



Wisconsin residents and electronics recycling

Results from 2010 and 2011 Wisconsin DNR statewide household surveys
September 2012

Executive summary

The Wisconsin Department of Natural Resources has conducted three statewide household surveys since 2006 asking residents what they have done with unwanted electronics, how many electronics are in their homes, what makes it difficult to recycle electronics and other related questions.

When compared with surveys in 2006 and 2010, the 2011 Household Recycling Survey shows a trend of increasing electronics recycling and growing awareness of Wisconsin's electronics recycling law. These results indicate that the electronics recycling law has gone a long way toward meeting its goal of making electronics recycling more convenient and affordable for consumers during the first few years it has been in effect.



In 2011, nearly two-thirds of survey respondents were aware of the electronics disposal ban that took effect in September 2010, and about 40 percent had heard of the E-Cycle Wisconsin program, created by the law to collect and recycle electronics from Wisconsin households and schools. Since 2006, the surveys show, residents who have gotten rid of electronics have become increasingly likely to recycle them and much less likely to put them in the trash.

The survey does show there is still work to be done in educating the public, particularly younger people, about electronics recycling, and that it will be important to continue to work toward having convenient and low-cost electronics recycling options across Wisconsin.

Data from the surveys will help guide future DNR outreach endeavors by identifying which demographic groups know the least about recycling and the law, how Wisconsin residents are hearing about the law and what respondents perceive to be barriers to electronics recycling.

Survey background

Wisconsin's electronics recycling law was signed into law in October 2009 and took effect in January 2010, with a ban on landfilling or incinerating many consumer electronics taking effect Sept. 1, 2010. The law (s. 287.17, Wis. Stats.) establishes a statewide program, called E-Cycle Wisconsin, to collect and recycle certain electronics. It is based on a product stewardship approach, in which manufacturers fund collection and recycling programs for their products.

In fall 2011, the Bureau of Waste and Materials Management contracted the University of Wisconsin Survey Center to conduct a Household Recycling Survey of Wisconsin residents and DNR Science Services to provide analysis. The intent of the survey was to gather current information on Wisconsin residents' opinions, behaviors and knowledge of household recycling. A subset of the survey asked questions specifically related to electronics recycling.

The UW Survey Center mailed the eight-page survey to 1,200 randomly drawn Wisconsin residential addresses in November 2011. Three full waves of mailings and reminder postcards over two months yielded 638 completed surveys, a response rate of 53 percent. After removing ineligible or vacant addresses the response rate was 56 percent.

To understand how knowledge of electronics recycling has changed since Wisconsin's electronics recycling law took effect in January 2010; we compared the 2011 survey results with a Household Electronics Recycling Survey the Bureau of Waste and Materials Management contracted the UW Survey Center to conduct in fall 2010. This was a four-page survey dealing entirely with electronics recycling. The survey was mailed to 1,600 randomly drawn Wisconsin residential addresses in October 2010. Three full waves of mailings and reminder postcards over two and a half months yielded 922 completed surveys, a response rate of 58 percent. After removing ineligible or vacant addresses, the response rate was 59 percent.

We also compared the 2011 survey results with a phone survey on household recycling the Bureau of Waste and Materials Management contracted the UW Survey Center to conduct in spring 2006. The UW Survey Center completed 555 telephone interviews of adult Wisconsin residents, a 44 percent response rate when adjusted for refusals and ineligible households. The 2006 survey contained 11 questions about the number of electronics in residents' homes and how unused electronics were disposed of. It serves as a baseline for how Wisconsin residents handled electronics before the passage of Wisconsin's electronics recycling law.

For all three surveys, the sample was random and statistically valid, so these findings can be projected to the statewide population and compared across survey years.

Demographics

The demographics of the 2010 and 2011 survey respondents are well matched for comparisons. The percentage of respondents living in rural settings and the distribution across DNR regions is very similar. Home ownership and income bracket also compare well. The 2010 survey had 4 percent more respondents in the 31 to 50 age group and 5 percent fewer in the over 63 age group. We do not have detailed demographic information for the 2006 survey.

The 2010 and 2011 survey demographics do differ from Wisconsin demographic data according to the 2010 U.S. Census. Seventy-seven percent of respondents to both surveys own their homes, while the U.S. Census assesses Wisconsin home ownership at 69.5 percent. More important for interpreting survey results are age and income distribution. The proportion of older and less wealthy respondents answering our surveys is higher than the proportion in the overall Wisconsin population as shown in the 2010 U.S. Census data (see tables 1 and 2).

Table 1: Survey respondent age compared with U.S. Census

Current age	2010 survey (%)	2011 survey (%)	Current age ¹	2010 U.S. Census (%)
18-30	9.7	8.7	20-29	18.1
31-50	34.4	30.1	30-49	36.1
51-62	28.1	28.2	50-64	27.1
63+	27.8	33	65+	18.6

¹ Age categories reported for U.S. Census data differ from the categories created for the DNR household survey analysis.

Table 2: Survey respondent income levels compared with U.S. Census data

Pre-tax income	2010 survey (%)	2011 survey (%)	2010 U.S. Census (%)
Less than \$25,000	23	21.8	22.4
\$25,000-\$50,000	31.2	30.6	26
\$50,001-\$75,000	20.8	21.8	20.6
\$75,001-\$100,000	10.4	12.4	13.7
More than \$100,000	14.6	13.3	17.3

The 2010 survey asked respondents how many computers, TVs and cell phones they had in their homes. Based on their answers, we estimated that Wisconsin households have 7.4 million televisions, 4.2 million computers and 5 million cell phones, many of which are unused and/or non-working (see Table 3).

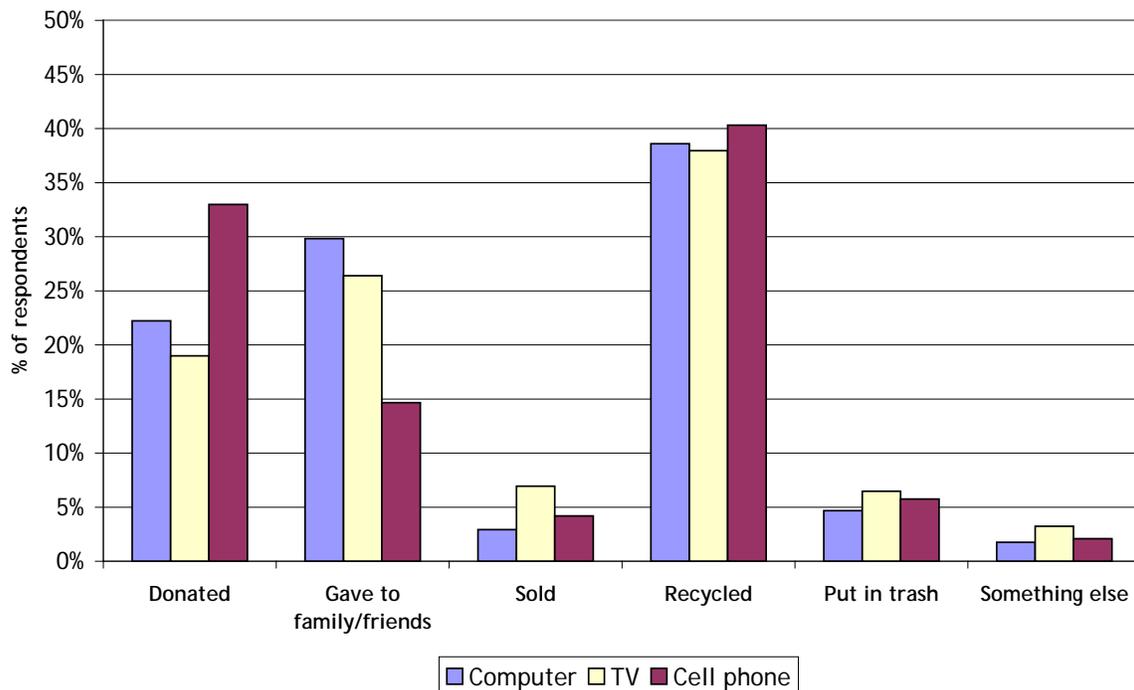
Table 3: Estimated number of electronics in Wisconsin household, 2010

Device	Average # per household	Total in state households	Total unused
TVs	3.16	7,425,982	1,198,497 (16%)
Computers	1.81	4,253,490	1,104,497 (26%)
Cell phones	2.13	5,005,488	n/a ²

Disposal and awareness

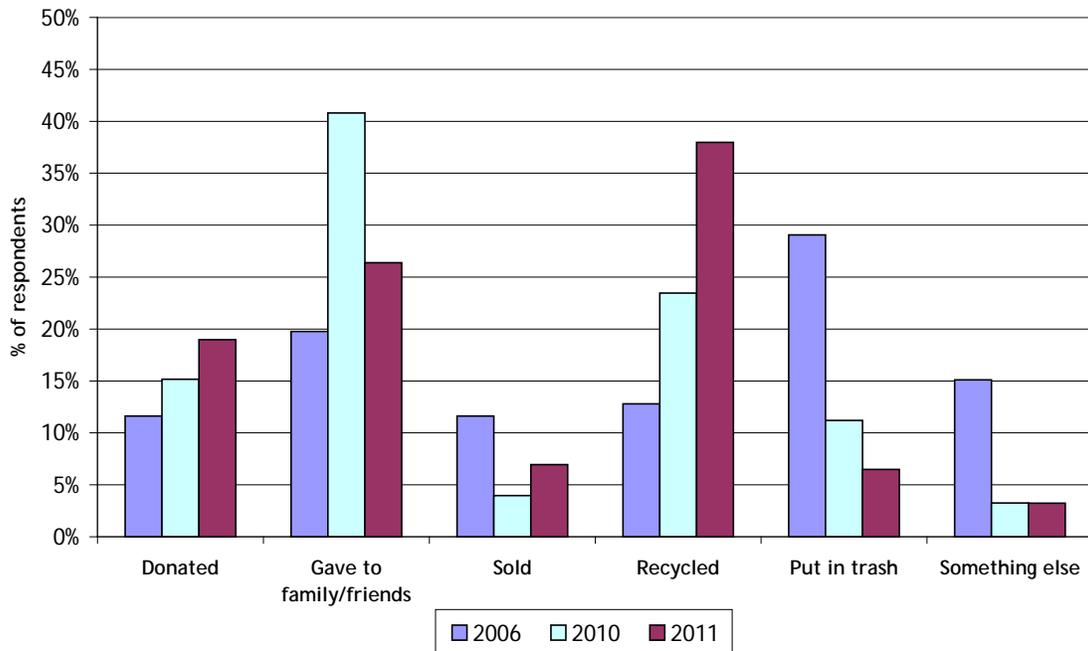
The overall trend for electronics disposal in Wisconsin is toward an increasing rate of recycling. The 2011 survey found that nearly 40 percent of televisions and computers are recycled, while more than 40 percent of cell phones are recycled (see Figure 1). Fewer electronics are ending up in trash cans (around five percent for all three items). This recycling trend is illustrated most dramatically in comparing television disposal methods reported in the 2006, 2010 and 2011 surveys (see Figure 2).

Figure 1: How did you dispose of electronics in the last year? (2011)



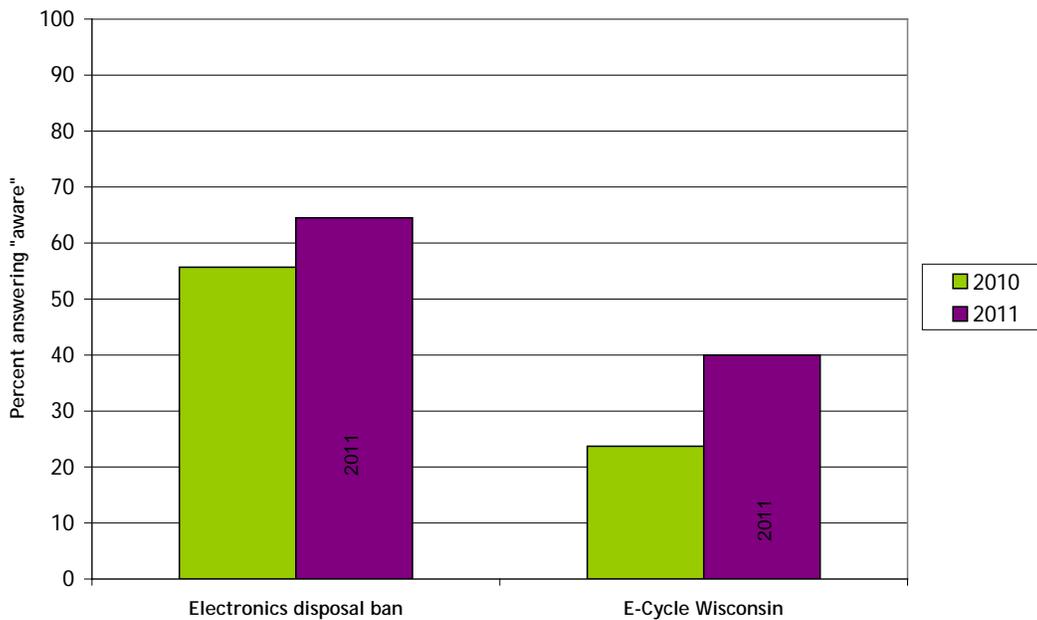
² Respondents were not asked about unused or non-working cell phones.

Figure 2: How did you dispose of your TV in the last year?



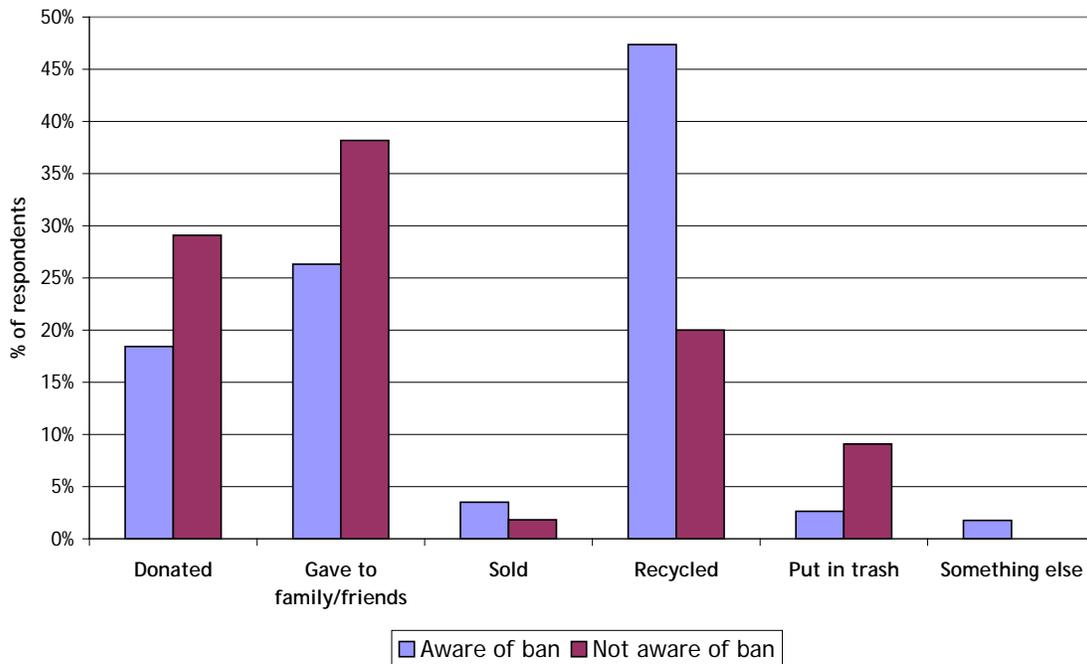
Just as respondents were more likely to recycle old electronics in 2011 than in previous years, awareness of the ban on landfilling or incinerating electronics and of the E-Cycle Wisconsin program increased between 2010 and 2011. Awareness of the disposal ban is higher than awareness of E-Cycle Wisconsin (see Figure 3).

Figure 3: Awareness of electronics disposal ban and E-Cycle Wisconsin



Most promisingly, 2011 survey respondents who knew about the disposal ban were more likely to recycle old electronics than those who were not aware of the ban. This relationship, present with respect to computers, televisions and cell phones, is illustrated by computers in Figure 4.

Figure 4: Computer disposal method based on disposal ban awareness



Outreach gaps

The demonstrated relationship between awareness of the ban and chosen method of disposal makes effective outreach vital to a continued increase in electronics recycling. Identifying areas of the population that are not aware of the disposal ban or E-Cycle Wisconsin will help us to target our message to particular audiences in future outreach efforts.

The 2011 survey results—which were similar to the 2010 survey—show that neither income nor setting (urban/rural location) makes a statistically significant difference in awareness of the ban or E-Cycle Wisconsin. Age, however, does matter. Older residents are more aware of the ban and E-Cycle Wisconsin than younger residents. There is also noticeable variation in awareness across regions of the state, with the DNR’s Southeast and Northern regions having the lowest awareness of both the ban and E-Cycle Wisconsin (see figures 5 and 6). For a map showing DNR regions, see the Appendix.

Awareness of E-Cycle Wisconsin does not exceed 50 percent among any of the demographic categories, while awareness of the disposal ban topped 70 percent among some groups.

Figure 5: Have you heard of the electronics disposal ban?

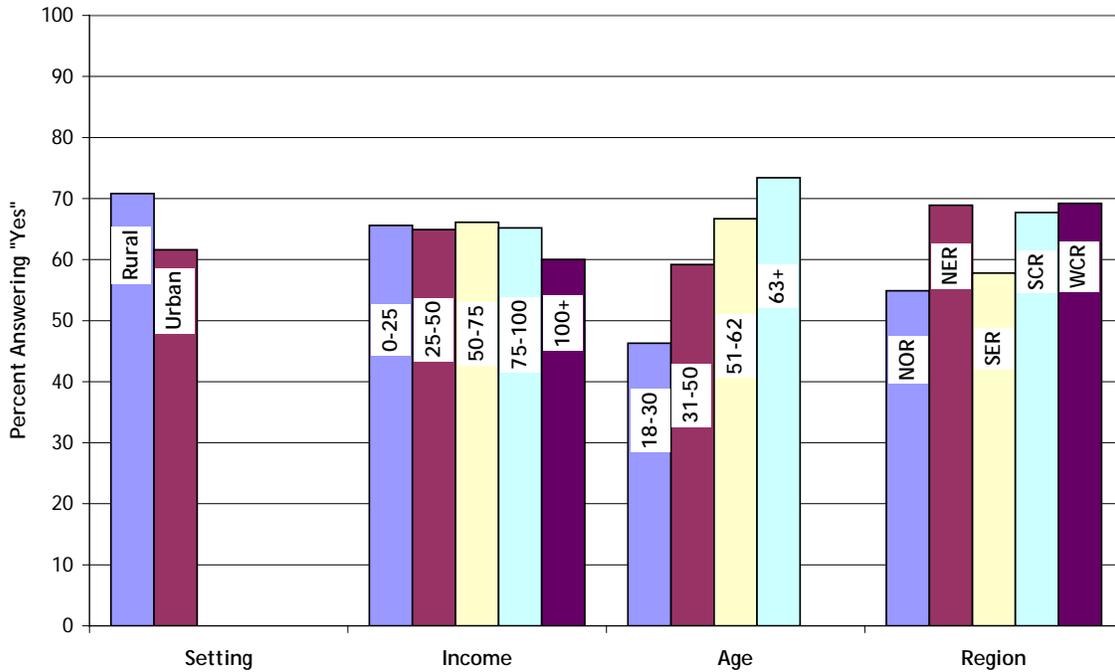
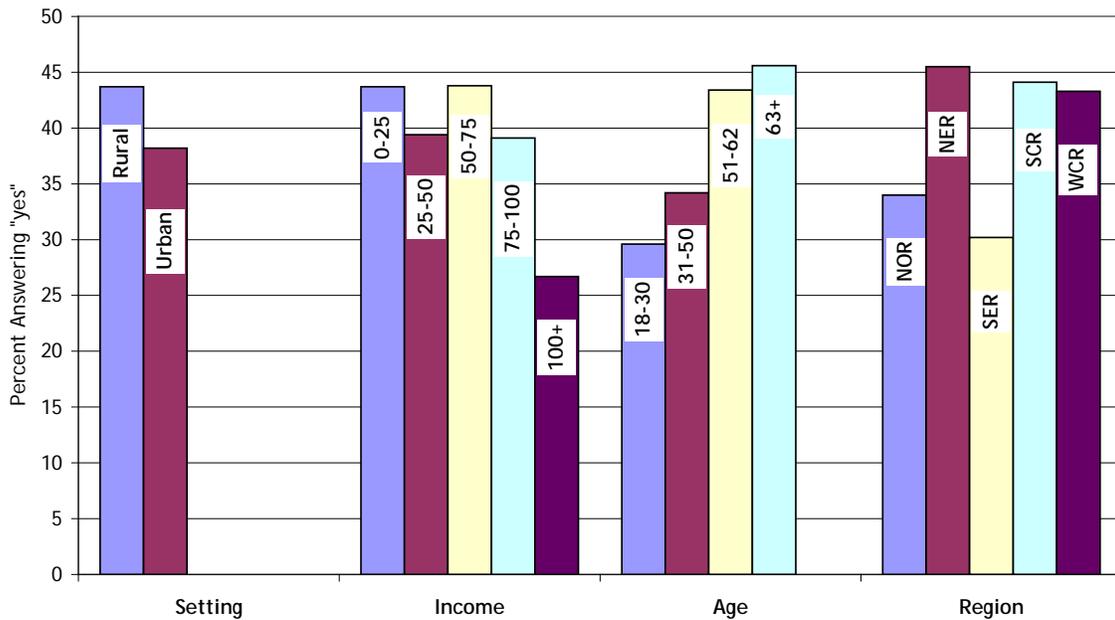


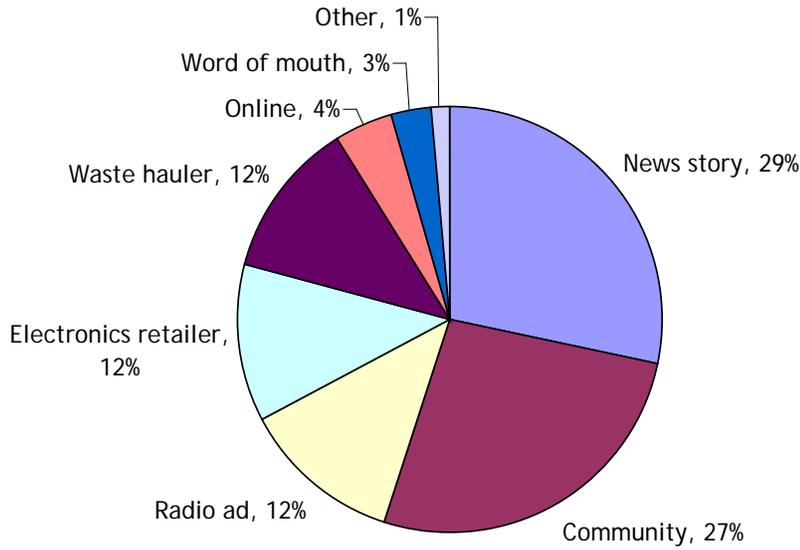
Figure 6: Have You heard of E-Cycle Wisconsin?



Outreach methods

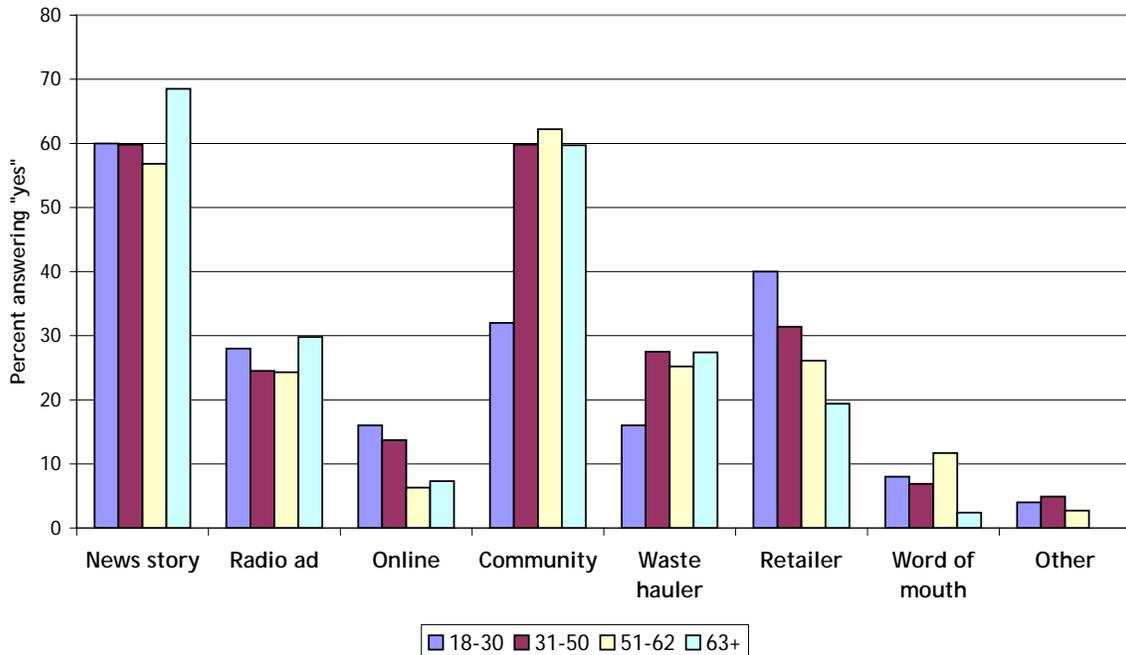
Understanding *where* respondents had heard about E-Cycle Wisconsin and the disposal ban is just as important as understanding *who* has heard about the ban. We observed little or no change in where respondents heard about E-Cycle Wisconsin and the disposal ban between 2010 and 2011. As in the 2010 survey, most respondents heard about E-Cycle Wisconsin and the ban from a news story or from their community. Very few respondents heard about electronics recycling online or through word-of-mouth.

Figure 7: Where did you hear about the ban/E-Cycle Wisconsin? (2011)



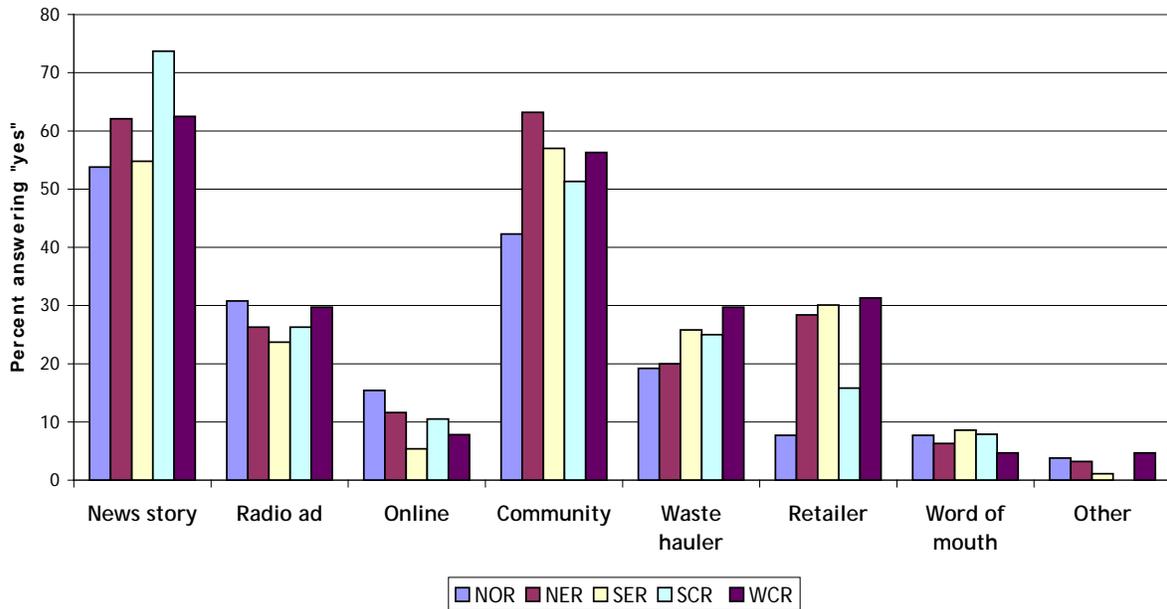
Answers to information source questions varied by respondent demographics in predictable ways. Younger respondents were less likely than older residents to hear about electronics recycling from a waste hauler or community source (see Figure 8). We expect this, as younger residents are more likely to be renting their homes and may not receive all community and waste hauler communications sent to home owners. While all respondents, regardless of demographic, are most likely to hear about and remember information about electronics recycling through news stories, electronics retailers may be a key in helping E-Cycle Wisconsin reach younger audiences.

Figure 8: Where heard of ban/E-Cycle Wisconsin, by age



Northern Region respondents were also less likely to hear about electronics recycling from waste haulers, possibly due to the fact that many northern residents take their trash to drop off sites, rather than having waste haulers collect it (see Figure 9).

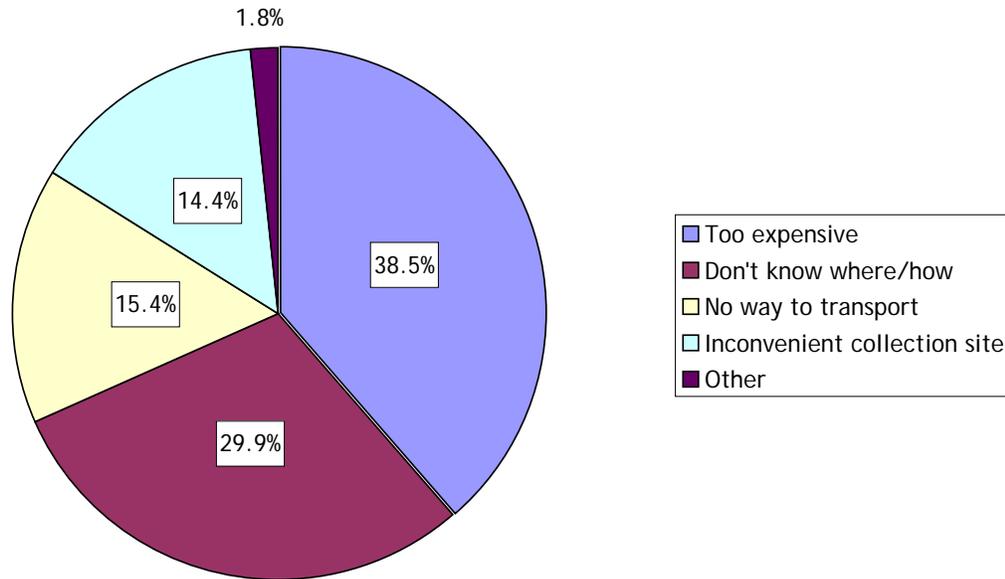
Figure 9: Where heard of ban/E-Cycle Wisconsin, by DNR region



Barriers to e-cycling and possible outreach solutions

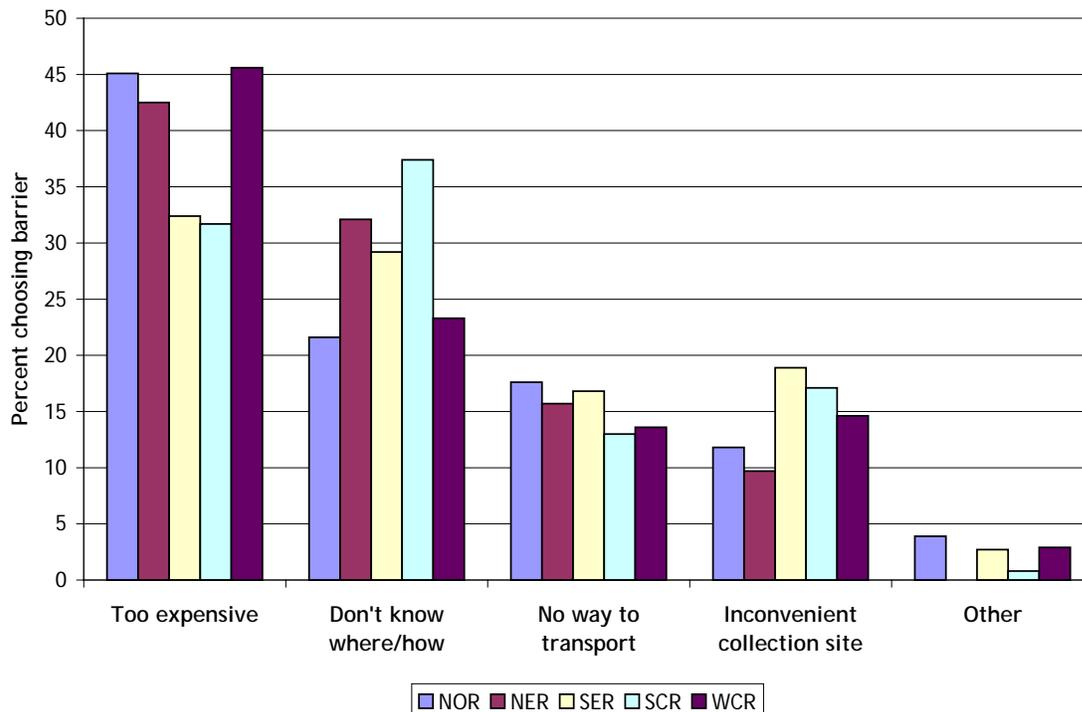
Targeted outreach methods and possible program adjustments will need to address the barriers that prevent people from responsibly recycling their electronics. The 2011 survey finds that expense, or perceived expense, remains the most common barrier to electronics recycling. A large portion of respondents are also unsure of where to take electronics for recycling—a barrier that could be largely addressed through more effective and/or widespread public education (see Figure 10).

Figure 10: Most likely reason unable to recycle electronics (2011)



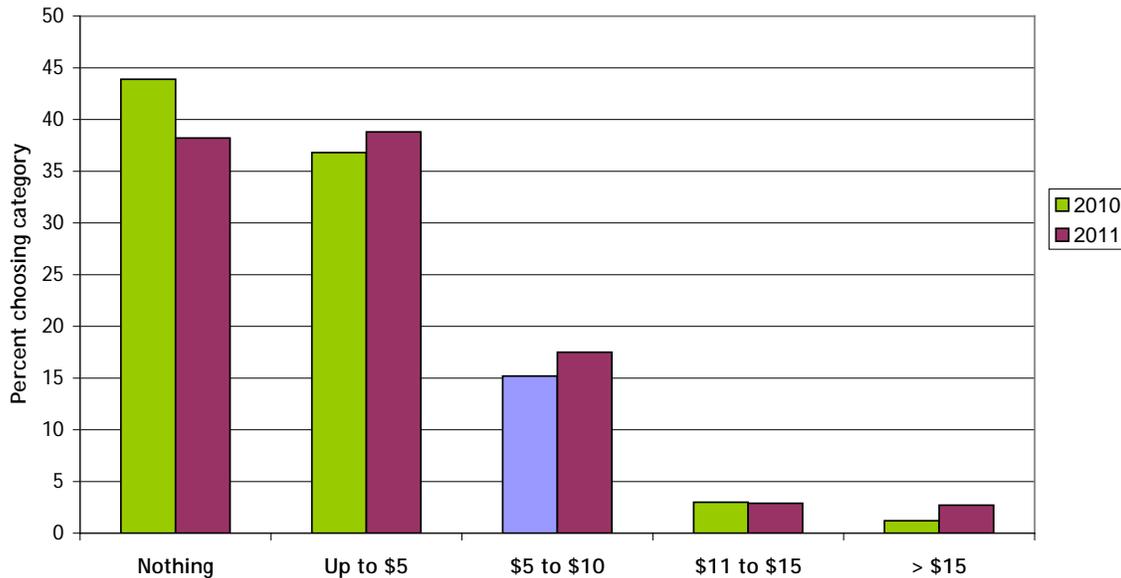
While these barriers did not differ significantly among most demographic groups, we did observe a moderately strong relationship between the region where respondents live and the recycling barriers they identify. The results shown in Figure 11 could help local recycling programs target messages to their residents, especially in Southeast and South Central regions where there are many collection locations but inconvenience and “don’t know where” are commonly cited barriers.

Figure 11: Barriers to e-cycling, by region (2011)



While expense or perceived expense remains the most common barrier to electronics recycling, willingness to pay for electronics recycling has gone up since 2010, though the changes are small. Respondents are still unwilling to pay much more than \$5 to have an electronic device recycled, but more people were willing to pay up to \$5 in 2011 than in the 2010 survey (see Figure 12).

Figure 12: Amount willing to pay to e-cycle, 2010 to 2011

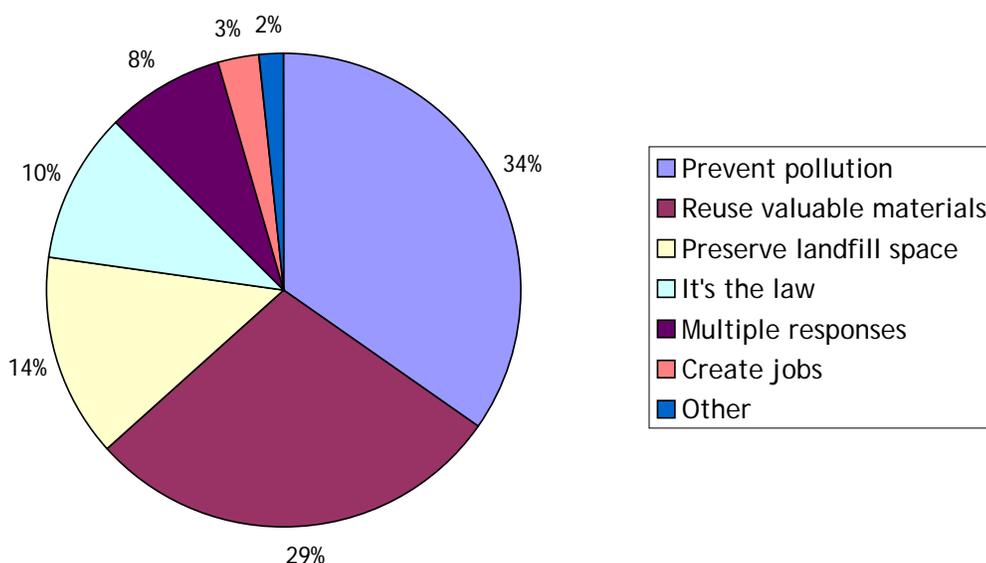


While there is little variation within respondents' willingness to pay among age and income groups, the region respondents live in does make a significant difference. Respondents living in Southeast Region are the least willing to pay for electronics recycling, while those in Northern region are most willing to pay a larger sum of money for recycling. This may be due in part to the many free recycling options in more urban areas of the state, particularly in the southeast. Many collection sites in more rural areas, like the northern part of the state, have to charge fees because of higher transportation costs and lower collection volumes.

Respondents were asked if they would be willing to pay more than their original answer if they were given a gift card/coupon, given a guarantee of responsible recycling, offered electronics pickup at their residence or received some other incentive. Overall, most respondents said they would be willing to pay more given one of these incentives, particularly a gift card/coupon (79 percent) or home pickup (72 percent). About three-fifths were willing to pay more if they had a guarantee of responsible recycling and data destruction. Only about 3 percent of respondents were not willing to pay anything to recycle electronics under any circumstances.

Finally, on the 2010 survey, respondents were asked what they thought was the most important reason for recycling electronics. The answers to this question (see Figure 13) can help guide the messages in outreach efforts aimed at overcoming some of the barriers discussed above.

Figure 13: Most important reason for properly recycling electronics



Conclusions

It is encouraging to find that electronics recycling is increasing in Wisconsin and that awareness of the disposal ban and E-Cycle Wisconsin continues to grow. Even with this growth, however, there is still room for improvement. Over half of 2011 survey respondents were not aware of E-Cycle Wisconsin and, while the number is shrinking, respondents still admit to putting old electronics in the trash. Our outreach efforts need to continue.

The household surveys provide valuable information on how and where to target future outreach. While broad outreach is still necessary, special effort should be made in the two DNR regions where less than one-third of respondents had heard about E-Cycle Wisconsin, Northern and Southeast. More effort should also be made to reach younger audiences.

The combination of tools we have been using to conduct outreach has made an impact on survey respondents. Clearly, news stories, communities, radio ads, waste haulers and retailers all play important roles in reaching Wisconsin residents. However, if E-Cycle Wisconsin would like to particularly target younger residents in upcoming years, electronics retailers may hold the key to doing so.

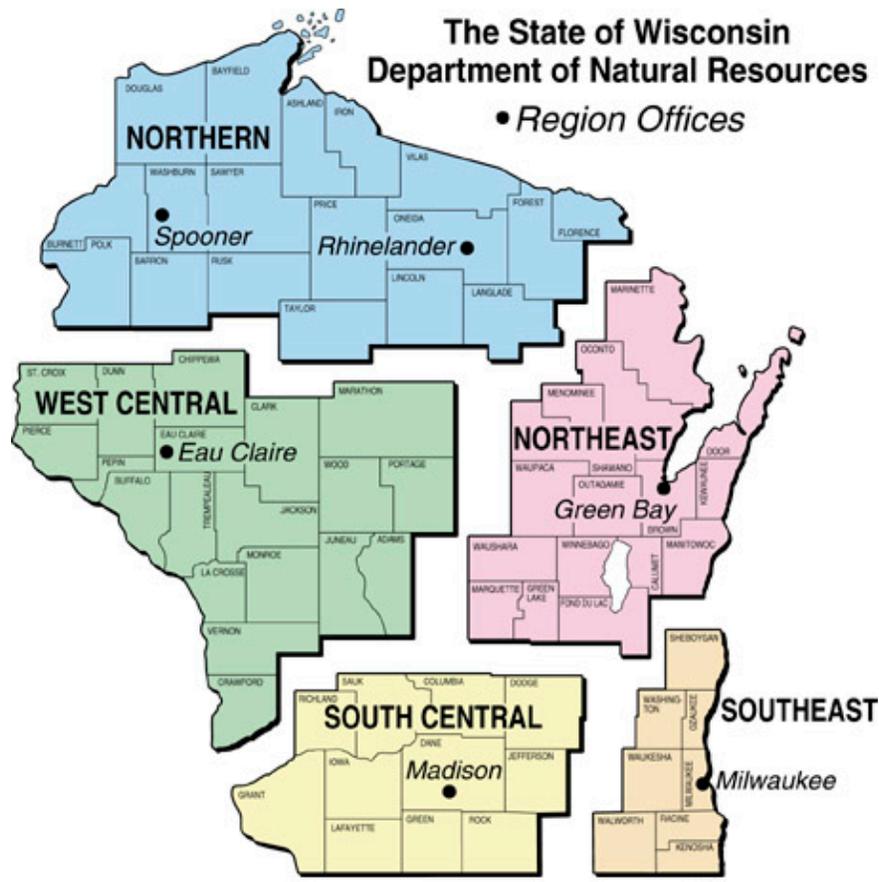
In designing the messages used for outreach, we need to consider the primary perceived barriers to electronics recycling. The “expense” option that most respondents identified as a primary barrier may not be as much of an issue as people perceive. Before the electronics law, many early electronics recycling programs did charge per item to recycle electronics, but now many E-Cycle Wisconsin registered collectors no longer charge a fee, or charge a much smaller fee than was previously in place. People who singled out “expense” as a barrier may not be aware of the benefits of using an E-Cycle Wisconsin registered collector. Our statewide outreach and the outreach conducted by recyclers, collectors and local governments needs to consistently remind Wisconsin residents that the E-Cycle Wisconsin program reduces the cost of recycling.

The other primary barrier, inconvenience, may also be an outdated perception—particularly in urban settings. The number of registered collectors in the state has grown substantially over the last two years. Outreach needs to highlight all of the new collection sites in the state.

By tweaking our outreach methods to reach the regions and ages that currently have low awareness of electronics recycling and by targeting our messages to address the barriers that respondents identified, we hope to continue the trend of increasing recycling and awareness in the state.

Appendix: DNR regions map

The map below shows the DNR regions used in the analysis of survey results.



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