MAKING TAKE-BACK WORK IN TEXAS

FIRST-YEAR RESULTS OF THE COMPUTER TAKEBACK LAW AND HOW TEXAS CAN DO BETTER

MAY 2010

report prepared by

TEXAS CAMPAIGN FOR THE ENVIRONMENT FUND

Making TakeBack Work in Texas:

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Executive Summary

This report assesses the effectiveness of the first year of the Texas Computer TakeBack Program by analyzing all manufacturers' collection reports and comparing overall Texas collections with the first-year results of other states with producer takeback recycling legislation for used electronics.

Among states with available collection and recycling data, Texas finished dead last in per capita collections. Among producers, only Dell recycled a substantial quantity in the first program year in Texas. Given the poor performance of most producers in Texas compared to other states, Lone Star lawmakers must decide whether they want current and future producer takeback programs to serve as mere window-dressing or actually serve the recycling needs of the people of this state.

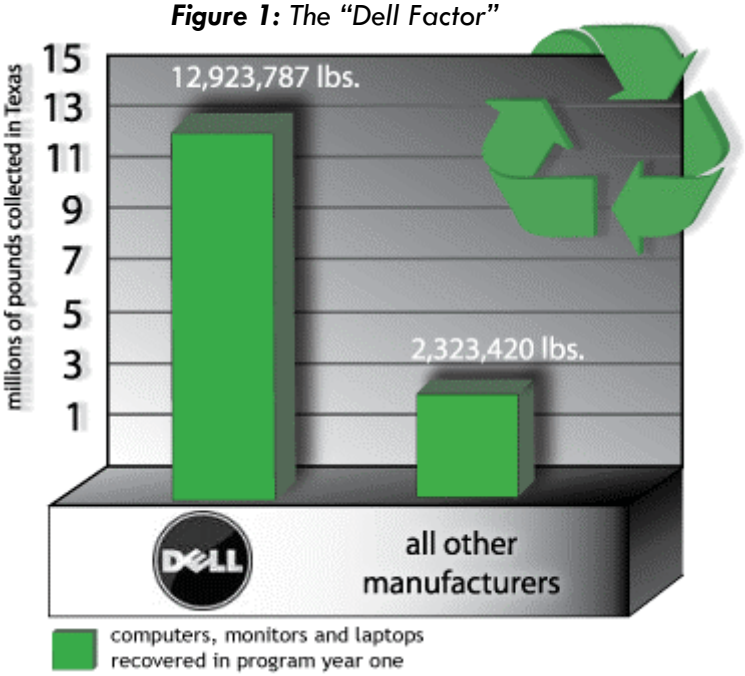
Producer TakeBack—Recycling for this Century

Producer responsibility, also commonly known as "producer takeback," is a waste and product management system in which manufacturers—not consumers or government—take on the bulk of the responsibility for the life cycle of their products, from the initial design phase through end-of-life disposition. Since 2005, thirty-two states have passed fifty producer responsibility laws covering seven categories of hazardous products.

Due to their short usable life span, toxic nature and other challenges associated with responsible recycling, discarded electronics have been a main focus of state producer takeback laws. To date, twenty states plus New York City have passed takeback recycling legislation for used electronics, with nine more states introducing similar legislation in 2010. Texas passed a producer takeback recycling law for computer equipment in 2007, then passed a takeback bill for televisions in 2009, which Governor Rick Perry vetoed. Also in 2009, the Texas Legislature considered producer takeback recycling bills for thermostats and fluorescent lighting containing mercury.

The Texas Computer TakeBack Law was signed by the Governor on June 15, 2007 and implemented on September 1, 2008. Computer manufacturers doing business in Texas must now provide individuals and home businesses with recycling options for used desktops, laptops and monitors. Under the Computer TakeBack Law, recycling options must be free, "reasonably convenient" and "designed to meet the collection needs of consumers in this state." However, the statute does not define these terms. According to the legislation, mail-back programs meet the convenience requirement.

Figure 1: *The "Dell Factor"*



Without Dell, the Texas TakeBack Program Fails in Practice

In 2009, computer manufacturers recovered a total of 15,247,207 pounds of used electronics for recycling and re-use through the Texas TakeBack Law, about 0.62 pounds per capita.

Manufacturer recovery plans consisted largely of one or both of two collection methods: mail-back programs and single or multiple drop-off collection sites. Manufacturers that *only* provided a mail-back option—the mail-back "default"—almost invariably recycled less than manufacturers that implemented permanent drop-off locations.

The "Dell Factor"

By any measure, the first year of the Texas TakeBack program would have proven a complete failure without the disproportionate share of the recovery and recycling load borne by Dell

Computers. Dell recovered 12,923,787 pounds of used computer equipment—0.52 pounds per capita, 84.76% of the Texas total. All other manufacturers recovered 2,323,420 pounds—0.09 pounds per capita, only 15.24% of the total.

Dell partnered with Goodwill and Staples to provide Texans with free drop-off and recycling for all brands at any Goodwill location and Dell branded equipment at any Staples location throughout the state. The Dell Factor indicates convenience and publicity function as vital components in a successful takeback program.

Texas Ranks Last in Per Capita Collections

Seven of the twenty states with producer takeback laws for used electronics have released collection data for their respective takeback programs. Unfortunately, among states reporting first year results, Texas has the lowest per capita collection rate.

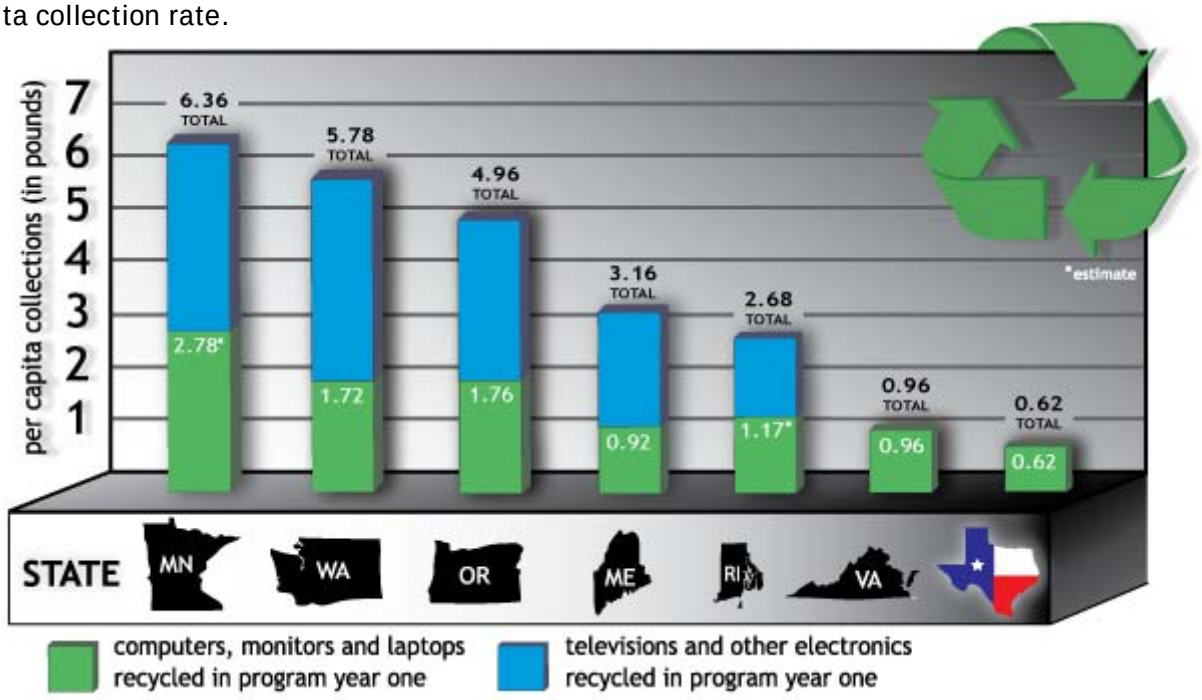


Figure 2: *State-by-State Electronics TakeBack Recycling Results in Each State's First Program Year*

In Minnesota's first year, manufacturers were required to recycle an amount equal to 60% of their statewide sales from the previous year. Oregon, Washington and Rhode Island calculate each manufacturer's annual recycling obligation based on its national market and return share. All three require manufacturers to provide access to convenient recycling services, with at least one drop-off collection point in every county and, in Oregon and Washington, every city with a population of 10,000 or greater. Maine combines producer responsibility and local government infrastructure in a hybrid public-private takeback system requiring municipalities to collect used electronics and transport them to consolidation points. The Virginia law is virtually identical to the Texas law. Correspondingly, Dell collected 84.83% of the Virginia total.

TakeBack Laws with Teeth Get Results

Producer takeback laws in other states are working well, demonstrating that laws with teeth get results. Manufacturers have proven their ability to meet the e-cycling needs of consumers in states across the country by reaching and exceeding recycling targets in Minnesota, Washington and Oregon. When a manufacturer collects over a million pounds in other states, but nothing or next-to-nothing in Texas, it becomes obvious that collection goals or recycling targets, convenience standards, landfill prohibition, public education and outreach along with strong enforcement provisions—all absent in the Texas law—drive manufacturers to set up effective e-cycling programs.

Key Steps to Make TakeBack Work in Texas

Overall, the Texas electronics recycling law has been the least effective in the country in its first program year. However, the Dell-Goodwill program demonstrates that companies can provide truly convenient producer takeback recycling, but most will not unless legislation requires them to do so.

The Texas Law Needs Drivers

With very few exceptions, all of the major manufacturers already comply with the stronger requirements of e-cycling statutes in other states; adding similar provisions to the Texas law will bring it in line with the more successful programs and provide Texans with the same e-cycling opportunities presently afforded citizens of other states.

- **Collection goals and recycling targets:** Texas did not institute collection and recycling targets. Instituting concrete, well-defined collection goals based on a company's market share or return share would help ensure these manufacturers make a stronger effort to implement effective recycling programs in order to meet their state recycling obligation.
- **Convenience and access standards:** Taking a cue from Dell's singular success, Texas needs to replace the default mail-back option with convenience requirements that will meet Texans' collection needs.
- **Landfill prohibitions:** The State of Texas still allows disposal of used electronics in landfills and incinerators. By contrast, four states already enacted e-waste disposal prohibitions along with or prior to passage of their e-cycling laws; six more have passed landfill bans that go into effect before 2012.

Texas Lags on Public Education and Outreach

Texas placed the mandate for public education on TCEQ, which did not implement a meaningful public outreach campaign to educate consumers or local government officials about takeback recycling programs. States that required manufacturers to advertise takeback recycling options or states that branded their takeback programs for publicity and promotional purposes achieved the highest collection results.

- **Texas law does not fund public education efforts statewide or locally:** The Texas Computer TakeBack Law requires TCEQ to educate consumers about e-cycling options; however, this is an unfunded mandate without appropriations or fee-based funding structure. Texas is one of only five states that did not include a manufacturer registration fee in its takeback legislation (although the TV TakeBack bill passed near-unanimously in 2009 did include a manufacturer registration fee). This fee should be directed toward producing and disseminating public education materials.
- **Texas law does not include provisions for public education efforts by electronics retailers:** States with successful e-cycling programs require electronics retailers to provide information at the point of sale about how and where to recycle covered products.
- **Local governments are not engaged in public education and outreach[1]:** Local government entities often function as the "recycler of first resort" for their residents (particularly for information about hard-to-recycle products like electronics). The Legislature and TCEQ need to equip local governments with the tools to spread the word about e-cycling.

The Texas Law Lacks Enforcement Mechanisms

The retail sales prohibition has been effective at ensuring that manufacturers file recovery plans with TCEQ; however, filing a recovery plan is not the same as implementing an effective recovery program. More than half of registered manufacturers collected nothing in program year one. TCEQ may take enforcement action only in cases when a manufacturer fails to label its branded products, or when manufacturers or retailers sell branded products that are not part of a compliant recovery plan.

- **State environmental agency has no authority to approve or reject recovery plans:** Legislation must grant TCEQ authority to approve or reject a recovery plan and remove previously listed plans that fail to meet the basic criteria outlined in the legislation.
- **No defined convenience criteria:** The TakeBack Law must define "reasonably convenient."
- **No metrics for measuring the efficacy of a manufacturer recovery plan:** The TakeBack Law must provide a means by which the state can measure whether or not a manufacturer collects adequate quantities of used electronics over the course of a year.

[1] A 2009 TCE Fund survey of two hundred Texas cities showed that less than one in five mentioned the TakeBack Law on its municipal website and less than one in nine city officials contacted via phone referred callers to the TakeBack Law.

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1.0 Purpose and Scope of this Report

In the last four decades, Americans have relied mostly on local governments to provide recycling services. However, in recent years a new approach is gaining hold, known as extended producer responsibility, or "producer takeback." The producer takeback idea shifts more of the responsibility for recycling from governments and taxpayers to manufacturers (or brand owners) because they exert the greatest influence over the design decisions that largely determine a product's recyclability and its impact on public health and the environment.

In the last five-plus years, more than fifty producer takeback laws have passed in the U.S., covering a range of products from electronics, paint, pesticide containers and batteries to mercury-containing auto switches, thermostats and lighting. The National League of Cities, National Association of Counties, Solid Waste Association of North America, Texas Product Stewardship Council (an organization of local government officials), as well as forty cities and counties across Texas have endorsed the producer takeback concept.

Due to the short life spans and toxic nature of many consumer electronics as well as the challenges associated with responsible recycling, discarded electronics have been a main focus of state producer takeback laws. To date, twenty states plus New York City have passed producer takeback legislation for used electronics, with nine more states introducing similar legislation in 2010.

Texas passed a producer takeback recycling law for computer equipment in 2007, then passed a takeback bill for televisions in 2009, which Governor Rick Perry vetoed. Also in 2009, producer takeback recycling bills for thermostats and fluorescent lighting that contain mercury received hearings in the Texas House Environmental Regulation Committee. In Texas, lawmakers must decide whether they want current and future producer takeback programs to actually result in robust collection and recycling of discarded products—or simply serve as hollow promises to do so.

The Manufacturer Responsibility and Consumer Convenience Computer Equipment Collection and Recovery Act of 2007, commonly known as the Texas Computer TakeBack Law, enjoyed broad support. It passed unanimously in the Texas Legislature and was signed by the Governor on June 15, 2007. Following implementation of the legislation on September 1, 2008, computer-makers doing business in Texas had to begin providing consumers with free recycling options for used computer equipment. By January 31, 2010, manufacturers had to submit reports to the state environmental regulatory agency listing the amount of equipment collected, recycled and re-used in 2009, the first full year of the program.

The Texas Commission on Environmental Quality (TCEQ) published the total collected by all manufacturers, but for unknown reasons did not release company-by-company results. TCE Fund requested these records under the Texas Public Information Act. This report compiles the company-by-company results of the Texas program and compares the total collected with the first-year results in other states with producer takeback programs for used electronics.

Among states with available collection and recycling data, producers collected less in Texas than in any other state in per capita collections. Furthermore, only one company in Texas—Dell, which is headquartered in Texas —recycled a substantial quantity in the first program year. Based on the data, the Texas law must be refined and several aspects of the legislation must be strengthened to ensure that all manufacturers of computers and monitors provide *effective* recycling programs for consumers in Texas.

2.0 The Texas TakeBack Program on Paper

Under the Computer TakeBack Law, an electronics manufacturer must "adopt and implement a recovery plan" for its own branded products in order to sell computer equipment (directly, via retail stores or online) to Texas consumers. Recycling options must be free, "reasonably convenient" and "designed to meet the collection needs of consumers in this state." The takeback program is available only to individuals and home-based businesses. Devices covered by the law include computers, monitors and laptops as well as one keyboard and one mouse per unit.[2] The law also requires manufacturers to affix a label bearing its brand on all covered devices. Upon adoption and implementation of its recovery plan, the manufacturer is required

[2] Keyboards and mice added during the TCEQ rulemaking process following passage of the law.

to submit a statement to the Texas Commission on Environmental Quality (TCEQ) declaring that a recovery plan is available for its products and provide a web address where consumers may find instructions on how to recycle covered devices bearing the manufacturer's brand label. In turn, TCEQ facilitates a single website that provides links to each manufacturer's recovery plan.

Because the law provides flexibility regarding the logistics of each manufacturer's recycling program, there is no standard system or uniform set of criteria that governs the specifics of each individual plan; however, the legislation does explicitly state that all recycling options shall be free for Texas consumers and that no fees for recycling may be charged at any time. The statute does not define "reasonably convenient and available" nor delineate how recycling plans should be "designed to meet the collection needs of consumers;" instead, it outlines three examples of recycling options that satisfy the convenience requirement: 1) mail-back programs, 2) physical collection sites, and 3) collection events. No further guidance regarding the geographic placement of collection sites or location and frequency of collection events is present in the legislation or subsequent TCEQ rules.

The takeback program is based on individual manufacturer responsibility coupled with shared responsibility among consumers, retailers and TCEQ. Manufacturers are financially responsible for recycling their own branded products. A manufacturer can utilize existing recycling infrastructure or set up a unique collection and recovery system; in either case, the manufacturer pays its own way. Manufacturers are also responsible for reporting the amount by weight of covered devices collected, recycled and reused in the previous calendar year; however, they are not responsible for collecting any specific amount of covered devices. In the shared responsibility model, consumers in Texas are responsible for any and all data on electronic equipment returned for recycling. Consumers are also responsible for educating themselves about takeback options by visiting the TCEQ and manufacturer websites. Retailers (including online merchants) may not sell products that do not possess a brand label and may not sell brands made by companies that do not appear on the TCEQ's list of compliant manufacturers. Finally, TCEQ is responsible for maintaining the public website linking to manufacturer recovery plans, ensuring compliance and educating the general public and electronics consumers about takeback programs (though no funding was designated for this purpose).

The TakeBack Law also contains rudimentary provisions for environmentally sound management of computer equipment collected through manufacturer recovery programs. Collectors must follow local, state and federal law in the disposition of obsolete equipment; however, few laws exist at any level to prevent the harmful disposal of electronic waste in Texas. The legislation directs TCEQ to adopt the "Electronics Recycling Operating Practices," a set of voluntary standards approved by the Institute for Scrap Recycling Industries (ISRI) in 2006, or a comparable nationally recognized standard. (TCEQ adopted a more permissive version of the ISRI standards during subsequent rulemaking despite the objections of environmental advocates and more than a dozen state lawmakers.) The presence of various loopholes as well as the voluntary nature of the ISRI guidelines render this recycling standard largely ineffective in protecting the environment both locally and globally. The ISRI guidelines explicit allowances for landfill disposal, which, beyond mere wastefulness, is a potential source of water and air pollution. Furthermore, the broad allowance for export often results in severe pollution in developing countries.

The State of Texas provides incentives for manufacturer compliance and performance through procurement guidelines outlined in the TakeBack Law. In the statute, all state agencies must give preference to manufacturers that provide recycling programs for brands associated with other manufacturers when considering bids for contracts. The language in the legislation does not, however, direct state agencies to give preference to manufacturers that *actually* recycle branded products other than their own; rather, it merely directs the procurement preference to the *presence* of a recycling program. TCE Fund has attempted on a number of occasions to contact the Department of Information Resources to confirm the efficacy of these incentives, but to date has received no response.

Penalties for non-compliant manufacturers that fail to label computer equipment or adopt and implement recovery plans (not actual programs) are $10,000 for the second violation and $25,000 for subsequent violations. Retailers that sell equipment from non-compliant manufacturers are subject to penalties of

$1,000 for the second violation and $2,000 for subsequent violations. In both cases, TCEQ issues a warning notice to non-compliant manufacturers and retailers upon the first violation, after which a sixty-day grace period is provided in order to achieve compliance. TCEQ may contact the Office of the Attorney General to take enforcement action against violators of this statute; to date, no penalties have been assessed.

The Texas TakeBack Law contains a preemption clause that dissolves the program if a federal law is enacted that meets or exceeds the provisions of the Texas statute.

3.0 The Texas TakeBack Program in Practice

In 2009, computer manufacturers recovered a total of 15,247,207 pounds of used electronics for recycling and re-use under the Texas TakeBack Law, approximately 0.62 pounds per capita.[3] Of this total, 13,027,248 pounds were recycled while 2,214,820 pounds were reported in the re-use category. The statute does not define what constitutes acceptable re-use; as a result, TCE Fund is unsure of the purpose for which the equipment was re-used or the final disposition of these products.[4] Although manufacturers are not required to report the amount of electronic equipment sold in Texas, estimates indicate approximately 62,000,000 pounds of computers, monitors and laptops were sold to Texas consumers in 2009,[5] about 2.5 pounds per capita. Based on these estimates, approximately one pound of electronic equipment was recovered through the Texas TakeBack Program for every 4 pounds of computers, monitors and laptops sold in Texas.

The overall collection and recovery numbers are skewed dramatically by the fact that Dell recovered 12,923,787 pounds of used computer equipment—84.76% of the Texas total. Of the remaining equipment collected under the TakeBack Law, Best Buy and Hewlett-Packard were responsible for 60.42%, or 9.21% of the Texas total. All other manufacturers selling computer equipment in Texas collected only 6.03% of the state's total. On a per capita basis, the Dell program accounted for 0.52 pounds, Best Buy for 0.030 pounds and HP for 0.031 pounds; overall statewide collections accounted for just under 0.62 pounds per capita.

Manufacturer recovery plans consisted largely of one or both of two collection methods: mail-back programs and single or multiple drop-off collection sites. Manufacturer-funded collection events appeared as aspects of recovery plans on two manufacturers' public websites; however, no events were listed on TCEQ or manufacturer websites. Several small, local computer shops offered home pickup services on a geographically limited basis.[6] The data shows trend lines connecting the collection methods used by a manufacturer with the amount of electronic equipment it recycled: programs offering drop-off collection sites almost invariably recovered higher amounts than programs that offered only a mail-back option.[7] All manufacturers provided some type of mail-back program; however, manufacturers that *only* provided a mail-back option recycled far less than manufacturers that implemented other collection methods in addition to the mail-back option. In fact, this mail-back "default" option—specifically referenced in the legislation as a collection method that meets the law's convenience requirements—proved least successful of the various options.

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[3] This total differs from the official TCEQ report, which initially declared 12,478,301 pounds recovered in 2009 (revised to 14,392,492 pounds following further review). TCEQ did not include HP collections via ECO International (688,025 lbs.) due to the fact that HP expressed concerns about ECO's environmental management practices and would not certify these collections under the law. TCEQ did not include totals from Sun Microsystems due to the fact that Sun did not distinguish between individual households and businesses in its report. TCE Fund included both HP and Sun collections in this report. TCEQ and TCE Fund did not include collections by LG at a one-day collection event in Dallas due to the fact that televisions and other electronic devices not covered by the TakeBack Law were accepted at the event.

[4] Obsolete electronics designated for "re-use" are often exported to crude scrap operations in developing countries—sometimes in violation of international or U.S. law—where toxic emissions from waste electronics harm the environment and human health. These toxic practices are well-documented. During the TCEQ rulemaking process, nineteen state legislators asked the agency to implement standards to restrict e-waste dumping, incineration and export to no avail. To this end, State Representative Rafael Anchia introduced H.B. 284 during the 81st Texas Legislative Session, requiring electronics recyclers operating under the TakeBack Law to report all e-waste exports to non-OECD countries. After passing in the House, the bill stalled in the Senate.

[5] Estimated per capita consumption of desktop and laptop computers, CRT and flat-panel monitors, mice and keyboards. Estimates based on average weight of covered devices multiplied by total covered devices sold (U.S. EPA, *Electronics Waste Management in the United States: Approach 1* [2008], pp. 7-8) divided by estimated population (U.S. Census Bureau, *Annual Estimates of the Population for the United States, Regions, States, and Puerto Rico: April 1, 2000 to July 1, 2009*). Per capita consumption by weight calculated here is for reference purposes.

[6] One larger manufacturer, Sun Microsystems, also offered pickup services to its customers, primarily businesses not covered by the Texas TakeBack Law. Best Buy also offered pickup services to customers who purchased new equipment from Best Buy and paid for home installation of the new equipment.

[7] When indexed to a manufacturer's national return share, described in more detail below. With few exceptions, larger manufacturers that offered only mail-back programs did not even come close to collecting their fair share of used electronic equipment, even when Dell's totals are excluded from the overall statewide collection numbers.

- **Drop-off collection sites:** The Dell-Goodwill Reconnect™ program allows consumers to drop off used electronic equipment for free at any Goodwill location statewide. Along with Dell, other companies individually or in coalition formed partnerships with Goodwill on a regional basis. National and regional electronics retailers, either independently or in partnership with manufacturers, also served as drop-off locations. Some manufacturers partnered directly with e-recycling companies, where the recycling facility doubled as a collection point for consumers. The majority of small computer-makers either asked consumers to drop off their used equipment at the vendor's home office or provided home pickup services upon request. These computer shops are local or regional operations serving a limited customer base.
- **The mail-back default:** Typically, these programs required consumers to sign up for a prepaid shipping label through the manufacturer's website, package their obsolete electronic device(s) to prepare for mailing and either take the package to a designated shipping store or other eligible mail drop. This is the default option in the Texas law. As a result, 27 of the 83 companies reporting to TCEQ provided *only* mail-back options for Texas consumers. Some companies provided a buy-back or trade-in option, offering financial compensation for functional equipment returned through a mail-back program.

  Many of the major international electronics manufacturers participated jointly in a mail-back program through ECO International, an e-recycler based in Houston. The ECO Take-Back program generates a prepaid UPS shipping label, which consumers must affix to the outside of the box containing their obsolete electronic device(s), then drop off the box for shipping at any UPS Store or UPS-affiliated location. Three additional manufacturers partnered with major national shipping stores—UPS, FedEx and MailBoxes, Etc.—to provide similar mail-back services.
- **One-day collection events:** Many local governments and some businesses throughout Texas hold one-day recycling events for e-waste and other hard-to-recycle items, but only one manufacturer referenced such a collection event in its report to TCEQ and only two mention collection events in their publicly available recovery plans. Historically, one-day collection events have, with ample public education and outreach, recovered substantial quantities of used electronics for recycling.

The Texas TakeBack Law limits the availability of producer takeback options to individuals and home-based businesses. If a local government collects used electronic equipment from individual residents or home businesses, those devices are no longer eligible for free takeback recycling. This is a potentially unforeseen gap in the legislation: even though the covered device was used by an individual consumer and returned by an individual consumer through a political subdivision's existing recycling infrastructure, the device is no longer covered under the statute. As a result, taxpayers and local governments often bear the financial weight for end-of-life disposition.

3.1 The "Dell Factor"

Starting in 2004, Dell began its partnership with Goodwill of Central Texas. It slowly spread to other regions of the state. After the Texas Computer TakeBack Law went into effect, Dell established partnerships with all the Goodwill affiliates in Texas. Dell also offered other collection opportunities. Without Dell's programs, the first year collections would have been miniscule on a per capita basis. A simple comparison of the amount of used computer equipment collected by Dell and the amount collected by all other manufacturers illustrates the influence of the Dell Factor:

Figure 1: The "Dell Factor" (Electronics Collection and Recycling in Texas, 2009)

MANUFACTURER NAME	LBS. COLLECTED IN TEXAS	*PER CAPITA*	LBS. RECYCLED	LBS. FOR RE-USE	% TOTAL	RETURN SHARE*
Dell	**12,923,787**	*0.52*	10,855,963	2,067,824	**84.76%**	**14.03%**
ALL OTHER MANUFACTURERS	**2,323,420**	*0.09*	2,171,285	146,996	**15.24%**	**76.22%**

* National return share is the percentage of each brand that is collected in recycling programs. This report relies on the calculations of the National Center for Electronics Recycling's Brand Data Management System.

Although Dell branded equipment accounts for less than one in every seven pounds of all computers and

monitors returned for recycling nationwide,[8] the company collected about six in every seven pounds returned by Texas consumers through the TakeBack Law, just over half a pound per capita. By contrast, recovery by all remaining manufacturers was less than one-tenth of a pound per capita.

Dell's takeback program consists mainly of fixed collection sites for consumer drop-off. Through its Reconnect™ program, Dell partnered with Goodwill to provide free drop-off and recycling for used computers, monitors, laptops and peripherals at any Goodwill location throughout the state. No other manufacturer matched the widespread availability and convenience of the Reconnect™ partnership, a major reason for the overwhelming disparity in total collections between Dell and its competitors. Additionally, a number of local governments either partner directly with Reconnect™ or refer residents to the program, further increasing total collections. To publicize the recycling program, Goodwill also conducts outreach campaigns through public radio and other media. In particular, Christine Banks with Goodwill Industries of Central Texas has been very active in promoting Reconnect™ and working with state legislators to implement and improve producer takeback recycling policies for electronics. Reconnect™ accepts all brands of electronic equipment, expanding its scope and convenience. Finally, consumers who use the Reconnect™ program to recycle their unwanted electronics receive a tax receipt for a charitable donation.

Dell also partnered with Staples, the national office supplies and electronics retailer, to provide free consumer drop-off sites at over forty locations in Texas. Unlike the Reconnect™ program, Staples accepts only Dell branded products for free recycling, charging consumers a fee for other brands.

The success of Dell's recycling efforts in program year one provides a model for other manufacturers as well as a direction for necessary legislative improvements in the Texas TakeBack Law.[9] Based on the Dell Factor, convenience and publicity appear to function as vital components in the success or failure of a takeback program. The ubiquity of Goodwill locations plus the dozens of Staples outlets across the state presented consumers with ample opportunities to take advantage of physical drop-off sites, which Texans did at far higher rates than any other collection method.

3.2 The Second Tier

The Best Buy and Hewlett-Packard recovery programs finished a distant second to Dell in terms of total electronics collections in 2009. However, it is worth noting that these companies outpaced other manufacturers by substantial margins, accounting for more than three-fifths of all electronics recovered by manufacturers other than Dell. Best Buy collected 700,830 pounds—4.60% of the Texas total—through its drop-off or pick-up recycling programs while HP collected a total of 702,885 pounds—4.61% of the total—through two very different programs that demonstrate two very different results. Also worthy of mention in this, the second tier, is the Texas regional electronics retailer and sometimes-manufacturer Altex Electronics, which collected 91,643 pounds through its retail stores and its Retail Partner Program with Goodwill Industries of San Antonio. All three of these second tier programs provided consumer drop-off at electronics retail locations, although HP altered its recovery plan after the first half of the year.

- The **Best Buy** national recycling program allows consumers to drop off computers and laptops as well as peripherals, cell phones, DVD players, audio equipment, MP3 players and PDAs at any Best Buy location free of charge. Old-style CRT monitors and televisions up to 32" and flat-screen monitors and televisions up to 60" incur a $10 fee, which is then returned to the consumer in the form of a $10 Best Buy gift card. The TakeBack Law does not allow the company to charge a recycling fee for Best Buy-manufactured "house brand" products—Dynex and Insignia. As the preeminent electronics retailer in the nation with a wide-ranging

[8] According to the Brand Data Management System (BDMS) calculated by the National Center for Electronics Recycling (NCER). The BDMS is an inventory of types and brands of electronic equipment returned for recycling at a number of collection sites throughout the United States. Based on data collected through the BDMS, NCER calculates the *national return share*, the percentage by weight of each manufacturer's brand(s) returned at monitored and inventoried collection sites. For the purposes of this analysis, only computers, laptops and monitors were considered in calculating a manufacturer's return share. Fifty-five manufacturers registered in Texas had a return share of less than 0.01%.

[9] Additionally, according to Dell and Goodwill, since its inception Reconnect has diverted more than 96 million pounds of e-waste and created more than 250 green jobs.

presence, Best Buy is a natural fit to serve as a recycling collection point. This is a market-based solution that provides recycling as a community service in exchange for greater in-store foot traffic.

- During the first half of the year, **Hewlett-Packard** contracted with Staples and ECO International, the Houston-based recycler, collecting 688,025 pounds of used equipment via free consumer drop-off collection sites, local takeback events and the ECO Take-Back program. However, during the second half of the year, HP terminated both contracts and shifted to a mail-back only program with a buy-back option. The Staples contract was terminated after suspicions emerged that the retailer did not adequately enforce the "no charge" policy for HP products, as per the law's requirements; the ECO contract ended amid concerns that the recycler did not handle HP products in an environmentally sound manner, as specified by the 2007 law.[10] (A number of major manufacturers continue to use the ECO Take-Back program.)

  Following the shift to the Consumer Buyback and Free Recycling Program—a variation on the default mail-back option that provides compensation for consumers who mail back gently-used HP or Compaq branded products—HP collected only 14,860 pounds of used equipment during the second half of the year, a decline of more than 4,630%. While HP's swift action to disassociate the company from potential allegations of irresponsible recycling proved admirable, its unremarkable second-half collection results highlight the shortcomings of default mail-back programs and their permutations. Considering the fact that HP possesses the highest national return share in the IT sector, the chasm between its first and second-half collections illuminates these deficiencies quite poignantly.

- **Altex Electronics** has eight retail locations in Texas, including three stores in San Antonio, where it also served as a retail partner in the Goodwill Industries of San Antonio e-cycling program. Although Altex only recovered 91,643 pounds in 2009, it still ranked sixth among all companies in total collections in Texas. That a regional electronics retailer with only eight storefronts statewide ranked higher than a number of international manufacturers with substantially higher revenue streams demonstrates the popularity and convenience of drop-off collection sites as well as the lack of meaningful recycling plans implemented by many of the top companies.

With the exception of HP's second-half returns following its shift to a mail-back only plan, the amount of used electronics recovered by these three companies via drop-off programs at fixed locations compared favorably with other major electronics manufacturers in 2009.

Figure 2: Retailers and Retail Partnerships as Compared to All Other Manufacturers (Electronics Collection and Recycling in Texas, 2009)

MANUFACTURER NAME	LBS. COLLECTED IN TEXAS	PER CAPITA	LBS. RECYCLED	LBS. FOR RE-USE	% TOTAL	RETURN SHARE*
Dell	12,923,787	0.5195	10,855,963	2,067,824	84.76%	14.03%
Best Buy	700,830	0.0282	665,400	35,430	4.60%	0.09%
Hewlett-Packard (via Staples/ECO International) **	688,025	0.0277	688,025	0	4.51%	14.84%
Hewlett-Packard (via Market Velocity buy-back) **	14,860	0.0006	13,205	1,655	0.10%	
Altex Electronics	91,643	0.0037	90,811.75	831.25	0.60%	< 0.01%
ALL OTHER MANUFACTURERS	828,062	0.0333	713,843	109,080	5.43%	64.45%

* National return share is the percentage of each brand that is collected in recycling programs. This report relies on the calculations of the National Center for Electronics Recycling's Brand Data Management System.
** HP changed collection methods mid-year from ECO International to a national buyback program. ECO International collections not included by TCEQ due to concerns expressed by HP about the environmental management practices of ECO International.

Best Buy and Altex, with a combined national return share of less than 0.10%, collected only slightly less than seventy-nine manufacturers (excluding Dell and HP) with a combined national return share of more

[10] Dell reported no such problems with its Staples partnership. According to a letter submitted by HP along with its annual TCEQ report, a third-party audit of the ECO facility in Houston revealed "inconsistencies between what appeared to be happening in ECO's operations versus what they told us their operational practices were." HP chose not to report the amount of equipment collected via ECO International because "Hewlett-Packard is **not** comfortable that Eco International *did* comply with all federal, state, and local laws when they were operating recycling services on behalf of Hewlett-Packard."

than 64.45%.[11] On a per capita basis, the two retailers combined to collect 0.032 pounds while the other manufacturers collected a total of 0.033 pounds. Although neither total is particularly high, it is clear that the former reflects real collection efforts conducted by Best Buy and Altex whereas the latter indicates a degree of lip service paid to electronics recycling by the overwhelming remainder of manufacturers.

3.3 Everyone Else

All of the remaining manufacturers did very little to meet the collection needs of the citizens of Texas. Although these companies are responsible for more than 65% of brands returned for recycling nationally, they collected only 5% of all used computer equipment recovered through the Texas TakeBack program in 2009.

3.3.1 The TakeBack Laggards

Some manufacturers performed worse than others while some collected absolutely nothing. In fact, 44 of the 83 companies registered with TCEQ reported zero pounds collected in 2009, including numerous well-known national and international manufacturers and brands. It is important to note that many small computer-makers operating on a local or regional basis complied with the provisions of the TakeBack Law by offering a drop-off collection point or home pickup service for consumers.[12] In fact, many of these local businesses recovered more used equipment for recycling or reuse than international electronics companies, many of which collected nothing. Among large manufacturers, the worst takeback laggards are:

Acer, Sony, ViewSonic, Envision, IBM, Lenovo, NEC and Hitachi collectively recovered 97,892 pounds of used electronics in 2009, approximately four one-thousandths of a pound per capita. By contrast, the same companies will be responsible for recovering 3,596,246 pounds in Oregon alone in 2010, just over nine-tenths of a pound per capita. The combined national return share of the Texas laggards is 30.81%, meaning over three in ten pounds of computer equipment returned for recycling bears the brand of one of these companies. In Texas, however, they were responsible for collecting only 0.64% of the total equipment recovered through the TakeBack Law, about one in every sixteen hundred pounds.

Taken together, these companies represent a substantial portion of the computer equipment and monitor industry—and a vital component in the overall success of any producer takeback recycling system for used electronics. That these particular manufacturers did not implement stronger collection and recycling initiatives goes a long way toward explaining why Texas ranked last among all states in the U.S. during its first program year.

By and large, the common denominator among this group of laggards is a reliance solely on the mail-back default option or one of its variants (buy-back, trade-in, shipping company partnerships, etc.). Program year one in Texas shows that these mail-based recycling programs performed very poorly when compared to the permanent collection site systems implemented by Dell-Goodwill, Best Buy and, on a regional basis, Altex Electronics. Moreover, the mail-back approach employed by many of these major manufacturers lagged behind the simple drop-off systems implemented by smaller computer-makers.[13]

Companies that provided a single drop-off location such as Microage, Zydeco Computer Technologies, Advanced PC Products, Komputer+ Peripherals, et al. collected and recycled greater amounts than large manufacturers like ViewSonic, IBM and Lenovo. Bits Technical, with one drop-off site in Houston, recovered more than NEC, which claims to partner with Staples retail stores and sponsor collection events in Texas.[14]

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[11] Smaller manufacturers with a national return share of less than 0.01% were not included in this figure due to the fact that it is impossible to measure their precise return share with the Brand Data Management System. Estimating their return share was not attempted here.

[12] Sun Microsystems, usually a manufacturer of electronic equipment designed for business clients, reported collecting 166,690 pounds last year through a pickup service arrangement. However, Sun did not distinguish between individuals and businesses in its report and does not provide separate recycling instructions for individual households on its public website. As a result, TCEQ did not count collection numbers reported by Sun in its overall statewide collection total.

[13] Further detail on the nuances of the programs and performance of the laggards can be found in Appendix C.

[14] See NEC Display Solutions website: http://www.necdisplay.com/Recycling/Texas/

Figure 3: E-cycling Laggards as Compared to Local or Regional Computer-Makers (Electronics Collection and Recycling in Texas, 2009)

MANUFACTURER NAME	LBS. COLLECTED IN TEXAS	*PER CAPITA*	LBS. RECYCLED	LBS. FOR RE-USE	% TOTAL	RETURN SHARE*
Apple	**300,345**	***0.01207***	**270,333**	**30,012**	**1.97%**	**4.87%**
Samsung	**117,773**	***0.00473***	**117,773**	**0**	**0.77%**	**3.14%**
Altex Electronics	91,643	*0.00368*	90,811.75	831.25	0.601%	*< 0.01%*
Acer America/Gateway	**57,690**	***0.00232***	**57,360**	**330**	**0.378%**	**13.71%**
Prime Systems**	**40,000**	***0.00161***	**0**	**40,000**	**0.262%**	**< 0.01%**
Sony Electronics	**37,733**	***0.00152***	**22,712**	**15,021**	**0.247%**	**3.16%**
Microage**	9,675	*0.00039*	9,675	0	0.060%	*< 0.01%*
Zydeco Computer Technologies**	2,950	*0.00012*	2,750	200	0.019%	*< 0.01%*
Komputer+ Peripherals**	2,640	*0.00011*	0	2,640	0.017%	*< 0.01%*
Directron.com**	2,000	*0.00008*	0	2,000	0.013%	*< 0.01%*
Advanced PC Products**	1,500	*0.00006*	1,500	0	0.010%	*< 0.01%*
The Computer Link**	1,300	*0.00005*	1,300	0	0.009%	*< 0.01%*
ViewSonic	**1,163**	***0.00005***	**1,163**	**0**	**0.008%**	**4.38%**
Envision Peripherals	**1,000**	***0.00004***	**1,000**	**0**	**0.007%**	**2.71%**
IBM	**765**	***0.00003***	**765**	**0**	**0.005%**	**4.16%**
University Computer Stores**	700	*0.00003*	100	600	0.005%	*< 0.01%*
Lenovo	**458**	***0.00002***	**277**	**181**	**0.003%**	**1.40%**
Bits Technical**	186	*< 0.00001*	186	0	0.008%	*< 0.01%*
NEC Display Solutions	**82.8**	***< 0.00001***	**277**	**181**	**0.001%**	**4.41%**
Bright Ideas Computing**	80	*< 0.00001*	20	60	0.003%	*< 0.01%*
Hitachi America	**0**	***0***	**0**	**0**	**-**	**0.99%**

* National return share is the percentage of each brand that is collected in recycling programs. This report relies on the calculations of the National Center for Electronics Recycling's Brand Data Management System.
** Denotes a small computer-maker that provided a single consumer drop-off location in its local or regional sales market. Some also offered home pickup services. *NOTE:* Prime Systems offered a single consumer drop-off location in each of its three regional markets.

3.3.2 The Conundrum

LG Electronics officially reported only 8,597 pounds of used computer equipment collected in Texas last year; however, LG also included a statement along with its TCEQ report informing the agency that its contract recycler, Waste Management Recycle America, recovered 42,527 pounds of all types and brands of used electronics at a one-day collection event in Dallas on December 18, 2009.[15] Although the LG event accepted heavier items such as televisions, thereby disproportionately adding to the total weight collected, it is clear that residents took at least some advantage of the opportunity to recycle their obsolete electronics at a temporary drop-off collection point. LG also recycled 165,119 pounds of non-computer equipment through CompuCycle, a Houston-based e-cycler also subcontracted by Waste Management, for a total of 216,243 pounds recovered in Texas. LG and Waste Management operate five fixed drop-off collection points in the state.

The LG conundrum is this: how can one manufacturer collect over forty thousand pounds of used electronics in a single day while so many other large manufacturers failed to collect the same amount in an entire year? Although one-time e-waste collection events cannot substitute for truly convenient takeback programs with permanent drop-off locations dispersed strategically across the state, they can supplement manufacturers' overall collections and provide a valuable service to Texas communities.

4.0 Texas Ranks Dead Last in Per Capita Collections

As of April 30, 2010, twenty states plus New York City have passed producer takeback legislation for used electronics.[16] (One state, California, passed e-cycling legislation in 2003 that requires consumers to pay a

[15] For the sake of comparison, Dell collected 2,000,000 pounds of used electronics in fifteen cities during its one-day electronics collection event tour in 2003, an average of 133,333 pounds per event. The LG-Waste Management event collected far less than Dell a full six years after the tour; nevertheless, LG collected more used electronics in a single day than many of its competitors in an entire year.
[16] For a detailed analysis of all state electronics recycling legislation as well as a list of states currently considering electronics takeback legislation, see www.electronicstakeback.com.

recycling fee at the time of purchase.[17]) To date, six states other than Texas have released collection data for their respective producer takeback programs. Among the states reporting first year results, in per capita collections, the Texas law has performed the worst.

Figure 4: Comparison of Electronics Collection Volumes in States with Producer TakeBack Programs

STATE	PROGRAM YEAR 1	TOTAL LBS. COLLECTED	COMPUTERS & MONITORS	TVs	POPULATION	COMPUTERS & MONITORS PER CAPITA	TOTAL LBS. COLLECTED PER CAPITA	RANK
Texas	2009	15,247,207	15,247,207	*not covered*	24,782,302	**0.62**	**0.62**	**Last**
Minnesota	2007-2008	33,000,600	*no product-specific information available for Minnesota program*		5,191,206	**2.78**** ***estimated based on product class avg.*	**6.36**	**1st**
Washington	2009	38,548,674	16,198,062	22,350,612	6,664,195	**1.72**	**5.78**	**2nd**
Oregon	2009	18,993,738	8,176,715	10,817,023	3,825,657	**1.76**	**4.96**	**3rd**
Maine	2006	4,160,574	1,205,726*	2,954,848	1,317,308	**0.92*** **computers not covered in Maine*	**3.16**	**4th**
Rhode Island	2009	2,823,369	*no product-specific information available for Rhode Island program*		1,053,209	**1.17**** ***estimated based on product class avg.*	**2.68**	**5th**
Virginia	2009	7,565,000 *annualized*	7,565,000	*not covered*	7,882,590	**0.96** *annualized*	**0.96** *annualized*	**6th**

NOTE: All population figures from U.S. Census Bureau, 2009 Population Estimates.

The combined population of the six states reporting is about the same as Texas on its own, yet these states recovered approximately 47.5 million pounds of used computers, monitors, laptops and peripherals in their first program years—over three times more than Texas in 2009. Including the amount by weight of used televisions collected in these states brings the recycling figure to over seven times more than Texas.

Why?

Each of the seven states approaches e-waste and e-cycling differently, though the Virginia legislation is virtually identical to the Texas law and the laws in Oregon, Washington and Rhode Island are very similar. Accordingly, the states with the strongest collection results passed legislation that contains three main elements: 1) strong drivers to motivate performance, 2) robust public education, and 3) strong enforcement provisions. Policy drivers provide impetus for both producers and consumers to participate more fully in the state's e-cycling efforts. For example, laws that contain individual producer collection targets create an incentive to set up recycling programs that truly work—and create a disincentive to pay mere lip service to recycling, *a la* the Texas takeback laggards discussed above. Texas failed to fund public education and outreach efforts in the TakeBack Law. As a result, local governments and individuals are by and large uninformed about the free takeback options available through the legislation. Among these seven states, the Texas and Virginia laws contain the weakest enforcement provisions, neither granting the state environmental agency authority to approve or reject a manufacturer recovery plan nor providing metrics to measure the efficacy of a plan after a manufacturer reports its collection results for the previous year. For these reasons, Texas ranked dead last in e-cycling.

Examining these elements in each state law provides an illuminating look at potential strategies that Texas can implement in order to move out of the e-cycling cellar in the coming years.

- **Minnesota:** The Minnesota Electronics Recycling Act was signed into law by Republican Governor Tim Pawlenty in 2007 and was revised by the state legislature in 2009. The scope of the legislation extends beyond computer equipment to cover televisions, printers, fax machines and DVD players returned by Minnesota consumers. Like the Texas law, this program is based on individual manufacturer responsibility and contains a retail sales prohibition. However, unlike the Texas law,

[17] Because the California law is not based on a producer takeback system, TCE Fund does not include California results in this analysis.

Minnesota calculates a recycling obligation for each manufacturer based on the amount by weight of electronic products sold in the previous year—the company's *market share*. During the first program year, manufacturers were required to recycle an amount equal to 60% of their statewide sales, increasing to 80% of sales in the second and subsequent years. Companies that fail to meet this obligation incur a fee of $0.30-$0.50 for every pound under their recycling target. Manufacturers that exceed their recycling target receive credits toward the next year's obligation. As a result, manufacturers selling electronics in Minnesota have a bottom-line financial incentive to implement meaningful recycling programs that meet the collection needs of the citizens of the state. As a bonus, a manufacturer can receive extra credit toward its recycling target for providing collection options to rural areas of the state, thereby encouraging e-cycling efforts outside of major metropolitan areas.

In Minnesota, the takeback legislation explicitly requires manufacturers to conduct public education about the recycling program through advertising and marketing.

Prior to the passage of the Minnesota takeback law, the state implemented a land disposal prohibition, barring consumers from tossing their unwanted electronics in the garbage. The landfill ban drives consumers to seek out recycling options rather than break the law by trashing their obsolete e-waste.

To fund administration and enforcement of the program and provide competitive grants for rural collection efforts, manufacturers pay a $5,000 registration fee in the initial year, then $2,500 each year thereafter. Smaller companies pay only $1,200 annually. Collectors and recyclers also register and report collection results to the State Pollution Control Agency, but are not required to pay any registration fees.

- **Oregon:** The Oregon E-Cycles program, which began January 1, 2009, covers computers, monitors, laptops and televisions and applies to households, small businesses, small non-profits and anyone returning seven items or fewer at any e-cycling location. Also based on individual producer responsibility, the Oregon legislation allows a manufacturer to either set up an independent collection system on its own or in coalition with other companies or opt into the State Contractor Program (SCP). If a manufacturer chooses to establish its own program, it must file a detailed recovery plan for approval by the Department of Environmental Quality (DEQ) annually. Several manufacturers chose to set up independent recycling programs in 2009, including the active statewide presence of the Dell-Goodwill Reconnect™ program.[18] If a manufacturer joins the SCP, it pays a per pound recovery fee based on its overall recycling obligation.

  Oregon sets a per capita e-waste recycling goal for the entire state (3.3 pounds in the first program year). In turn, each manufacturer is responsible for recycling a portion of the statewide goal according to its national return share[19], which DEQ calculates using the Brand Data Management System published by the National Center for Electronics Recycling. If a manufacturer fails to meet its recycling obligation, the state will bill for the shortfall based on the per-pound rate charged by the SCP, plus a ten percent penalty.

  The Oregon legislation requires manufacturers to provide access to free and convenient recycling services, with at least one drop-off collection point in every county as well as every city with a population of 10,000 or greater. The law also established a landfill ban for covered electronic devices and a retail sales prohibition for brands belonging to non-compliant manufacturers.

  Each manufacturer that sells covered electronics to Oregon consumers registers with the DEQ and pays a fee ranging from $40 to $15,000 based on its percentage of national sales in the previous year. These registration fees pay for program administration and enforcement.

[18] Dell facilitated its own e-cycling program through Reconnect™, collecting 3,354,004 pounds; two dozen television manufacturers participated in the MRM e-cycling program, collecting 7,419,944 pounds; a handful of manufacturers formed an e-cycling coalition called Individual Producer Responsibility (IPR), collecting 2,578,238 pounds; all the rest participated in the SCP, collecting 5,619,609 pounds.

[19] National return share is the percentage of each brand that is collected in recycling programs. This report relies on the calculations of the National Center for Electronics Recycling's Brand Data Management System.

- **Washington:** The E-Cycle Washington program began January 1, 2009, providing free recycling for computers, monitors, laptops and televisions. In addition to individual households, the takeback program applies to small businesses, charities, schools, municipalities with less than 50,000 residents and counties with less than 125,000 residents. A quasi-governmental entity managed by electronics manufacturers—the Materials Management and Financing Authority (MMFA)—runs the program, securing contracts for collection, transportation and recycling of covered equipment. The MMFA program is known as the Standard Plan. As part of the Standard Plan, manufacturers must recycle their equivalent share based on statewide returns. When a company fails to recycle its share, MMFA bills the company at a rate of $0.50 per pound; when a company exceeds its share, it is reimbursed at a rate of $0.45 per pound. The state assesses registration fees on a sliding scale based on a manufacturer's market share. These fees help fund program administration and enforcement. Some manufacturers may decide to set up their own independent recycling programs in lieu of the Standard Plan, although none chose to do so in 2009. State government officials play only an advisory role in the MMFA.

  Like Oregon, the Washington legislation requires convenient recycling services, with at least one drop-off collection point in every county as well as every city with a population of 10,000 or greater. The law also established a a retail sales prohibition for brands belonging to non-compliant manufacturers. Washington did not pass a statewide landfill prohibition for covered devices, but a number of the most populous counties ban e-waste from landfills and incinerators located within their boundaries.

- **Maine:** The State of Maine electronics recycling legislation went into effect on January 1, 2006. The law originally covered televisions, monitors and laptops, but excludes desktop computers and peripherals. In 2009, the state legislature added desktop printers, video game consoles and digital picture frames to the list of covered devices.[20] Only individual households are eligible for the free e-cycling program. The covered electronic devices, along with mercury-containing products, are banned from landfill disposal or incineration, thereby driving citizens to utilize recycling options available through the takeback program.

  Maine's public-private takeback system requires municipalities to collect used electronics and transport them to consolidation points, where the equipment is weighed and documented by brand. The state then bills manufacturers for recycling based on its share of the equipment returned through the consolidation points. Municipalities are also responsible for publicizing e-cycling opportunities to their residents. Unlike the other six states, Maine does not allow independent manufacturer recovery and recycling programs. A $3,000 annual registration fee for manufacturers goes into effect on July 1, 2010.

- **Rhode Island:** The Electronic Waste Prevention, Reuse and Recycling Act went into effect on February 1, 2009 and covers computers, laptops, monitors and televisions. Producer takeback recycling is available to individual households as well as public and private elementary and secondary schools. Much like the Oregon legislation, large manufacturers can either set up independent collection systems or pay into a statewide e-cycling program at up to $0.50 per pound. All manufacturers selling covered electronics in the state pay a $5,000 registration fee.

  The legislation also calls for permanent, staffed collection sites in each county throughout the state. These sites must be open to the public at a frequency adequate to meet the collection needs of the residents in that geographic area. Manufacturers that wish to implement independent programs must submit plans detailing how the program will operate. The state environmental agency approves plans that satisfy the convenience requirements and meet the collection needs of Rhode Island consumers. The agency assigns each manufacturer a collection goal. For televisions, the goal is based on a company's market share; for computer equipment, the goal is based on a company's return share. During the first program year, Dell, HP, Sony, Samsung and MRM decided to implement independent e-cycling programs; only Dell reached its collection goal.

[20] Notably, the Maine e-cycling program collected 6.0 pounds of covered electronics per capita in 2009, the fourth year of the program.

Rhode Island enacted a disposal ban for covered electronic devices along with its e-cycling law.

- **Virginia:** The Virginia law, which began January 1, 2009, is virtually identical to the Texas law. In 2009, Dell was responsible for 84.83% of all collections during the first half of program year one, a ratio that mirrors the Texas numbers. Several manufacturers (including Dell) performed better in Virginia than in Texas,[21] which accounts for part of the discrepancy between the per capita collection results (0.96 in Virginia vs. 0.62 in Texas). The Virginia Department of Environmental Quality also maintains a county-by-county list of available e-cycling locations as well as a calendar with one-time collection events, which aids public education and outreach. However, in Virginia as in Texas, many manufacturers relied on the mail-back default or its variants.

4.1 The Texas Law Needs Policy Drivers to Guarantee Performance

Based on the available first-year data, the most important element currently missing from the Texas law is a policy driver or combination of drivers that guarantee manufacturers will recover more than token volumes of used electronics. Dell collected a disproportionate amount of used electronics of all brands while the majority of large manufacturers failed to recycle their fair share. If the Texas TakeBack program is to truly "meet the collection needs of consumers in this state," these companies must participate in a meaningful way in statewide e-cycling efforts. With very few exceptions, all of the major manufacturers already comply with the stronger requirements of e-cycling statutes in other states; adding similar provisions to the Texas law will bring it in line with the more successful programs and provide Texans with the same e-cycling opportunities presently afforded citizens of other states.

Lawmakers must amend the current legislation to include meaningful policy drivers such as individual producer collection goals and/or convenience standards in order to drive up the number of manufacturers providing more than superficial recovery programs. Additionally, a disposal prohibition for electronic devices covered by the TakeBack Law could drive down the amount of toxic e-waste simply tossed in the trash and drive up the demand for recycling services, further increasing the amount of used electronics recovered through producer takeback programs.

4.1.1 Collection goals and targets

The most effective state e-cycling programs establish collection goals and targets for individual manufacturers, typically calculated on the basis of market share or return share. Minnesota, for instance, requires manufacturers to recover an amount equal to 80% by weight of products sold in the state during the previous year—their market share. Other states combine elements of both market and return share approaches to calculate goals and targets. Oregon set a per capita collection goal of 3.3 pounds in 2009, with each manufacturer responsible for a certain percentage of the total returned for recycling. Although these approaches differ in calculation methods, the fundamental idea is the same: when a manufacturer has a predetermined collection goal or target, it provides adequate recycling services in order to hit the target. When that manufacturer fails to fulfill its responsibility, these states bill the manufacturer on a per-pound basis for the shortfall.

Texas, on the other hand, did not institute such goals or targets. Consequently, many of the largest manufacturers with the highest national return share failed to recycle substantive amounts of unwanted electronics, relying instead on ineffective mail-back options. Instituting concrete, well-defined collection goals based on market share or return share (or a combination of both) would help ensure these manufacturers make a stronger effort to implement effective recycling programs in order to meet their recycling obligation.

4.1.2 Convenience and access standards

Convenience and access standards also help drive some of the successful state e-cycling programs. In both Oregon and Washington, approved recycling programs must provide at least one permanent drop-off collection site in every county and in every city with a population of 10,000 or greater. Manufacturers can contract with private, public or non-profit organizations of their choosing to manage these sites. Maine

[21] Dell collected 0.81 lbs. per capita in Virginia vs. 0.52 lbs. per capita in Texas; also Sony: 0.18 lbs. vs. 0.0015 lbs.; Apple: 0.05 lbs. vs. 0.01lbs.; Best Buy: 0.042 lbs. vs. 0.028 lbs.; Samsung: 0.011 lbs. vs. 0.0047 lbs.; Sun Microsystems: 0.017 lbs. vs. 0.007 lbs.

places the onus on municipalities, requiring cities to provide permanent drop-off locations, one-day collection events or access to state-approved consolidation points. TCE Fund does not support placing the burden for providing collection sites on any political subdivision; however, modifying the Maine model to encourage *producer-funded* initiatives that utilize existing local government collection infrastructure such as transfer stations, recycling locations or other publicly-owned facilities could prove workable in Texas.[22]

Under the Texas law, manufacturers must provide "reasonably convenient" recycling options as part of a compliant recovery plan. However, the statute does not define the term "convenient," instead providing a list of examples that nominally satisfy the convenience requirement without delineating specific criteria such as geographic placement of collection sites based on population or political boundaries. In essence, this section of the statute allowed for a path of least resistance—the default mail-back option, which proved least effective of the various collection methods in Texas. In 2009, one in three recovery plans in Texas relied completely on the mail-back default. Texas lawmakers should amend the current law to require real convenience and access standards as part of all compliant manufacturer recovery plans.

4.1.3 Landfill prohibitions

The State of Texas still allows disposal of used electronics in landfills and incinerators. At least one local jurisdiction and one private landfill operator have instituted *de facto* disposal bans by refusing to pick up unwanted e-waste placed at the curb or in the alley; however, these highly localized policies do not possess the force of law.

By contrast, Minnesota, Oregon, Maine and Rhode Island enacted e-waste disposal prohibitions along with or prior to passage of their e-cycling laws, and Connecticut, New Jersey, Indiana, Illinois, North Carolina and New York City have passed landfill bans that go into effect between 2010 and 2012. With adequate public education, disposal prohibitions drive consumers to seek alternative options and bolster existing recycling or recovery infrastructure. Texas should join these states in prohibiting land disposal and incineration of electronic equipment covered by the TakeBack law.

TCE Fund recommends the adoption of a disposal ban for individuals and businesses, with disposal operators responsible for informing customers that covered electronics are not accepted for disposal through utility bill inserts, signage at disposal facilities, or other means. Disposal operators would not be liable for unknowingly accepting prohibited electronics. H.B. 4084, filed during the 2009 Texas Legislative Session, would have instituted such a disposal ban.

4.2 Texas Lags on Public Education and Outreach

Robust public education and outreach are also necessary to produce results. Manufacturers, retailers, political subdivisions, government agencies, non-profits and individuals share responsibility for consumer awareness. Some state e-cycling laws outline public education requirements and provide some level of funding for one or more of these stakeholder groups to carry out such education campaigns. Minnesota and Rhode Island require all manufacturers to advertise and publicize e-cycling efforts. Oregon and Washington jointly brand their e-cycling initiatives to streamline costs and messaging for citizens of both states. Maine relies upon local governments to conduct outreach. The Virginia Department of Environmental Quality maintains a website listing available recycling options and events on a county-by-county basis. Meanwhile, Texas places the mandate for public education on TCEQ, which has not implemented a meaningful public outreach campaign and does not maintain a list of e-waste collection sites or events.

4.2.1 Texas law does not fund public education efforts statewide or locally

The Texas TakeBack Law requires TCEQ to educate consumers about e-cycling options; however, this is an unfunded mandate without appropriations or fee-based funding structure. Texas is one of only five states that did not include a manufacturer registration fee in its takeback legislation. For the most part, other states use registration fees to fund program administration and enforcement as well as public education and outreach. Fees range on a sliding scale from $14,000 for large manufacturers to $40 for small

[22] For example, the City of Dallas partnered with Samsung and other manufacturers to provide manufacturer-funded recycling via permanent collection sites at four city-owned transfer stations as well as four one-day collection events in fiscal year 2008-2009. In doing so, Dallas collected 512,567 pounds of used electronics in 2008-2009, up from 25,588 pounds collected in fiscal year 2007-2008. Their collections were more than the total that most producers collected statewide.

manufacturers, with $5,000 the most common fee. H.B. 2922, introduced during the 2009 legislative session, would have instituted a $5,000 annual fee for manufacturers with more than 1% of electronics sales in Texas, providing $130,000 in revenue for TCEQ. H.B. 821, passed by the Texas House and Senate but vetoed by the Governor, contained a provision for a $2,500 annual fee for television manufacturers. Texas will continue to lag on public education without at least minimal funding for statewide advertising and publicity around the e-cycling program. Although TCEQ designed public education materials intended for use by local governments and others, distribution of these materials has been limited.

During the 2009 Texas Legislative Session, Senator Kirk Watson considered adding a $1 million rider to the state budget to give TCEQ the resources to conduct rudimentary public education efforts. Most Texans instantly recognize the "Don't Mess with Texas" anti-litter campaign. A modest "Don't Trash Electronics" or "Companies Take 'Em Back in Texas" campaign to promote the TakeBack Law would help the e-cycling message reach a broader audience.

4.2.2 Texas law does not include provisions for public education efforts by electronics retailers
States with successful e-cycling programs require electronics retailers to provide information at the point of sale about how and where to recycle covered products. Information can include a web address and toll-free phone number listing producer takeback programs and can be printed on sales receipts or product packaging. In Texas, H.B. 2826, which would have instituted such education requirements for electronics retailers, passed in the House of Representatives in 2009 but stalled in the Senate. The bill also allowed TCEQ to remove non-compliant recovery plans from the list of compliant manufacturers, thereby easing compliance with the sales prohibition.

The relative success of the Best Buy and Altex Electronics programs in Texas demonstrates the potential benefit of retailer involvement in public education efforts.

4.2.3 Most local governments are not engaged in public education and outreach
Local government entities often function as the "recycler of first resort" for their residents (particularly for information about hard-to-recycle products like electronics). In November 2009, TCE Fund released a survey of two hundred Texas municipalities that showed less than one in five cities mentioned the Texas TakeBack Law on its public website and less than one in nine city officials contacted via phone referred callers to the TakeBack Law. With more local government engagement, more Texans will become familiar with takeback recycling options, saving tax dollars currently allocated to municipally- or county-funded e-cycling efforts.

4.3 The Texas Law Lacks Effective Enforcement Mechanisms
The retail sales prohibition has been effective at ensuring manufacturers file recovery plans with TCEQ; however, filing a recovery plan does not equate to implementing an effective recovery program. More than half of registered manufacturers collected nothing in program year one.

In other states such as Minnesota, recycling targets mitigate somewhat the need for a permit approval process—manufacturers have a vested financial interest in collecting their share. States such as Oregon, Washington and Rhode Island include convenience standards that manufacturer recovery plans must meet in order to be approved for implementation; otherwise, manufacturers must pay into a standard recycling plan managed by the state or a third-party organization. In these states, the respective environmental agencies are granted the authority to make certain each manufacturer meets a predetermined collection goal and, in cases of shortfall, also possesses authority to levy penalties for those that fail to fulfill their responsibility. TCEQ may issue penalties only in cases when a manufacturer fails to label its branded products, or when manufacturers or retailers sell branded products that are not part of a compliant recovery plan.

4.3.1 State environmental agency has no authority to approve or reject manufacturer recovery plans
The Texas TakeBack Law requires a manufacturer to submit a statement to TCEQ affirming the adoption and implementation of a recovery plan as well as the public website where recycling information is available for consumers. The legislation does not explicitly grant TCEQ authority to approve or reject a

recovery program, even if the program fails to meet the basic criteria—free, convenient and environmentally sound—outlined in the legislation. As a result, a recovery plan deemed by the manufacturer to meet the collection needs of Texas consumers becomes the plan implemented by the manufacturer, whether or not it actually meets those collection needs. TCEQ should have the authority to examine a manufacturer's recovery plan and decide whether or not the plan will actually serve the recycling needs of Texas consumers.

4.3.2 No defined criteria for convenience and collection needs

Following implementation of the plan, TCEQ does possess the authority to take enforcement action against a non-compliant manufacturer if it fails to provide free and convenient recycling or if it does not provide recycling instructions on its public website. In fact, TCEQ issued warnings to at least 53 manufacturers and retailers for selling covered electronics in Texas without *filing* a recovery plan. However, without criteria to determine what constitutes a "reasonably convenient" recovery plan that "meets the collection needs of the consumers of this state," the agency cannot determine whether or not a manufacturer provides adequate recycling options for its consumers. As discussed previously, more effective e-cycling programs in Oregon, Washington and Maine all possess convenience standards based on population and/or political boundaries. Texas should define the phrases "reasonably convenient" and "collection needs of the consumers of this state."

4.3.3 No metrics for measuring the efficacy of a manufacturer recovery plan

The Texas TakeBack Law does not provide a means by which the state can measure whether or not a manufacturer collects adequate quantities of used electronics over the course of a year. States such as Minnesota, Oregon, Washington and Rhode Island use market share and/or return share metrics to calculate each manufacturer's recycling responsibility in each program year, then use those metrics to determine whether a manufacturer met or exceeded its obligation. All three allow the respective state environmental agencies to issue penalties in cases where a manufacturer does not meet its obligation. In these states, the overwhelming majority of companies met or exceeded their recycling share during the first program year. In order to make sure all manufacturers recycle their fair share in Texas, the state needs benchmarks such as market or return share to determine how a collection program performed in the previous year.

5.0 Summary of Legislative Recommendations

Data from the first year of the Texas TakeBack Program highlights a number of avenues for improvement, particularly when compared to the results from other states with stronger policy language. State lawmakers must amend the Texas TakeBack Law to ensure that all producer recovery programs meet the collection needs of Texas consumers and that all manufacturers recycle their fair share in the state.

Currently, many companies' programs do not provide truly convenient e-cycling options due to the mail-back default; policy language should shift the default convenience standard to permanent drop-off collection sites (either new or existing) dispersed geographically and on the basis of population throughout the state. TCE Fund also recommends additional policy changes to streamline compliance and enforcement, incentivize collection and deter irresponsible recycling. TCE Fund recommendations are as follows:

- **Implement takeback programs for televisions and other electronic products:** Other states recycled three times more computer equipment per capita than Texas. However, when televisions are included, these same states recycled seven times more per capita. Televisions account for approximately 56% by weight of all obsolete electronics, and CRT televisions contain four to eight pounds of lead. The bi-partisan H.B. 821, which added a takeback recycling program for TVs, passed overwhelmingly in the House and unanimously in the Senate prior to gubernatorial veto.

- **Include enforceable minimum collection goals based on national return share or recycling targets based on Texas sales:** In other states, manufacturers meet and exceed collection goals based on return share and recycling targets based on sales. These are market-based solutions to provide manufacturers with an impetus to provide recycling programs that work.

- **Define "reasonably convenient" with population and geographic placement provisions; refine how a recovery plan must "meet the collection needs of the consumers of this state":** To

provide adequate statewide collection, Texas should define "reasonably convenient" to establish minimum availability for drop-off collection options to areas based on population densities. For sparsely populated areas of the state, this proposed language could be used to judge whether a plan meets consumer collection needs in rural parts of the state.

- **Establish a disposal prohibition for covered electronics:** When consumers cannot simply trash their old electronics, they will seek out recycling opportunities. To this end, H.B. 4084 was introduced in 2009, but did not emerge from the House Environmental Regulation Committee. Legislators, NGOs and landfill operators should discuss policy language that prohibits land disposal of toxic electronics.

- **Extend the TakeBack Law to cover additional consumers:** Currently, the TakeBack Law applies only to individuals and home businesses. In order to divert more toxic electronics and relieve taxpayers of the financial burden for e-waste recycling and disposal, the TakeBack Law should include small businesses, small non-profits with fewer than fifty employees, public and private schools and local governments.

- **Fund public education and outreach efforts beginning with manufacturer registration fees:** Most states require a manufacturer registration fee to fund public outreach and program administration. Texas lawmakers considered H.B. 2922 in the 2009 Session, implementing a $5,000 registration fee for the largest computer manufacturers (many of the laggards in this report). Legislative Budget Board estimates indicated net revenue of $130,000 with passage of this bill. Additionally, television manufacturers built a $2,500 registration fee into H.B. 821, which the industry trade association and individual electronics companies supported. While this is a small amount for a state as big as Texas, when combined with the efforts of producers, retailers and local governments, it can help germinate more widespread public awarness.

- **Enlist electronics retailers to assist in public education efforts:** Every state with an effective e-cycling program requires electronics retailers to provide information about available recycling options at the point of sale. This information should include at a minimum a public website and toll-free phone number listing each manufacturer's takeback program and can be printed on the sales receipt or included as a decal on product packaging. During the 2009 Legislative Session, H.B. 2826 would have created these retailer education provisions. The bill passed on the Uncontested Calendar in the House, but stalled in the Senate Natural Resources Committee.

- **Give TCEQ authority to remove non-compliant manufacturers from the list of compliant recovery plans:** H.B. 2826 also streamlined retailer compliance by giving TCEQ the authority to remove non-compliant manufacturers from the list of compliant recovery plans on a quarterly basis. Currently, TCEQ must list plans when they become compliant, but has no authority to remove plans when they become non-compliant.

- **Give TCEQ authority to approve or reject manufacturer recovery plans:** Collection goals or recycling targets will mitigate somewhat the need for an approval process; however, TCEQ should have the power to reject manufacturer plans that fail to meet the basic criteria of the TakeBack Law—free, convenient and environmentally sound.

- **Require electronics recyclers to report all overseas shipments to developing countries:** The Electronics TakeBack Law promised responsible recycling for Texas consumers. Dumping e-waste in developing nations is neither "responsible" nor "recycling." Most legal experts agree that state governments cannot ban the export of toxic electronics; H.B. 284, filed by State Representatives Rafael Anchia and Dwayne Bohac, would have created transparency for Texas consumers by requiring e-cyclers to file regular reports detailing overseas shipments of electronics parts or equipment to non-OECD nations. The bill passed in the House but stalled in the Natural Resources Committee.

- **Require state agencies to consider end-of-life disposition in all IT procurements:** The State of Texas should use its purchasing power to encourage responsible end-of-life recycling.

- **Provide a mechanism for public input on the efficacy of takeback programs:** Presently, TCEQ provides an annual report to the Texas Legislature on previous year collections. Public participation is not part of this process. The takeback program should include a mechanism for the public—as well as political subdivisions, Councils of Governments, or others on the consumers' behalf—to provide input on the program's effectiveness. Such feedback mechanisms are necessary for accurate evaluation of the program's achievements by Texas State Legislators and others.

Appendix A: Manufacturer-by-Manufacturer Recycling and Reuse Data, Sorted by Amount

MANUFACTURER NAME	POUNDS COLLECTED IN TEXAS	PER CAPITA	LBS. RECYCLED	LBS. FOR RE-USE	% TOTAL	PROGRAM TYPE(S)	NATIONAL RETURN SHARE****
Dell	**12,923,787**	0.51957	10,855,963	2,067,824	**84.76%**	G/RP/MB/P	**14.03%**
Best Buy	**700,830**	0.02818	665,400	35,430	**4.60%**	DO	**0.09%**
Hewlett-Packard (via Staples/ECO Int'l)*	**688,025**	0.02766	688,025	0	**4.51%**	RP/E/DO	**14.84%**
Apple	**300,345**	0.01207	270,333	30,012	**1.97%**	MB	**4.87%**
Sun Microsystems***	**166,690**	0.00670	145,651	15,923	**1.09%**	(P)	**0.21%**
Samsung	**117,773**	0.00473	117,773	0	**0.77%**	G/MB	**3.14%**
Altex Electronics	**91,643**	0.00368	90,811.75	831.25	**0.60%**	DO/G	**< 0.01%**
Panasonic	**66,667**	0.00268	66,667	0	**0.44%**	MB/DO	**0.56%**
Acer America (includes Gateway)	**57,690**	0.00232	57,360	330	**0.38%**	MB	**13.71%**
Prime Systems	**40,000**	0.00161	0	40,000	**0.26%**	DO	**< 0.01%**
LG (via one-day WMI collection event)**	**42,527**	0.00171	42,527	0	**-**	E	**0.73%**
Sony Electronics	**37,733**	0.00152	22,712	15,021	**0.25%**	MB	**3.16%**
Hewlett-Packard (via mail-back program)*	**14,860**	0.00060	13,205	1,655	**0.10%**	MB	**14.84%**
Microage	**9,675**	0.00039	9,675	0	**0.06%**	DO	**< 0.01%**
LG	**8,597**	0.00035	8,597	0	**0.06%**	DO	**0.73%**
International Products Sourcing Group	**3,850**	0.00015	3,850	0	**0.03%**	RP	**< 0.01%**
Zydeco Computer Technologies	**2,950**	0.00012	2,750	200	**0.02%**	DO	**< 0.01%**
Komputer+ Peripherals	**2,640**	0.00011	0	2,640	**0.02%**	DO	**< 0.01%**
Directron.com	**2,000**	0.00008	0	2,000	**0.01%**	DO	**< 0.01%**
Advanced PC Products	**1,500**	0.00006	1,500	0	**0.01%**	DO	**< 0.01%**
The Computer Link	**1,300**	0.00005	1,300	0	**0.01%**	DO	**< 0.01%**
ViewSonic	**1,163**	0.00005	1,163	0	**0.01%**	MB/DO	**4.38%**
Wakstar	**1,100**	0.00004	926	174	**0.01%**	DO	**< 0.01%**
Axiontech	**1,000**	0.00004	0	1,000	**0.01%**	DO	**< 0.01%**
Envision Peripherals	**1,000**	0.00004	1,000	0	**0.01%**	MB	**2.71%**
Toshiba America	**810**	0.00003	810	0	**0.01%**	DO/MB	**0.17%**
IBM	**765**	0.00003	765	0	**0.01%**	MB	**4.16%**
University Computer Stores	**700**	0.00003	100	600	**0.00%**	DO	**< 0.01%**
Lenovo	**458**	0.00002	277	181	**0.00%**	MB	**1.40%**
Westgate Computers	**368**	0.00001	0	368	**0.00%**	DO	**< 0.01%**
Computer Shak	**300**	0.00001	0	300	**0.00%**	DO/P	**< 0.01%**
Double Eagle	**294**	0.00001	245	49	**0.00%**	DO/P	**< 0.01%**
Workhorse Computers	**250**	0.00001	50	200	**0.00%**	DO	**< 0.01%**
Bits Technical	**186**	< 0.00001	186	0	**0.00%**	DO	**< 0.01%**
NEC Display Solutions	**82.80**	< 0.00001	82.80	0	**0.00%**	RP/E/DO	**4.41%**
Bright Ideas Computing	**80**	< 0.00001	20	60	**0.00%**	DO	**< 0.01%**
Magic Box Solutions	**50**	< 0.00001	50	0	**0.00%**	DO	**< 0.01%**
Maverick Computer Services	**30**	< 0.00001	0	18	**0.00%**	DO	**< 0.01%**
David Anderson Consulting	**15**	< 0.00001	0	4	**0.00%**	P	**< 0.01%**
@Xi Computer	**0**	0	0	0	**-**	MB	**< 0.01%**
Ag Neovo	**0**	0	0	0	**-**	MB	**< 0.01%**
AMAX Engineering	**0**	0	0	0	**-**	DO	**< 0.01%**
ARM Electronics	**0**	0	0	0	**-**	DO	**< 0.01%**
ASUS Computer International	**0**	0	0	0	**-**	MB	**< 0.01%**
Austin Computing	**0**	0	0	0	**-**	DO	**< 0.01%**
Bass Computers	**0**	0	0	0	**-**	P	**< 0.01%**
BenQ America	**0**	0	0	0	**-**	MB	**0.05%**
DoubleSight Displays	**0**	0	0	0	**-**	not avail.	**< 0.01%**
DRS Tactical Systems	**0**	0	0	0	**-**	MB	**< 0.01%**
Equus Computer Systems	**0**	0	0	0	**-**	DO	**< 0.01%**
Fourstar Group	**0**	0	0	0	**-**	DO	**0.03%**
Fujitsu America	**0**	0	0	0	**-**	MB	**< 0.01%**
Gammatech Computer Corp.	**0**	0	0	0	**-**	MB	**< 0.01%**
General Dynamics - Itronix	**0**	0	0	0	**-**	MB	**< 0.01%**
Hanspree North America	**0**	0	0	0	**-**	MB	**< 0.01%**
Hitachi America	**0**	0	0	0	**-**	MB/DO	**0.99%**
Howard Technology Solutions	**0**	0	0	0	**-**	not avail.	**< 0.01%**
Hyundai IT America	**0**	0	0	0	**-**	MB	**0.03%**
Ingram Micro Private Label - V7	**0**	0	0	0	**-**	MB	**< 0.01%**
M & A Technology	**0**	0	0	0	**-**	DO	**< 0.01%**
Microsel	**0**	0	0	0	**-**	not avail.	**< 0.01%**
Motion Computing	**0**	0	0	0	**-**	MB	**< 0.01%**
MSI Computer	**0**	0	0	0	**-**	DO	**< 0.01%**
NCR	**0**	0	0	0	**-**	MB	**0.09%**
No Nonsense Computers	**0**	0	0	0	**-**	DO	**< 0.01%**
Nokia	**0**	0	0	0	**-**	MB	**0.06%**
Paxson Enterprises	**0**	0	0	0	**-**	DO	**< 0.01%**
PC & Cable	**0**	0	0	0	**-**	not avail.	**< 0.01%**
Planar Systems	**0**	0	0	0	**-**	MB	**0.01%**
Premio	**0**	0	0	0	**-**	MB	**0.14%**
RCS Technologies	**0**	0	0	0	**-**	DO	**< 0.01%**
Sceptre	**0**	0	0	0	**-**	MB	**0.26%**
Seneca Data Distributors	**0**	0	0	0	**-**	MB	**< 0.01%**
Shuttle Computer Group	**0**	0	0	0	**-**	MB	**< 0.01%**
Sigma IT	**0**	0	0	0	**-**	P	**< 0.01%**
Systemax	**0**	0	0	0	**-**	MB	**0.17%**
That Computer Store	**0**	0	0	0	**-**	DO	**< 0.01%**
Trigem USA	**0**	0	0	0	**-**	DO	**< 0.01%**
Videotex Systems	**0**	0	0	0	**-**	DO	**< 0.01%**
VIZIO	**0**	0	0	0	**-**	MB	**< 0.01%**
Westinghouse	**0**	0	0	0	**-**	MB	**< 0.01%**
Wyse Technology	**0**	0	0	0	**-**	MB	**0.28%**
ZT Systems	**0**	0	0	0	**-**	DO	**< 0.01%**
Medion AG	**did not report**	-	-	-	**-**	MB	**< 0.01%**
TOTAL	**15,247,207**		13,069,775	2,214,820			
PER CAPITA (LBS.)		**0.62**	*0.527*	*0.089*			
TOTAL WITHOUT DELL	**2,323,420**		2,211,062	146,796			
PER CAPITA (LBS.)		**0.09**	*0.089*	*0.006*			
Companies collecting nothing in 2009:	**44**	*53.01% of all companies reporting*					

PROGRAM TYPE LEGEND

MB - Mail-back program (and variants)
DO - Consumer drop-off locations
G - Goodwill partner **RP** - Retailer partner
P - Home pickup **E** - Collection events

* HP changed collection methods mid-year from ECO International to a national buyback program. ECO International collections not included by TCEQ due to concerns expressed by HP about the environmental management practices of ECO International. Totals were included in this report.

** LG partnered with Waste Management for a one-day collection event in Dallas. Totals not included here due to the presence of non-covered devices in amount reported.

*** Sun Microsystems total not included by TCEQ because household and business collections were not separated. Totals are included in this report.

**** National return share calculated by National Center for Electronics Recycling (Brand Data Management System).

Appendix B: Manufacturer-by-Manufacturer Recycling and Reuse Data, Sorted by Name

MANUFACTURER NAME	POUNDS COLLECTED IN TEXAS	PER CAPITA	LBS. RECYCLED	LBS. FOR RE-USE	% TOTAL	PROGRAM TYPE(S)	NATIONAL RETURN SHARE****
@Xi Computer	0	0	0	0	-	MB	< 0.01%
Acer America (includes Gateway)	57,690	0.00232	57,360	330	0.38%	MB	13.71%
Advanced PC Products	1,500	0.00006	1,500	0	0.01%	DO	< 0.01%
Ag Neovo	0	0	0	0	-	MB	< 0.01%
Altex Electronics	91,643	0.00368	90,811.75	831.25	0.60%	DO/G	< 0.01%
AMAX Engineering	0	0	0	0	-	DO	< 0.01%
Apple	300,345	0.01207	270,333	30,012	1.97%	MB	4.87%
ARM Electronics	0	0	0	0	-	DO	< 0.01%
ASUS Computer International	0	0	0	0	-	MB	< 0.01%
Austin Computing	0	0	0	0	-	DO	< 0.01%
Axiontech	1,000	0.00004	0	1,000	0.01%	DO	< 0.01%
Bass Computers	0	0	0	0	-	P	< 0.01%
BenQ America	0	0	0	0	-	MB	0.05%
Best Buy	700,830	0.02818	665,400	35,430	4.60%	DO	0.09%
Bits Technical	186	< 0.00001	186	0	0.00%	DO	< 0.01%
Bright Ideas Computing	80	< 0.00001	20	60	0.00%	DO	< 0.01%
Computer Shak	300	0.00001	0	300	0.00%	DO/P	< 0.01%
David Anderson Consulting	15	< 0.00001	0	4	0.00%	P	< 0.01%
Dell	12,923,787	0.51957	10,855,963	2,067,824	84.76%	G/RP/MB/P	14.03%
Directron.com	2,000	0.00008	0	2,000	0.01%	DO	< 0.01%
Double Eagle	294	0.00001	245	49	0.00%	DO/P	< 0.01%
DoubleSight Displays	0	0	0	0	-	not avail.	< 0.01%
DRS Tactical Systems	0	0	0	0	-	MB	< 0.01%
Envision Peripherals	1,000	0.00004	1,000	0	0.01%	MB	2.71%
Equus Computer Systems	0	0	0	0	-	DO	< 0.01%
Fourstar Group	0	0	0	0	-	DO	0.03%
Fujitsu America	0	0	0	0	-	MB	< 0.01%
Gammatech Computer Corp.	0	0	0	0	-	MB	< 0.01%
General Dynamics - Itronix	0	0	0	0	-	MB	< 0.01%
Hanspree North America	0	0	0	0	-	MB	< 0.01%
Hewlett-Packard (via Staples/ECO Int'l)*	688,025	0.02766	688,025	0	4.51%	RP/E/DO	
Hewlett-Packard (via mail-back program)*	14,860	0.00060	13,205	1,655	0.10%	MB	14.84%
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Howard Technology Solutions	0	0	0	0	-	not avail.	< 0.01%
Hyundai IT America	0	0	0	0	-	MB	0.03%
IBM	765	0.00003	765	0	0.01%	MB	4.16%
Ingram Micro Private Label - V7	0	0	0	0	-	MB	< 0.01%
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Maverick Computer Services	30	< 0.00001	0	18	0.00%	DO	< 0.01%
Medion AG	did not report	-	-	-	-	MB	< 0.01%
Microage	9,675	0.00039	9,675	0	0.06%	DO	< 0.01%
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MSI Computer	0	0	0	0	-	DO	< 0.01%
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NEC Display Solutions	82.80	< 0.00001	82.80	0	0.00%	RP/E/DO	4.41%
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Nokia	0	0	0	0	-	MB	0.06%
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Trigem USA	0	0	0	0	-	DO	< 0.01%
University Computer Stores	700	0.00003	100	600	0.00%	DO	< 0.01%
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ViewSonic	1,163	0.00005	1,163	0	0.01%	MB/DO	4.38%
VIZIO	0	0	0	0	-	MB	< 0.01%
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Westinghouse	0	0	0	0	-	MB	< 0.01%
Workhorse Computers	250	0.00001	50	200	0.00%	DO	< 0.01%
Wyse Technology	0	0	0	0	-	MB	0.28%
ZT Systems	0	0	0	0	-	DO	< 0.01%
Zydeco Computer Technologies	2,950	0.00012	2,750	200	0.02%	DO	< 0.01%
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PER CAPITA (LBS.)		**0.09**	*0.089*	*0.006*			
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*** Sun Microsystems total not included by TCEQ because household and business collections were not separated. Totals are included in this report.

**** National return share calculated by National Center for Electronics Recycling (Brand Data Management System).

Appendix C: More Details on Some TakeBack Laggards

Among the group of laggards, two manufacturers collected enough used equipment to set themselves apart from those at the very bottom of the list, but flaws in their respective recovery programs prevented them from joining the second tier.

Apple collected 300,345 pounds via its mail-back partnership with FedEx, accounting for 1.97% of the Texas total. However, Apple does not utilize its numerous retail storefronts to recover Apple branded computers and displays (stores will accept iPods and iPhones). Apple has a national return share of 4.97%.

Samsung recovered 117,773 pounds through its Recycling Direct™ program, which offers fixed collection sites for consumer drop-off, including some Goodwill locations in North Texas. Samsung also provides drop-off sites through its participation in the Electronics Manufacturer Recycling Management Company (MRM), a coalition comprised largely of major television manufacturers that offers e-cycling services. Samsung also uses the ECO Take-Back mail-in program provided by ECO International. Although Samsung's general approach—provide consumer drop-off locations through multiple outlets—appears sound, the limited geographic availability of Recycling Direct™ locations (only three outside of North Central Texas) infuses the recovery plan with a kind of *de facto* mail-back default for a majority of Texans (living in areas where drop-off is unavailable). Adding collection sites and increasing publicity will greatly improve Samsung's program. Samsung collected 0.77% of the Texas total, though its national return share for computers, laptops and monitors is 3.14%.

Acer America, which also owns the Gateway brand, accounted for 13.71% of the national return share, ranking third behind HP and Dell. However, in Texas, Acer was responsible for only 0.38% of all equipment collected through the takeback program in 2009. Its mail-back option for Acer products and buy-back program for Gateway branded products recovered a net total of 57,690 pounds, just over two one-thousandths of a pound per capita. The overall collection numbers for the Acer programs appear higher than those of other manufacturers, but when it comes to recycling numbers vis-à-vis the company's standing in the marketplace, Acer fell short.

Sony Electronics implemented voluntary takeback efforts in 2008 through a partnership with Waste Management Recycle America; however, the partnership apparently dissolved when Sony joined the ECO International mail-back program with a buy-back option. Sony collected only 37,733 pounds in Texas last year, 0.25% of the Texas total. By contrast, Sony's national return share is 3.16%.

ViewSonic, one of the leading manufacturers of computer monitors with a 4.38% national return share, collected 1,163 pounds—0.008% of the Texas total—through its Recycle+ program, a mail-back partnership with FedEx and four statewide drop-off collection sites. All of the ViewSonic collection sites are e-cyclers with Texas processing facilities, two of which are in towns with populations of less than 30,000 residents. A main problem with the ViewSonic program is consumer education and lack of clarity in its recycling instructions. On one hand, its public website describes the Recycle+ program as a network of forty-eight collection sites nationwide, including the four Texas locations; on the other hand, the website details only a mail-back program for residents in Texas and other states with producer takeback legislation.

Envision Peripherals, another monitor-maker and owner of the AOC brand, collected 1,000 pounds—0.007% of the Texas total—through its default mail-back program. AOC monitors are sold at most major electronics retailers in Texas and nationwide.

IBM and Lenovo formed a multi-year agreement to allow Lenovo to act as the preferred provider of IBM personal computer products. According to a statement, IBM "will continue to provide financing and maintenance services for those PC solutions." However, it is unclear whether Lenovo or IBM financed electronics recycling efforts for IBM branded computers and laptops. In any case, their combined e-cycling efforts amounted to a net total of 1,223 pounds recovered in Texas—0.005% of the total—while their combined national return share was 5.56%. IBM provides a mail-back shipping program in which consumers can drop off used computers and monitors at UPS

or MailBoxes, Etc. storefronts, where the equipment is packaged and shipped to a recycler. Lenovo partnered with ECO International to provide buy-back options for Lenovo and some IBM branded equipment.

NEC Display Solutions is another market leader in computer monitor sales. However, this market leader was a recycling laggard, collecting only 82.80 pounds—0.0005% of the Texas total—despite a 4.41% national return share. On its public website, NEC claims to partner with Staples and claims to provide collection events for consumers, but TCE Fund can find no evidence to validate these claims. Furthermore, NEC promises on its website to provide information on electronics collection events in Texas; no evidence of such information exists. This is misleading at best. NEC does provide a shipping label through a default mail-back program as well as a buy-back trade-in program through Market Velocity, Inc.

Hitachi America, responsible for 0.99% of the national return share, collected nothing in Texas through its participation in the ECO International ECO Take-Back program, a variant of the default mail-back option. Several others offered a similar default mail-back option, with similar or identical collection results.