the West Nile virus. A 1993 study identified the Asian Tiger mosquito at 29 of 38 illegal tire sites sampled.<sup>5</sup> Piles of tires have been known to burn uncontrollably for more than a year. In addition, whole tires buried in landfills tend to migrate to the top, leading to water infiltration and increased toxic seepage (“leachate”). The state began cataloging illegal tire sites in the mid-1990s and soon documented more than 350 such nuisances containing about 7 million tires.

### Advance Disposal Fees

North Carolina began addressing the problems posed by these materials in the late 1980s through a series of regulations and programs, including bans on putting certain items in landfills and advance disposal fee programs (for a timeline, see Figure 1). North Carolina was one of the first states in the country to institute advance disposal fees. Their use for scrap tire and white goods programs now is common.

A significant difference between the North Carolina programs and programs in other states is that the North Carolina programs focus responsibility for dealing with these materials at the county level. In most states, funds generated by advance disposal fees finance statewide or commercial initiatives for processing materials, rather than locally incurred management costs. From the beginning, the North Carolina programs were designed to be pass-through programs, in which the state collected funds and distributed them directly to local governments. In the case of the scrap tire program, an advance disposal tax that passed revenues through to local governments was implemented at the same time that the ban on disposing of whole tires in landfills was put into effect. The ban

Figure 1. **Timeline of Advance Disposal Tax Programs in North Carolina**

1989	1990	1991	1993	1994
<p><b>Solid Waste Management Act of 1989.</b> (S.L. 1989-784). Banned white goods and batteries from landfills, effective 1/1/91.</p> <p><b>Scrap Tire Disposal Act.</b> (S.L. 1989-784). Established 1% scrap tire tax, effective 1/1/90. Assigned responsibility for proper disposal of scrap tires to counties.</p>	<p>Effective date of <b>scrap tire tax</b>, 1/1.</p> <p>Effective date of <b>landfill ban on whole scrap tires</b>, 3/1.</p>	<p>Effective date of <b>landfill ban on white goods</b>, 1/1.</p>	<p>S.L. 1993-471. <b>Created white goods tax</b> of \$10 per item with chlorofluorocarbon refrigerants, \$5 per item without, to be effective 1/1/94, to expire 7/1/98. Required counties to provide at least one collection site for discarded white goods.</p> <p>S.L. 1993-548. <b>Increased tax for tires less than 20 inches in diameter</b> from 1% to 2%, to be effective 10/1/93, to expire 6/30/97.</p>	<p><b>Several hundred illegal tire sites documented in North Carolina.</b></p> <p>Effective date of <b>white goods tax</b>, 1/1.</p>



*The advance fee used to finance disposal of tires and white goods may work with the nation's next great waste problem: computers, computer monitors, and televisions.*

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**1997**

S.L. 1997-209. **Changed expiration date for 2% scrap tire tax** from 6/30/97 to 6/30/02.

**1998**

S.L. 1998-24. **Reduced white goods tax** to \$3 for all major appliances; set tax to expire 7/1/01.

**2001**

**Known number of illegal tire sites reduced to 31.**  
S.L. 2001-265. **Eliminated sunset clause on white goods tax,** thereby making tax permanent.

**2002**

S.L. 2002-10. **Eliminated sunset clause on scrap tire tax,** thereby making tax permanent.

*Source:* NORTH CAROLINA LEGISLATION SUMMARIES (Chapel Hill: Inst. of Gov't, Univ. of N.C. at Chapel Hill, 1989, 1993, 1997, 1998, 2001).

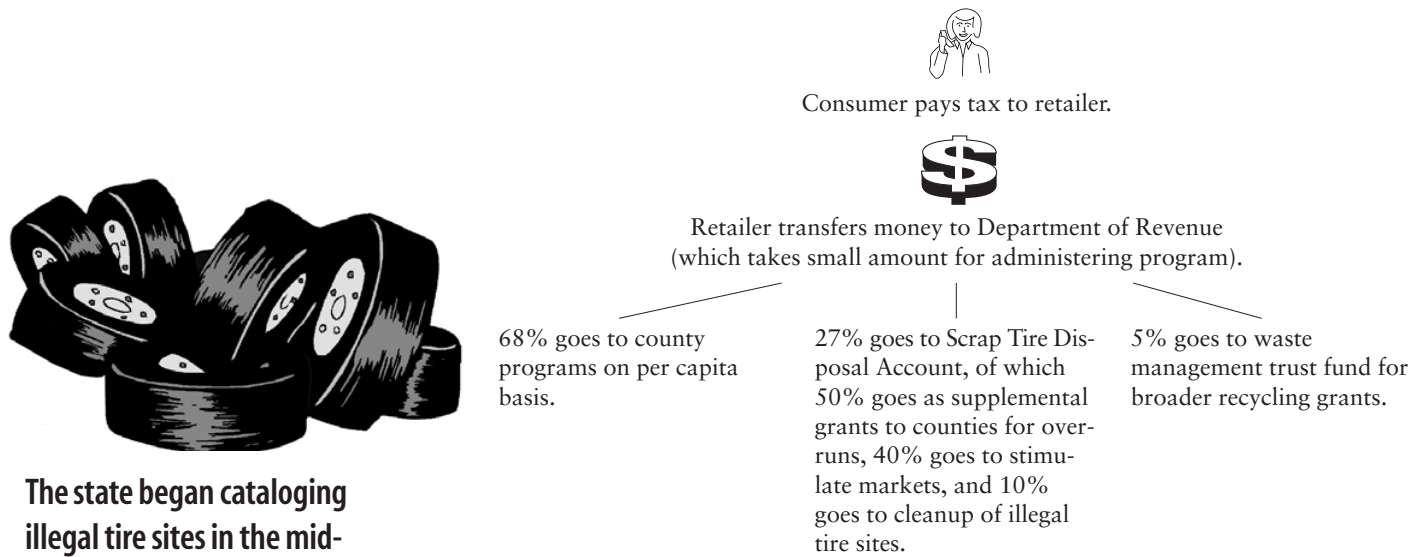
## Contacts for More Information about Advance Disposal Taxes

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Figure 2. **Flow of Funds from Scrap Tire Tax**



The state began cataloging illegal tire sites in the mid-1990s and soon documented more than 350 such nuisances containing about 7 million tires.



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on putting white goods in landfills was put into effect in 1990, but at the time it was not linked to any revenue source dedicated to disposal of white goods. In 1993, though, partially because of the higher costs associated with the state-mandated recovery of chlorofluorocarbons, an advance disposal tax on white goods was instituted. It provided counties with funds for managing white goods, at the same time prohibiting them from charging separate disposal fees. In effect, this action made the disposal of white goods appear to be free to consumers, thus eliminating one of the reasons for the rampant illegal dumping of white goods across the rural North Carolina landscape.

Since the programs' inception, the funds have been distributed quarterly to

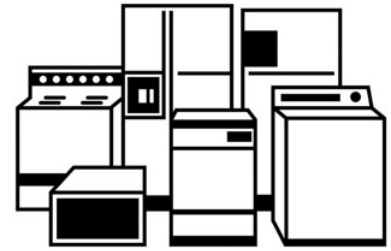
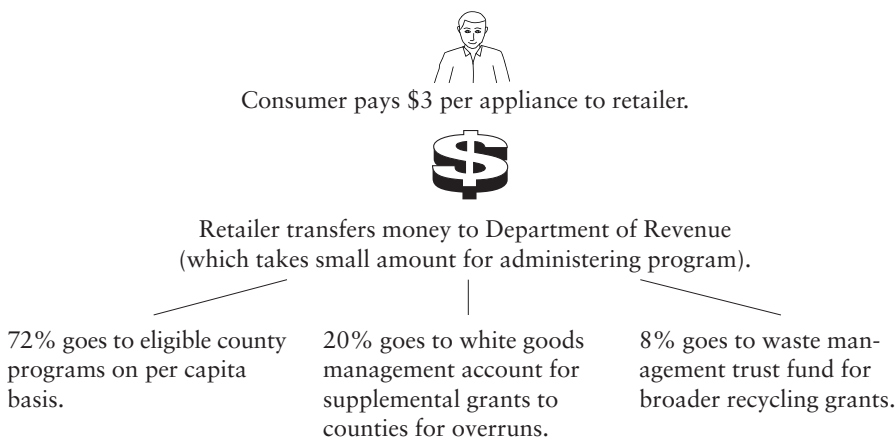
eligible counties, without interruption. These distributions have led to a continuous, stable funding source. Many local governments complain about so-called unfunded environmental mandates. The scrap tire and white goods programs are "funded mandates."

In 2000–01, consumers paid an extra \$15.5 million in advance disposal taxes as they purchased large appliances and tires.<sup>6</sup> A flat \$3 tax is collected when appliances are purchased, and a 2 percent tax (1 percent for heavy truck and off-road tires) is levied on the price of new tires. In both cases, retailers add the cost of the taxes to the purchase price and submit the proceeds to the State Department of Revenue.

The rationale for assessing these taxes at the time of purchase is that it creates a

link between the purchase of the product and the ultimate cost of its disposal. There is considerable public policy debate about whether an advance disposal fee is the most effective or fair system of paying for waste management programs. Some believe that manufacturers should become better stewards, ensuring that their products are appropriately disposed of by developing a disposal system or a mandatory take-back system and incorporating the cost of the system into the product price. Others believe that consumers should pay for disposal at the time of disposal rather than at the time of purchase. Opponents of this approach argue that payment at the time of disposal provides an incentive for illegal dumping (to avoid the fees).

Figure 3. **Flow of Funds from White Goods Tax**



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**Flow of Funds**

The proceeds from the special taxes for the scrap tires and white goods programs are sent to the Department of Revenue for distribution. The department retains a portion (approximately 2.5 percent in 2001–02) to cover collection costs. About 70 percent of the net proceeds are distributed directly to counties on the basis of population. Both programs include separate funds managed by the North Carolina Department of Environment and Natural Resources to provide additional money to counties for costs that exceed their allocation. A portion of the scrap tire proceeds also funds grants to promote and stimulate markets for tire recycling. (For a graphic illustration of the flow of funds, see Figures 2 and 3.)

Counties may work with other counties or with municipalities to manage scrap tires or white goods. They also may choose to transfer a portion of the funds they receive to municipalities that participate in the management of scrap tires or appliances.

**High Cost of Recycling**

Although the sale of some recycled materials generates moderate amounts of revenues for a few counties, the revenues from the vast majority of these materials do not begin to cover the overall cost of collection and processing. Under the advance disposal tax programs, local governments must use any revenues from the sale of recycled materials to offset the cost of their processing. The

markets for these materials vary across the state.

Depending on recycling-market conditions, some local governments can collect revenues from the sale of discarded appliances, especially if they process the appliances by separating out different types of material (metal, plastics, etc.).

Most counties send their scrap tires to certified tire-processing facilities or companies throughout the state. Several ship to out-of-state facilities. Many tires can be reused or recycled (approximately 44 percent were in 2000–01). However, they are not yet valuable enough to generate revenues, and local governments must pay fees for their disposal. In 2000–01, tire processors reported charging counties between \$60 and \$70

per ton for their services. Since 1997 a portion of the proceeds of the scrap tire tax has been used for grants to commercial companies to stimulate recycling markets by finding productive new uses for scrap tires.

The advance disposal tax program has created a “cascading” revenue stream. That is, the program has supported local government programs, which in turn have supported commercial tire processors.

### Methods of Distributing Revenues from Advance Disposal Fees

Whenever one level of government collects funds and distributes them to another level of government, questions of equity arise. North Carolina uses several methods to distribute revenues to local governments. In the case of the sales tax, it distributes some proceeds to counties on the basis of population, and some on the basis of how much revenue is collected in each county. Also, it divides sales tax revenues between county and municipal units of government.

For the advance disposal tax programs, the state uses a two-step method linked to county population data and reported costs. First, counties receive a quarterly distribution based on overall state receipts and their populations. They then may apply for grants if they can demonstrate that their costs have exceeded what they received in distributions.

The distributed funds are to be used for management of scrap tires and white goods. Counties must account for their white goods management costs in annual reports to remain eligible for white goods quarterly distributions. The state keeps track of the funds that have been distributed to counties and compares them with actual expenses. A county that has not spent all the funds it has received for white goods develops a surplus. If the surplus becomes greater than 25 percent of the county’s annual distribution, the county becomes ineligible to receive additional funds until it reduces the balance below the threshold. On the basis of FY 2000–01 reporting, 26 counties had balances above the 25 percent threshold and

were not receiving funds. Ineligible counties forfeited \$1.38 million in funds during FY 2000–01.<sup>7</sup>

Counties also must keep track of their scrap tire management costs. However, the laws do not require the same reconciling of those costs as of white goods management costs, partially because the costs of scrap tire processing are so high that there is much less of a problem with surpluses.

The supplemental grants for which counties are eligible are distributed from the White Goods Management Account and the Scrap Tire Management Account. During FY 2000–01, approximately one-third of North Carolina counties received supplemental funds totaling \$1.3 million for white management costs, and slightly more than half received supplemental funds totaling \$1.5 million for scrap tire costs.<sup>8</sup>

Per capita annual expenditures vary significantly for at least three reasons. First, counties provide different levels of service, ranging from a single collection point to multiple collection points and sophisticated in-house processing facilities. Second, the amounts of waste the counties process do not correspond to population figures. Third, the cost of managing materials varies significantly in different parts of the state, depending on the availability and the prices of commercial processors. In 2001–02 the per capita expenditure ranged from a few cents per person for very basic programs to several dollars per person for counties that process a relatively small amount of material or have invested heavily in new equipment to improve processing.<sup>9</sup>

### The Touch-it Rule

Section 130A-309.82 of the North Carolina General Statutes states that “a county may not use the tax proceeds from white goods for a capital improvement or operating expense that does not directly relate to the management of discarded white goods.” Determining which costs are “direct” costs and which are “indirect” can sometimes be difficult. As the law has been implemented, the advance disposal tax funds may not be used to fund indirect administrative costs, such as a percentage of the time of managers not involved with solid waste operations (for example, finance department personnel or the county manager). In reviewing costs for eligibility, the state uses the “touch-it rule”: if a person



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or a piece of equipment touches the material, it probably can be considered a direct cost. In other words, people involved in actually moving material, processing material, and the like constitute direct costs, and those who perform planning or administrative functions are generally considered to be indirect costs.

### The Cost of Not Keeping Track of Costs

The establishment of the advance disposal tax programs for scrap tires and white goods has had a major effect on local and state government accounting for solid waste costs. Counties now are required to keep track of their costs in annual reports. Indeed, preparation of reports is a requirement to be eligible for funds. In some cases,

local governments have forfeited their funds because they did not submit the proper reports.

Responsibility for completing scrap tire and white goods reports varies from county to county. In some counties, reports may be prepared by finance department staff who have little direct involvement in waste management activities, or by technical department staff who have little financial accounting experience.

Although differences in costs are expected, some of the discrepancies in the annual reports are so extreme that they probably are due to reporting errors or poor recordkeeping. For example, counties reported an average cost of \$74 per ton to process tires, with individual county costs ranging from \$45 to \$279 per ton.

### Electronic Waste: The Next Great Problem

Disposing of electronic waste, such as televisions, computers, and computer monitors has become a major issue in the United States and in many parts of North Carolina over the last few years. The first generation of computers has become outdated, and consumers are reluctantly realizing that they do not have a use for the old computers and monitors stored in their attics. An estimated 1.3 million computers and televisions need to be managed as waste each year in North Carolina.<sup>10</sup>

Items like monitors and televisions contain potentially toxic materials, such as lead, cadmium, and beryllium, that require special handling procedures. The typical item with a cathode ray tube (CRT), such as a television or a monitor, contains 3–12 pounds of lead. All CRTs are classified as hazardous waste. Like other types of hazardous waste, CRTs from nonresidential sources may not be disposed of in landfills. CRTs from residential sources,

however, are statutorily exempt from federal and state landfill bans. (In North Carolina, counties may pass ordinances banning these materials from their landfills.)

Clearly, managing electronic items over the next few years will add a significant cost to what North Carolinians pay for waste management. Processors now charge \$5–\$25 to process a monitor or a television, depending on the size of the machine. Such charges could lead to additional waste management costs of \$6 million or more by 2005, for processing only.

As with white goods and scrap tires, the key policy question that must be addressed is where this additional money will come from. The few local governments that have electronic waste programs now use a variety of funding mechanisms, including charging a disposal fee at the time of collection of the waste or offering the service without a fee and using general revenues to cover the costs. These programs, though very popular with residents, come at a significant cost: \$300–\$350 per ton for handling and disposal. By comparison the average landfill in North Carolina charges \$25–\$50 per ton to dispose of domestic waste. A few local governments may be able to absorb cost differences like this and sponsor occasional events, but the vast majority will be unable to afford electronic waste programs using their existing solid-waste funding system.

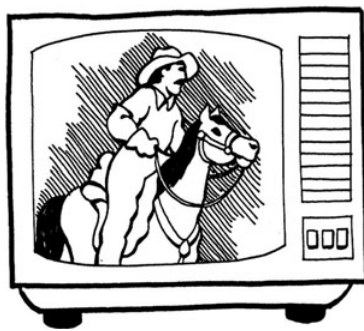
A bill that was introduced in the 2002 legislative session but did not reach the floor of the General Assembly would have created an advance disposal fee system for items with CRTs. The problem with disposal of electronic waste is only going to increase, so it is likely that this bill or a similar bill will be reintroduced. The bill has some similarities to the white goods and scrap tire advance disposal tax programs. The amount of the advance disposal fee and the method

of distributing funds still are being debated, but the fundamental concept is the same: Consumers who buy items that will need to be disposed of using special measures, will contribute toward the disposal costs at the time of purchase. Funds then will be distributed to local governments to help offset the costs of implementing programs to manage these wastes.

If this bill or something similar is not passed, local governments will have to find other methods of paying for waste management programs or decide not to offer the programs and potentially endanger the health of residents.

### Notes

1. Charles Coe & James Hickman, *Best Practices in Reducing Waste*, POPULAR GOVERNMENT, Winter 2002, 19.
2. NORTH CAROLINA GEN. STAT. § 130A-290(a)(44).
3. NORTH CAROLINA DEP'T OF ENV'T AND NATURAL RESOURCES, DIV. OF WASTE MANAGEMENT, NORTH CAROLINA SCRAP TIRE MANAGEMENT ANNUAL REPORT FY 2000–2001 (Raleigh: DENR, April 1, 2002); NORTH CAROLINA DEP'T OF ENV'T AND NATURAL RESOURCES, DIV. OF WASTE MANAGEMENT, NORTH CAROLINA WHITE GOODS MANAGEMENT ANNUAL REPORT FY 2000–2001 (Raleigh: DENR, Jan. 15, 2002).
4. The legislation refers to these sources of revenue as “taxes,” but they have many attributes of fees in that the revenues from them are used for a particular program and the amount collected is strongly linked to the cost of the service provided to the person paying the tax/fee. This article uses “tax” when referring to the program because the enabling legislation uses that term. The article uses “fee” when referring generally to the types of programs.
5. NORTH CAROLINA STATE UNIV., DEP'T OF ENTOMOLOGY, SURVEY OF MOSQUITO-TRANSMITTED VIRUSES ASSOCIATED WITH TIRE DISPOSAL SITES IN NORTH CAROLINA (Raleigh: NCSU, Dep't of Entomology, 1994).
6. SCRAP TIRE AND WHITE GOODS MANAGEMENT ANNUAL REPORTS FY 2000–2001.
7. WHITE GOODS MANAGEMENT ANNUAL REPORT FY 2000–2001.
8. SCRAP TIRE AND WHITE GOODS MANAGEMENT ANNUAL REPORTS FY 2000–2001.
9. ANNUAL FINANCIAL INFORMATION REPORTS FOR 2001–02 (N.C. Local Gov't Comm'n comp., Raleigh: NCLGC, 2002).
10. Estimates prepared by staff of North Carolina Dep't of Env't and Natural Resources, Div. of Pollution Prevention and Env'tl. Assistance, July 2002.



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