
Joint Legislative Audit and Review Commission



**Waste Reduction Efforts
in Virginia**

Commission Briefing

September 8, 2008



JLARC

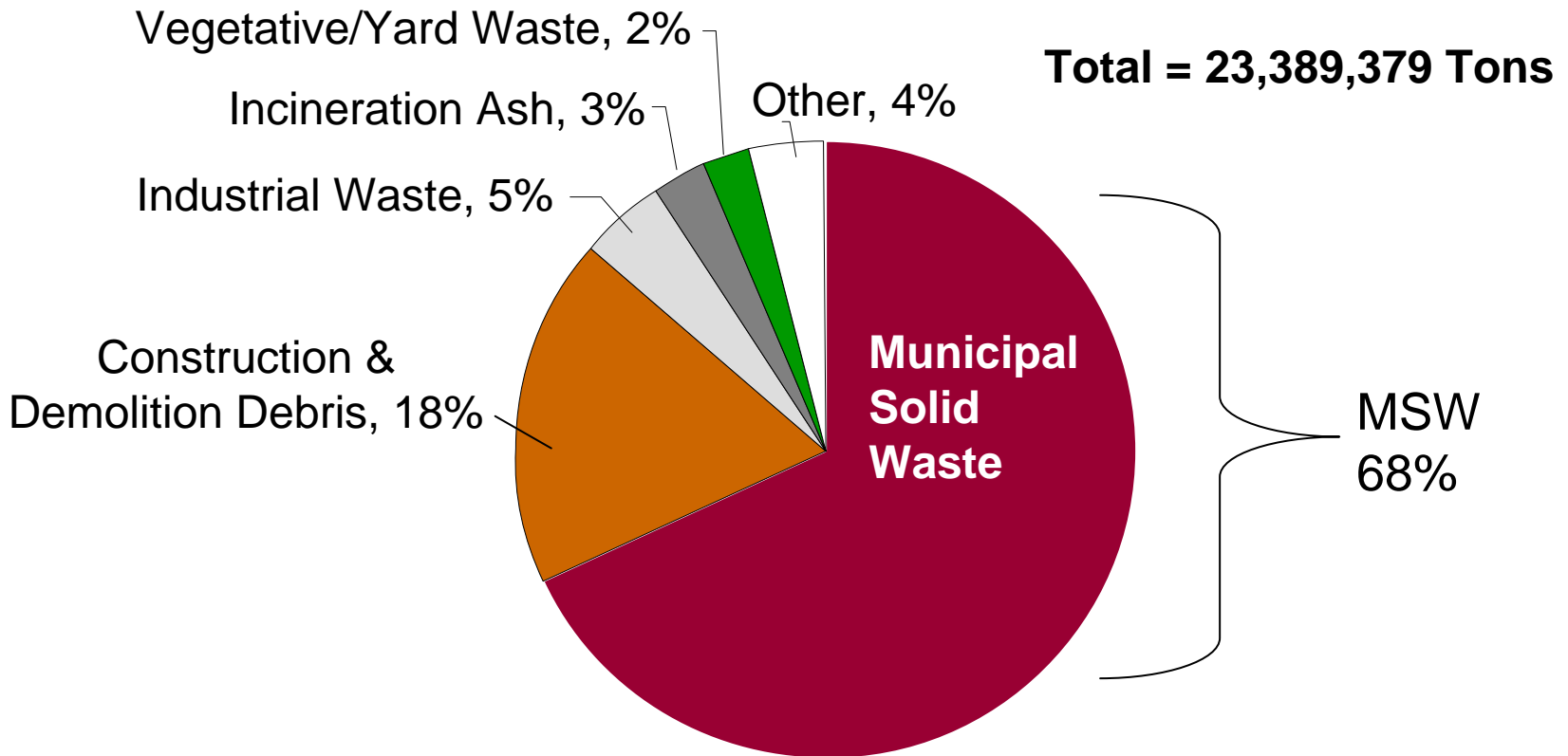
Study Mandate

- Senate Joint Resolution 361 of the 2007 General Assembly directs review of waste reduction efforts in Virginia
 - Effectiveness of State-funded waste reduction activities
 - Success of waste reduction efforts in Virginia and other states
 - Recommendations for long-term goals for waste reduction in Virginia
- Other topics for consideration
 - Beverage container laws
 - Plastic shopping bags
 - Compact fluorescent light bulbs

In This Presentation

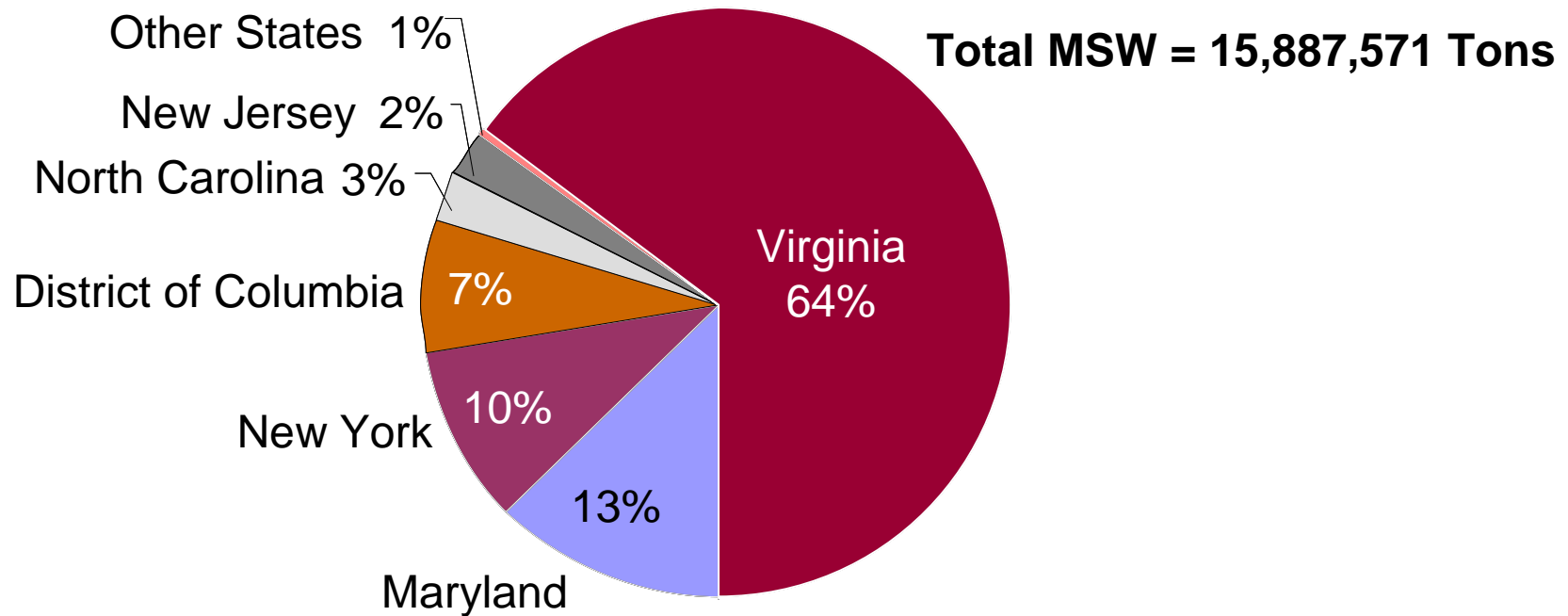
- Background
- Landfill and Recycling Costs for Localities and the Availability of Recycling Markets
- State Waste Reduction Efforts
- Local Recycling Programs
- 2008 Legislative Issues Regarding Specific Materials
- Future Direction of Waste Reduction in Virginia

Virginia Managed More Than 23 Million Tons of Waste in 2007



Source: DEQ, Solid Waste Managed in Virginia During CY 2007

Virginia Received Almost 6 Million Tons of MSW From Maryland, New York and Other States



Source: DEQ, Solid Waste Managed in Virginia During CY 2007

Recycling Is a Multi-Step Process That Involves Collection...



Curbside Collection



Drop-Off Collection Site

...Sorting and Processing...



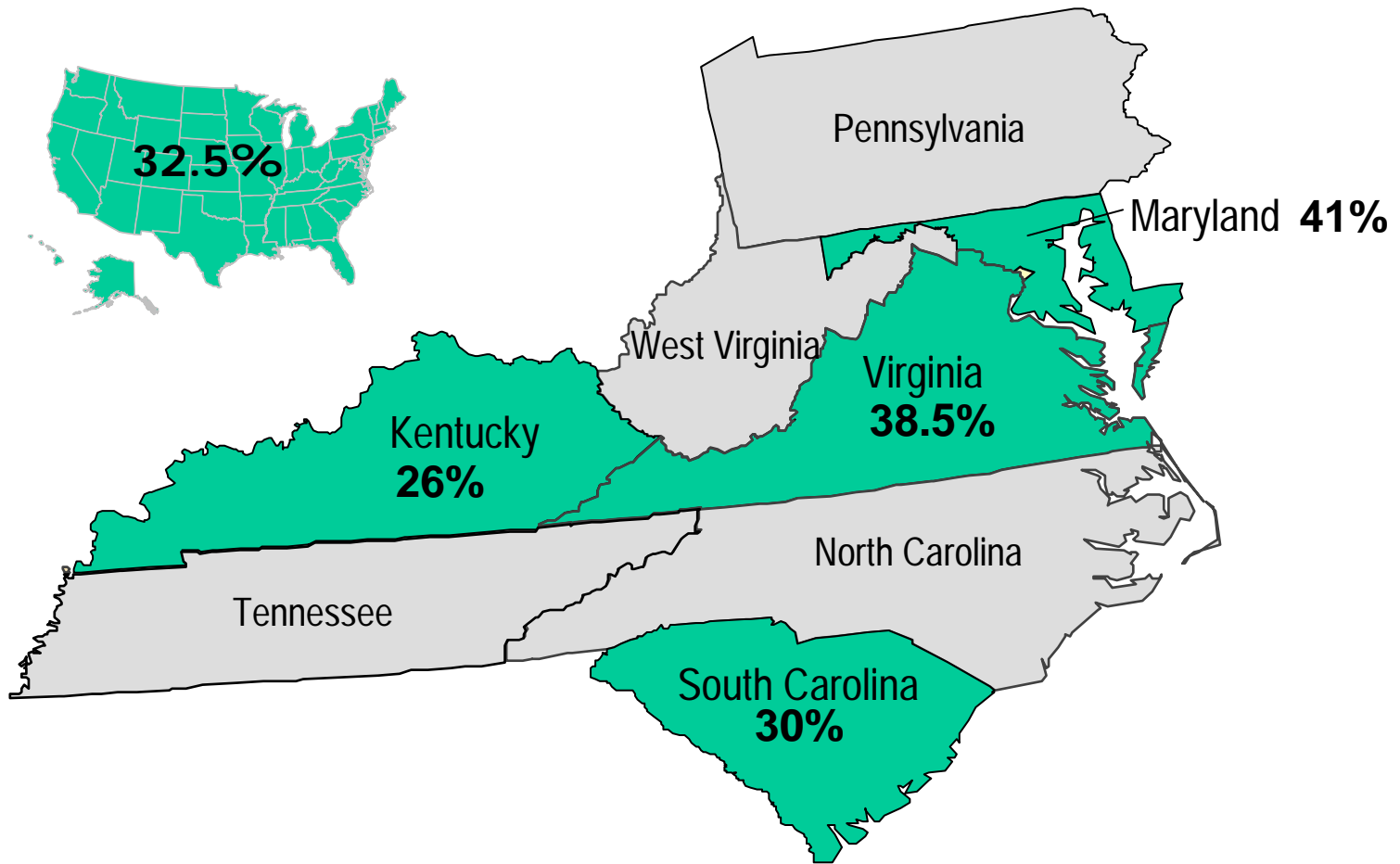
...Preparation for Transport...



And Finally, Recycling into New Products



Virginia's Reported Recycling Rate of 38.5% Compares Favorably to U.S. & Other States (2007)



■ Reports waste reduction/diversion instead of recycling rate

DEQ Is Lead Agency for Waste Reduction Activities, But Other State Entities Involved

- DEQ administers Virginia Waste Management Act guiding solid waste activities
- Other State entities also have statutory roles
 - Department of General Services assists State entities with procuring recycled goods and some recycling
 - Departments of Business Assistance, Education, and Transportation required to promote recycling
 - Virginia Recycling Markets Development Council established to promote recycling markets
 - State universities and agencies, including those of the General Assembly, must establish recycling programs

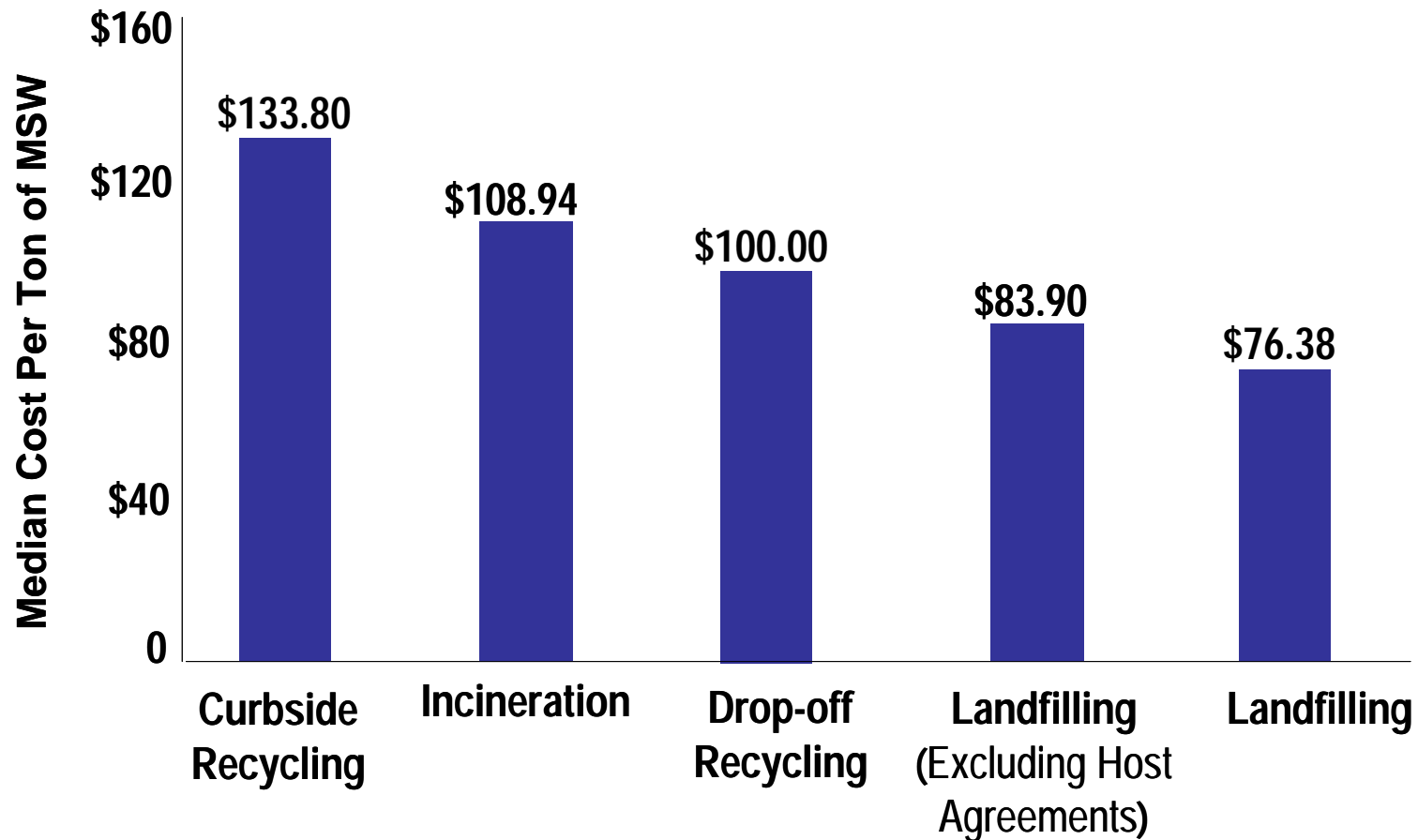
Virginia Localities Responsible for Planning and Meeting Mandated Recycling Rates

- Localities are either independent solid waste planning units (SWPUs) or part of regional SWPUs
- SWPUs must
 - Develop and implement solid waste management plans
 - Maintain recycling rates of 25% or 15%, based on population and unemployment

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Survey Responses Indicate Higher Per Ton Costs for Recycling Than Landfill Disposal



Source: JLARC staff survey of localities and regional SWPUs



Recycling Costs Compare More Favorably With Landfill Disposal Costs in Urban Areas

- Reported landfill tipping fees are higher in urban localities
- Per household cost of recycling decreases in densely populated areas
- Recycling can help localities prolong the life of existing landfills and avoid costs associated with planning, siting, permitting, and closing old landfills
- Sale of recyclables and avoided landfill costs can help offset cost of operating recycling program

40% of Localities and Regional SWPUs Report Finding Markets for Recyclables Is Challenging

- Factors affecting marketability
 - Type of material
 - Volume
 - Quality
 - Commodity prices
- Challenges are greater for rural localities

Markets for Paper and Cardboard Were Strong in Spring of 2008, But Not for Glass



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Virginia's Statutory Framework Promotes Waste Reduction

- Solid waste management hierarchy prioritizes source reduction, reuse, and recycling above disposal
- Regional SWPUs permit localities to create economies of scale for waste reduction
- SWPUs must develop and submit solid waste management plan identifying handling of waste
- SWPUs required to report waste generation and recycling data, and meet mandated recycling rates

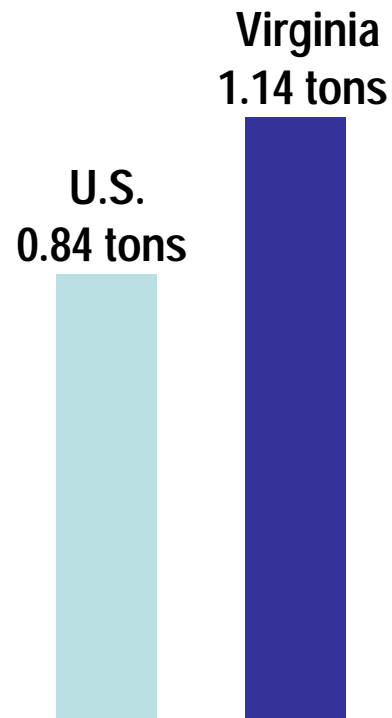
State-Level Planning Could Be Improved Through Single Document Establishing Goals

- Planning could result in establishment of long-term goals for waste reduction and State leadership
- Public participation in process can lead to greater public support
- Planning updates may be beneficial
- North Carolina and West Virginia have statewide, comprehensive solid waste management plans

Virginia Should Address Amount of Waste Generated

- Recycling rate may not reflect increase or decrease in waste generated or disposed
- Other states have adopted goals of reducing per capita waste generated or disposed
- Such goals require identifying a per capita baseline amount and goal to maintain or reduce the baseline
- Virginia should continue to use recycling rates but could supplement with measure of per capita waste disposed

Virginians Generated More MSW Per Capita Than U.S. in 2007



- There are differences in what Virginia and U.S. consider MSW

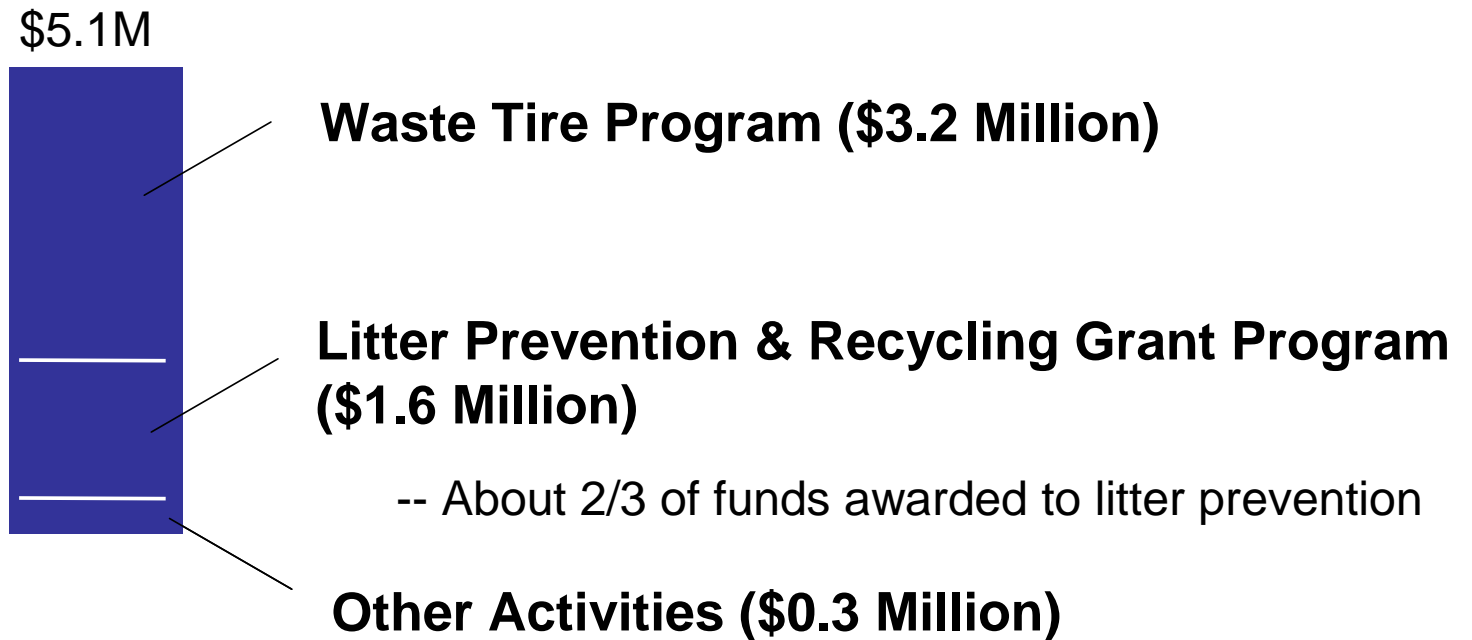
Recommendation

- General Assembly may wish to direct DEQ to
 - Periodically review minimum recycling requirements
 - Identify and set objectives to reduce per capita waste disposed
 - Develop strategies to implement such a goal

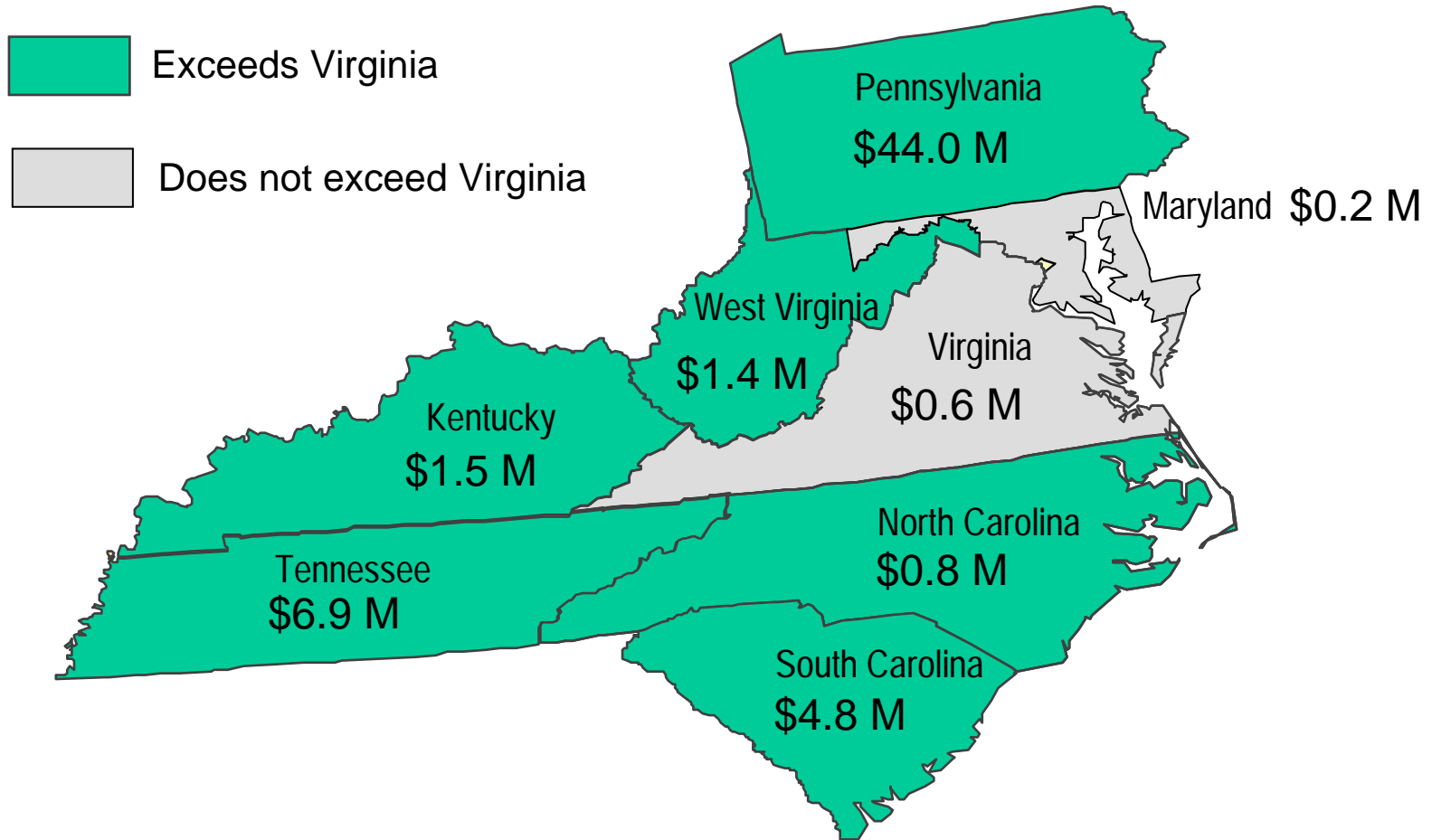
Few DEQ Positions Dedicated to Waste Reduction Efforts

- 3 full-time positions dedicated to implementing Virginia's solid waste management framework
- Other DEQ positions perform waste reduction functions on part-time basis
- Previously, more than 10 full-time positions assisted State entities and local governments with recycling activities
- Selected other states dedicate more positions to waste reduction
 - North Carolina 10
 - Kentucky 11
 - Tennessee 13

Most Waste Reduction Expenditures for Waste Tires and Litter Prevention



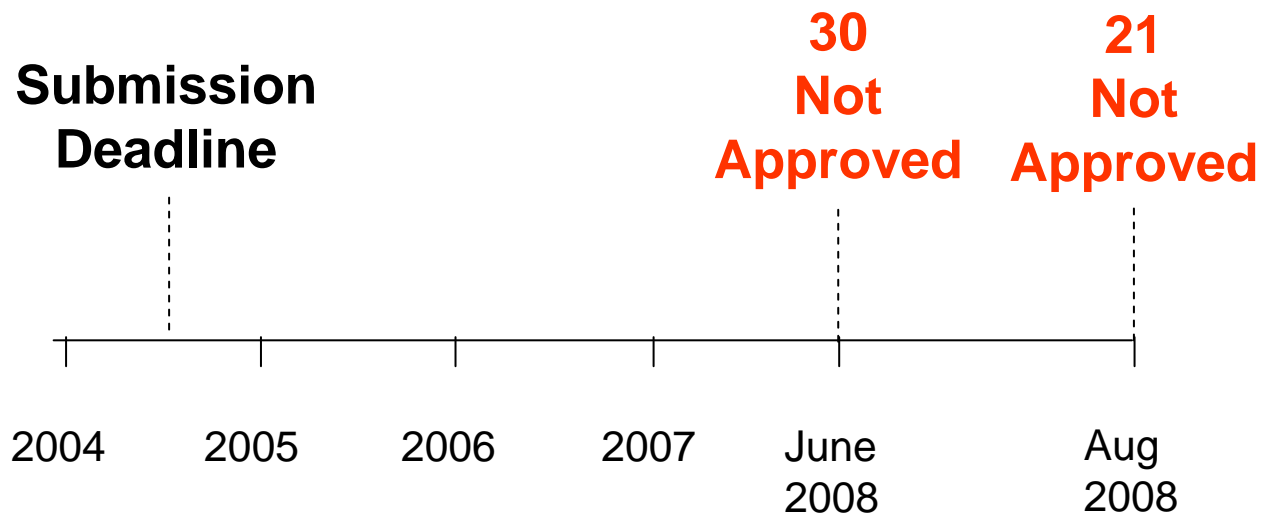
Selected Other States Provide More Grant Funding for Waste Reduction Efforts



Recommendation

- DEQ should determine the funding needs of local recycling and litter prevention efforts and report the amount to the General Assembly by the 2010 Session.
 - The General Assembly may wish to consider creating separate funds for recycling and litter prevention efforts

DEQ Has Not Approved 21 of 74 Local Plans Although All Plans Were Submitted in 2004



State Efforts to Identify and Develop Recycling Markets Have Been Weak

- Virginia identified need for assistance with recycling markets several times
- 57% of survey respondents recommended increasing State role in finding markets
- Market development is not coordinated at State-level
- General Assembly created Virginia Recycling Markets Development Council (VRMDC), however
 - Few respondents to locality or State entity surveys indicate using VRMDC for assistance
 - 2004 General Assembly commission initially recommended eliminating VRMDC because it was not performing its duties

Waste Tire and Lead-Acid Battery Programs Benefit from Strong Markets and State Help

- Success of waste tire program is attributable to dedicated State fees for cleanup
 - 98 million tires were diverted from landfill disposal or removed from illegal dumps
 - Remaining tire piles should be eliminated by 2013
- Success of battery program is attributable to valuable materials in batteries and landfill disposal ban passed by General Assembly
 - National figures indicate 90% of lead-acid batteries are recycled

Limited Data Makes Effectiveness of Used Motor Oil Program Uncertain

- Amount of improperly disposed used motor oil is unknown
- Few resources dedicated to administering used motor oil program
- DEQ appears to have implemented most program components
 - Outreach to collection centers has not been implemented
 - DEQ does not check the compliance of retailers with statutory requirement for posting signs
- Evidence is inconclusive that more robust programs reduce improper usage

Statewide Recycling Rate Report Is Affected by Local Collection Efforts

- SWPU data collection methods vary based on available resources
- Uncollected local data reduces accuracy and completeness of statewide recycling rate

DEQ's Data Verification Process Could Be Improved

- Responsibility for verifying recycling rate reports is split between two positions
- Little opportunity to review background information used to prepare recycling rate reports
- Greater State resources were available to assist local programs and review local data collection methods
- DEQ could use reported data to assess per capita disposal amounts and contact SWPUs with unusually high or low rates

Recommendations

- DEQ should institute a formal review process for ensuring accuracy of reported recycling rates by examining unusually high or low per capita recycling or generation amounts
- DEQ should implement an electronic data collection system for the local recycling rate reports

Public Education and Outreach Regarding Waste Reduction Has Been Limited

- Department of Education (DOE) required to develop public school guidelines for implementing recycling and waste reduction programs
- DOE did not develop guidelines because
 - DOE indicated Department of Waste Management guidelines would apply to localities

Recommendation

- DOE should develop guidelines for public schools regarding recycling and waste reduction activities

No Guidelines Exist for State Entity Recycling

- *Code* requires
 - State universities and agencies to establish recycling programs and reduce waste
 - Development of guidelines for State entity recycling efforts
- Dept. of Waste Management implemented guidelines to direct program development by State entities
 - Develop procedures for collection and storage
 - Prepare a recycling plan
 - Submit annual report detailing collections and program
- Guidelines no longer used after DEQ reorganization in 1995 eliminated positions dedicated to recycling assistance
- General Assembly created position at DGS but position provides procurement assistance and agency recycling

State Entities Offer Recycling, But Could Increase Collection of Certain Materials

- Waste reduction appears important to State entities
 - 80 report offering some collection containers
 - 79 report waste reduction has some or high priority
- Statute requires collection of office paper, cardboard, aluminum, motor oil, and glass

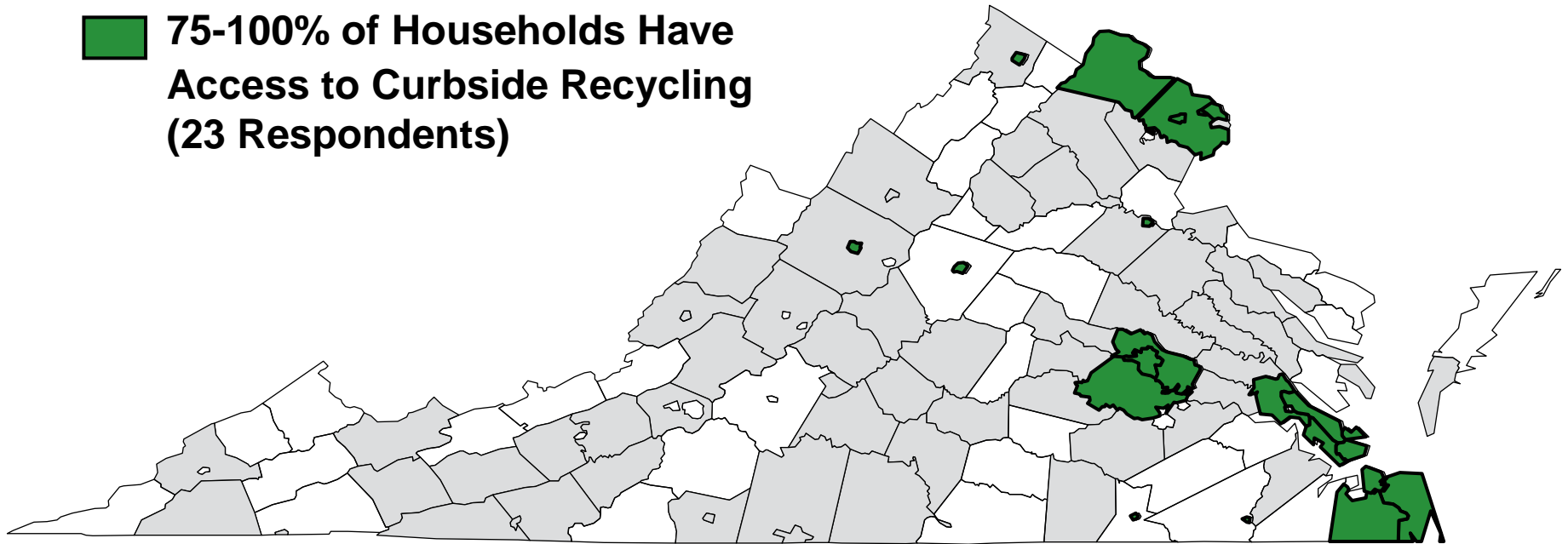
Material	% Reported Collecting	
	None, Little, or Some	Most or All
Cardboard	59%	41%
Aluminum	53%	47%
Paper	47%	53%

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Collection Methods Include Curbside and Drop-Off, Curbside Is More Common in Urban Areas

- Respondents (85 total)
- 75-100% of Households Have Access to Curbside Recycling (23 Respondents)



Convenience of Curbside Collection Can Make Recycling More Successful

- EPA and GAO report convenience is important because households more likely to recycle
- Curbside results in increased amounts of material collected
- Reliance on curbside collection is more cost-effective in urban areas and in densely populated areas
 - Greater share of MSW in urban areas
 - Economies of scale in collection

Reported Recycling Rates Reflect Importance of Population Density for Curbside Collection

- 9 of 10 SWPUs reporting highest recycling rates had densities greater than 250 persons/sq mi
- 6 of 8 SWPUs reported as not meeting mandated rates had densities less than 62 persons/sq mi
- Membership in regional SWPU also appears positively associated with reported 2007 recycling rates

Low Public Participation in Curbside Collection Limits Success in Many SWPUs

- Participation rates < 50% reported by
 - 7 of 23 localities serving 75% or more of households
 - 19 of 41 localities offering at least some curbside

Greater Public Education and Outreach Can Improve Participation in Recycling Programs

- EPA and GAO concluded that public outreach is a key to effective recycling programs
- Collection methods may differ and residents must know what materials to set out, when and how
- Nearly all localities and regional bodies responding to survey indicated providing some public education and outreach
- 63% of respondents said more education/outreach needed

Few Localities Report Using Ordinances or Financial Incentives to Promote Recycling

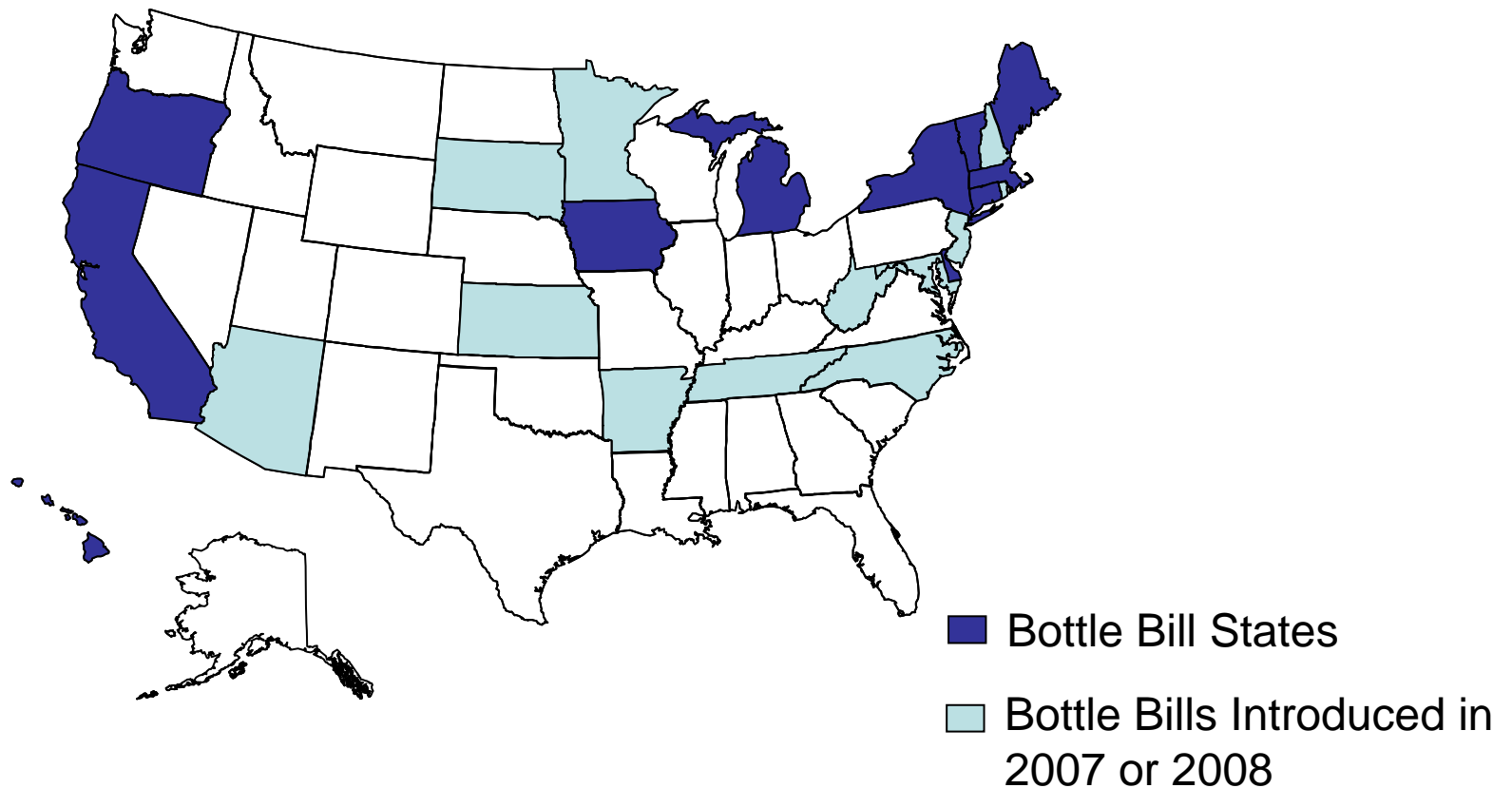
- Only 20% of respondents use ordinances requiring
 - Separation of recyclables from trash
 - Local government recycling
- Only 12% of respondents use incentives
 - Pay-As-You-Throw (volume-based pricing for trash disposal)
 - Landfill tipping fees

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Bottle Bill States Report High Collection Rates, But Containers Are Small Portion of MSW

- Container deposit laws require refundable deposits for purchase of certain beverage containers



Strengths and Weaknesses of Beverage Container Laws

STRENGTHS

- Reduces overall litter amounts by 30-64% in some states
- Strong support for laws among recycling stakeholders in 11 major U.S. cities (GAO)
- Resulting high-quality glass is valuable to glass manufacturers

WEAKNESSES

- Beverage containers comprise less than 6% of MSW (EPA)
- Divert highly valued material from curbside and drop-off recycling programs
- May be costly for retailers and take up retail space

Improperly Disposed Plastic Shopping Bags May Impact Agricultural and Natural Resources

- 91 billion plastic shopping bags used nationwide in 2006, but only about 5% recycled
- In Virginia, some farmers concerned about effect on crops and livestock
- Potential litter concerns and natural resources threat
- Virginia firm using plastic bags and film to produce composite lumber claims consolidation of material for collection is key
 - Partners with Virginia schools
 - Retail distribution centers

Safe, Convenient Disposal of CFLs Is Needed



- Compact fluorescent light bulbs (CFLs) last substantially longer than regular incandescent bulbs and use less energy
- CFLs contain small amounts of mercury, a hazard to public health and the environment
- Materials in CFLs have value
- Some state and local governments and retailers have initiated take-back programs for consumers

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Issues With Statutory Compliance and Recycling Markets Development Have Been Identified

- Current waste reduction efforts achieve some success
- However,
 - Compliance with statutory requirements has been hampered by limited resources, according to State and local officials
 - Localities would benefit from additional assistance in finding markets for the materials, and
 - Financial assistance could aid the recycling industry in initiating or expanding current capacity and create jobs

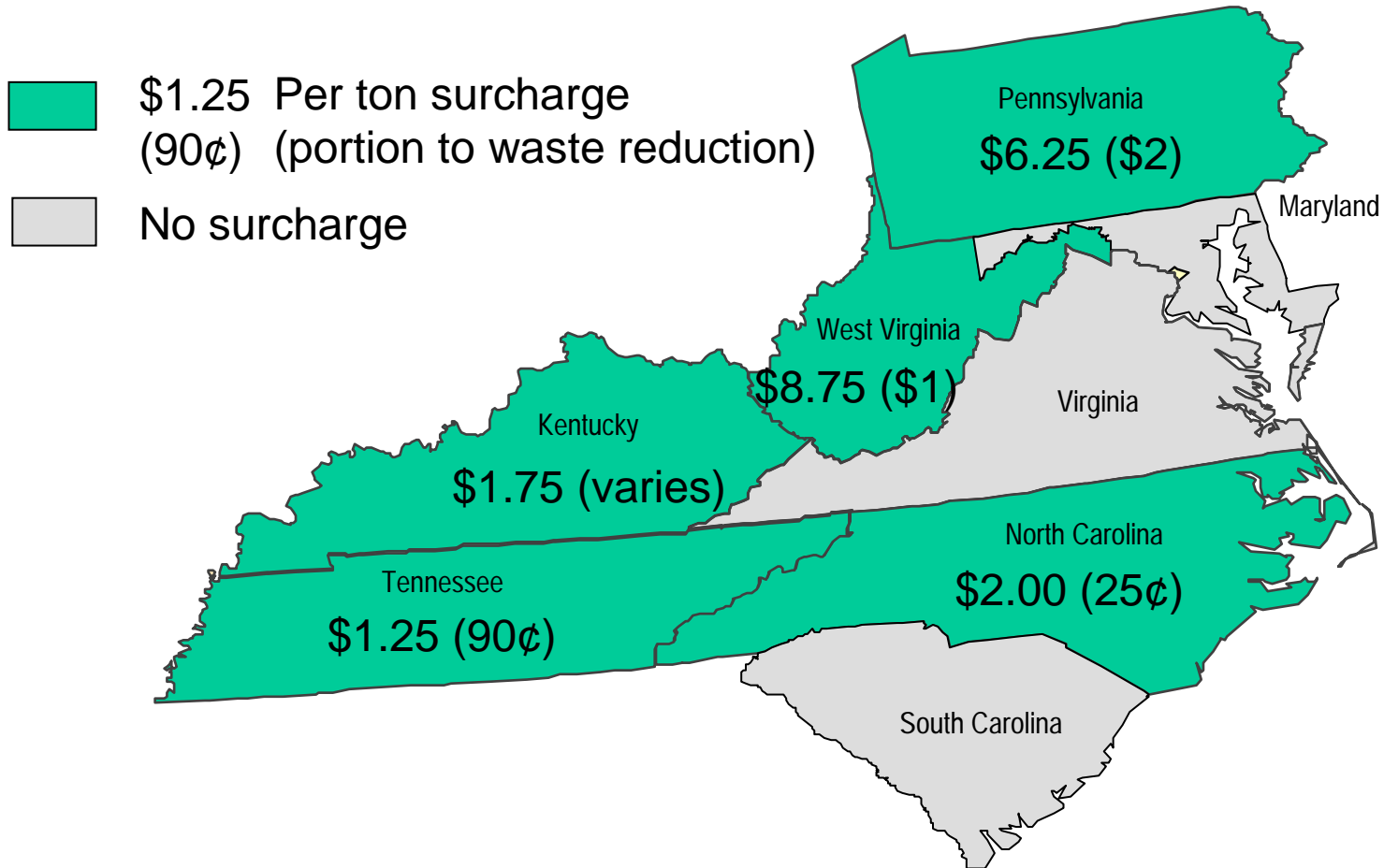
State Could Do More to Assist With Statutory Compliance and Develop Markets

- If additional resources available, actions could be taken to
 - Create position assisting State and local programs to meet statutory requirements and develop markets, and VRMDC could then be eliminated
 - Support greater public education
 - Increase local program resources
 - Provide grant funding to industry and institutions of higher education to increase recycling capacity and research

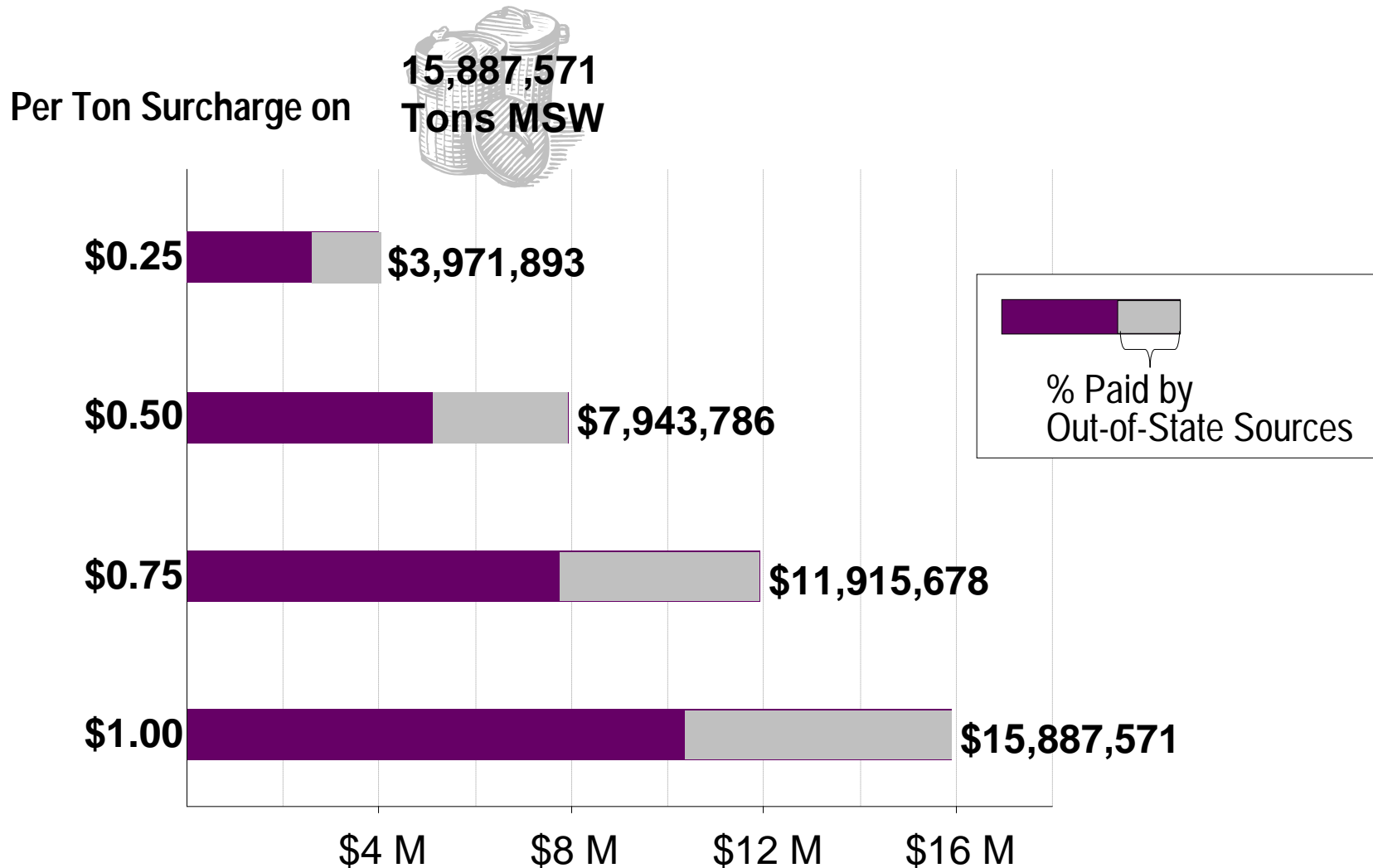
Other States Have Adopted Different Funding Options

- South Carolina has advanced disposal fees on the purchase of hard-to-dispose products
- Minnesota levies a tax on waste generated that is imposed on waste haulers
- Several states including North Carolina and Pennsylvania use a tipping fee surcharge

Several Nearby States Have Tipping Fee Surcharge



Tipping Fee Surcharge Could Raise \$4 - \$16 Million In Additional Revenue



Recommendations

General Assembly may wish to

- Consider levying a surcharge on the fees imposed by permitted waste management facilities and use the proceeds to fund current or new State and local waste reduction efforts

- Use additional revenue to
 - Create a position to assist State and local programs meet statutory requirements and develop markets
 - Increase public education and outreach
 - Increase local program resources
 - Provide grants for Virginia industries to expand recycling capacity and universities to increase research

Key Findings

- Virginia statute prioritizes waste reduction over disposal, but limited resources hinder compliance with State law, program implementation, and assistance developing recycling markets
- Most State entities have a recycling program, but additional recycling of some materials cited in statute could be done, and source reduction is lacking
- Virginia's average reported recycling rate is relatively high, but the level of waste disposal is also high
- Most SWPUs meet their mandated recycling rate, some struggle
- If additional resources are available, the State might consider addressing statutory compliance, increasing education and outreach, increasing local resources, expanding marketing efforts, and increasing assistance to industry and universities to expand recycling capacity

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and on the table by the door.

