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MOVING THE NEEDLE

Have government-imposed mandates and bans been able to boost recycling rates? To get some answers, industry researchers undertook extensive studies on the range of legislative efforts that have been implemented across the U.S.

Industry and government agree that recycling rates in the U.S. need a boost. But which types of state policies best support the growth of recycling? The fevered discussions of extended producer responsibility (EPR) and the ongoing bottle bill debates have led a number of groups to support more “traditional” state policies such as recycling mandates and disposal bans on certain packaging and paper products.

How widespread is the use of these mechanisms, what form do they take and how active are states in considering new legislation? Research conducted by the state of North Carolina and independently by the Carton Council with the assistance of Reclay StewardEdge helps answer these questions. The findings come with a caveat about the availability of clear and accurate information on the status of state laws and their results. But the overall purpose is to share key observations and critical lessons from the adoption and implementation of disposal bans and mandates.

What's out there

State disposal bans explicitly prohibit the landfilling or incineration of selected materials. They do not mandate recycling activity, per se, but separate collection of targeted materials is the best path to compliance. Many states have enacted bans on the disposal of hazardous and difficult to handle materials but only four states have adopted outright

disposal bans covering printed paper and packaging (PPP) materials (an excellent summary of states banning non-PPP materials from landfills is available in a 2011 Northeast Recycling Coalition study at tinyurl.com/NERC-Mandatory).

State-level recycling mandates, meanwhile, seek to directly drive diversion activities. Such mandates come in four main forms:

- **State-enforced recycling mandates for generators:** Requires specific generators (e.g. residential or commercial) to implement recycling programs and/or separate designated recyclables from waste. In this instance, the state assumes the primary enforcement role.
- **State requirements on local governments to implement recycling mandates:** Requires generators to recycle, but the state passes this mandate on through local governments, and those entities in turn assume the main enforcement role.
- **Recycling service provision mandate:** Requires local governments or private haulers to provide recycling services or a specific level of service based on criteria such as population size or generator type.
- **Recycling target/goal mandate:** Requires local governments to achieve a mandated recycling goal (e.g., a 50 percent recycling rate by a given year). Goals can target different performance metrics, including source reduction and recycling.

Table A | States with disposal bans for packaging and printed paper

State	Year passed	PPP materials banned	Subject to compliance	Enforcement process	Incentives
Massachusetts	1990 (Added to over time)	All recyclable paper, cardboard and paperboard products; glass containers (bottles and jars); aluminum, steel or bi-metal beverage and food containers; single-resin narrow-necked plastics (bottles).	Waste generators, haulers, landfills, transfer stations, incinerators and municipalities.	Inspections and fines of disposal facilities, reporting mechanisms, third parties.	Municipal grants and assistance to businesses through RecyclingWorks program.
North Carolina	1994 and 2005	Aluminum cans and "rigid plastic containers"(bottles); glass containers generated by ABC permit holders.	Disposal facilities, including landfills and transfer stations.	General landfill and transfer station inspections.	Grants to public and private sector collection efforts.
Vermont	2012	Aluminum and steel cans; aluminum foil and aluminum pie pans; glass bottles and jars from food and beverages; PET and HDPE plastic containers, bottles and jugs; corrugated cardboard; white and mixed paper; newspaper, magazines, catalogs, paper mail and envelopes; box board; paper bags.	Waste generators, haulers, landfills, transfer stations, incinerators, counties and municipalities.	Inspections and fines of disposal facilities, reporting mechanisms, haulers reporting haulers, facilities reporting haulers, reporting by the solid waste office.	None provided.
Wisconsin	1994	Office paper; magazines; cardboard; newspaper; bottles and jars (glass, aluminum, steel/tin, plastics Nos. 1-2).	Haulers, landfills, counties and municipalities.	Inspections at points of generation and disposal facilities, reporting mechanisms, warnings and meetings, action by the Department of Justice.	None provided.

Some states have adopted multiple policies, theoretically to provide cross-support and greater impetus for diversion. Most recycling mandates were part of the early wave of state solid waste laws in the late 1980s and 1990s. Enactment of new disposal bans and mandates in the last decade has been much slower.

The ban believers

Massachusetts, North Carolina, Vermont and Wisconsin have established disposal bans on at least some PPP materials (see Table A on next page). With the exception of glass in North Carolina, the bans apply to all sources of municipal solid waste. In Vermont and Wisconsin, the disposal bans are paired with recycling mandates.

These state disposal bans cover approximately 7.3 percent of the U.S. population. Typically, disposal facilities are expected to monitor their own activity and state officials conduct random inspections to determine violations of the bans. State recycling officials may use reporting mechanisms, grants, outreach and technical assistance to support compliance.

Massachusetts has arguably the most aggressive and strongly enforced PPP disposal ban. The state's original 1990 ban covered "easy to recycle and toxic materials," but various paper and packaging materials were added to the law over time. Waste generators are prohibited from contracting for disposal of banned materials, and waste facilities must verify that specified quantities of such materials are not transferred or disposed of at their sites. Third-party and state inspectors also conduct random inspections at disposal sites, and state enforcement activity has been increasing in recent years. The state also runs the RecyclingWorks program to help businesses increase recovery, and it offers a grant program to municipalities to

promote recycling initiatives and develop infrastructure.

North Carolina passed a 1994 disposal ban on aluminum cans and subsequently banned "rigid plastic containers" (plastic bottles) from disposal in 2005, with an implementation date of October 2009. A separate law requiring alcoholic beverage permittees to recycle beverage containers also bans disposal of glass containers from those sources. The North Carolina Department of Environment and Natural Resources (DENR) holds landfills and transfer stations accountable in regard to the bans, but to date the agency has taken no enforcement actions. DENR has instead encouraged compliance through extensive outreach, grants and training and assistance to improve recycling infrastructure. North Carolina's plastic bottle recycling rate doubled in the three years after the disposal ban took effect, but the rate has since grown only incrementally.

Wisconsin's 1994 disposal ban covers select PPP and holds haulers, landfills, counties, and municipalities accountable for compliance. State officials enforce the bans through monitoring disposal facilities, inspecting points of generation, requiring reporting and issuing warnings if violators refuse to change their behavior. To encourage compliance, Wisconsin promotes awareness through outreach and provides a grants program for municipalities to improve their recycling operations.

Finally, **Vermont's** disposal ban, passed in 2012, becomes effective July 1, 2015. The ban and its accompanying recycling mandate cover a range of PPP materials and require compliance by waste generators, haulers, municipalities, transfer stations, counties and municipalities – none of those entities will be allowed to accept for transfer or knowingly dispose of a banned material. In addition, landfills and transfer stations will be required to monitor materials and file reports to the state. Facility inspections will be conducted

Table B | State adoption of four types of recycling mandates

State	Recycling participation/ source separation mandate – enforced by state government	Recycling participation/source separation mandate – enforced by local governments under state requirements	Recycling service provision mandate – expected of local government and/or collection service providers	Recycling target/goal mandate to be met by local government
California			X	X
Connecticut	X		X	
Delaware			X	X
Florida				X
Maine		X		X
Maryland			X	X
Minnesota			X	X
New Jersey		X	X	X
New York		X		
North Carolina	X			
Oregon			X	X
Pennsylvania		X	X	X
Rhode Island		X	X	X
Vermont		X	X	X
Virginia				X
Washington			X	
West Virginia		X	X	
Wisconsin		X	X	

Notes: North Carolina's generator mandate applies to only one kind of generator: holders of on-premise ABC permits. States in bold in the text of this story were presented as examples but do not necessarily have more effective programs than those not discussed.

and violators will face fines and penalties, while facilities and haulers will be responsible for reporting other haulers who are violating the law.

Of the states with PPP bans, only Massachusetts consistently conducts enforcement, although it remains to be seen how aggressive Vermont will be in this regard. All four states use non-regulatory means to encourage infrastructure development, recycling activity and compliance. Such strategies are especially critical in the absence of strong enforcement, but resources must be provided to support those efforts. Vermont is debating funding options as compliance assistance becomes the looming concern.

A mandate approach

Table B on this page lists the four types of mandates and the states that have adopted them. State-level recycling mandates directly target generators such as households, businesses and institutions. In two examples, state governments assume implementation and enforcement responsibilities.

North Carolina established a beverage container recycling mandate in 2005 on restaurants and bars with permits from the Alcoholic Beverage Commission (ABC). The law also includes a disposal ban on glass containers generated by ABC permit holders. The mandate was phased in over three years and was supported by extensive training, outreach and targeted grant-making. Since the mandate was established, recycling for covered containers has risen by an estimated 30,000 tons per year.

Connecticut's 1989 mandatory recycling law affects waste generators, haulers, landfills, transfer stations, incinerators and municipalities. The law requires haulers to warn commercial and residential generators if designated recyclable materials are not properly source-separated. Haulers are also responsible for offering recycling services comparable to trash services. Connecticut enforces its mandate through inspections at disposal facilities, making the effort function like a disposal ban. In the 1980s and 1990s, the Connecticut Department of Energy and Environmental Protection (DEEP) granted municipi-

palities \$42 million to help compliance with the recycling mandate. The state's recycling rate rose from around 19 percent in 1992 to 25 percent in 2011.

Local leverage

Most state-level recycling mandates are imposed on local governments, which are required to develop local ordinances and are responsible for enforcement. In some instances, collection service providers are also accountable for ensuring that recyclables are not disposed. At least eight states impose recycling mandates through local governments, and **New Jersey's** system serves as a good example of how these programs work.

The Garden State's 1992 source-separation recycling mandate requires each county to develop a plan specifying at least three designated PPP materials that must be recycled by the residential, commercial and institutional sectors. The state reviews the county plans before they can be passed. Municipal governments then create their own recycling ordinances that include the materials designated in the county plan and any other additional materials.

Table C | States without PPP disposal bans or recycling mandates responding to North Carolina DENR survey

State	Disposal ban ever considered?	Disposal bans likely to be considered in future?	Recycling mandate ever considered?	Recycling mandate likely to be considered in future?
Alabama	No	Yes	No	Yes
Alaska	No	No	No	No
Colorado	No	No	No	No
Idaho	No	No	No	No
Iowa	No	No	No	No
Kansas	No	No	No	No
Kentucky	No	No	No	No
Louisiana	No	No	No	No
Mississippi	No	No	No	No
Nebraska	No	Yes	No	Yes
New Mexico	No	No	No	No
North Dakota	No	Yes (for OCC)	No	Yes (for OCC)
Ohio	No	No	No	No
Tennessee	No	No	No	No
Wyoming	No	No	No	No

Under New Jersey’s statute, waste generators are ultimately held responsible, although haulers and disposal facilities are required to visually inspect incoming waste. Violators may be subject to fines and penalties but to avoid such problems, the state provides grants to counties and municipalities for outreach campaigns. Funding for the state’s recycling program comes through a \$3 surcharge per ton on solid waste received at disposal facilities. New Jersey’s recycling rate rose from 9 percent in 1985 to 40 percent in 2010.

Requiring service

Thirteen states require local governments and/or haulers to offer recycling services to their customers. Many specify the type of services that must be provided. Three examples are Pennsylvania, Oregon and Vermont. Each state has additional policies and programs supporting the mandate provisions.

Under **Pennsylvania’s** 1988 Waste Planning, Recycling and Waste Reduction Act, municipalities with populations over 10,000 and those between 5,000 and 10,000 with population densities greater than 300 persons per square mile are mandated to establish recycling programs collecting at least three out of eight listed recyclable materials. Municipalities must adopt ordinances requiring generators to source-separate the materials and

must periodically notify generators of the ordinance requirements as well as how to recycle. Commercial, municipal and institutional establishments are required to recycle aluminum, high-grade office paper and corrugated paper in addition to other materials chosen by the municipality.

Pennsylvania’s mandates are paired with substantial state funding assistance for preparing waste management plans, conducting related studies, establishing recycling programs and hiring recycling coordinators. Municipalities are awarded recycling performance grants based on type and weight of materials recycled and the percentage of recyclables diverted from disposal. Each county submits an annual report, and grant money is withheld from communities not in compliance with requirements.

Over 1,900 Pennsylvania municipalities have recycling programs, serving an estimated 94 percent of the state’s population. Only 440 of Pennsylvania’s 2,700 municipalities are mandated to provide curbside collection programs, but of the remaining communities, 617 have curbside programs and 873 have access to drop-off programs. Because the Commonwealth met the 35 percent state-wide recycling goal in 2002, no recycling rate is calculated for individual counties.

Oregon’s 1991 Recycling Act, revised in 1997, requires cities and counties to provide residents with opportunities to recycle, under specific parameters of state

law. In cities with over 4,000 residents, households that have garbage service must also be provided recycling service as well as recycling education. Each city must also choose to provide three additional services from a list that includes activities such as regular outreach programs, pay-as-you throw pricing, commercial recycling and organics composting

Cities of 10,000 or more must provide one or two additional program elements, depending on the activities chosen. Oregon also has the country’s oldest beverage container deposit system as well as non-regulatory programs that support recycling. Oregon achieved a 53.4 percent rate in 2012, which included a small energy recovery component.

Vermont’s recently enacted Universal Recycling of Solid Waste Act includes disposal bans, mandatory recycling and pay-as-you-throw fee requirements. A list of “marketable mandated recyclables” is defined in the law. By July 1, 2014, collection service providers are required to collect mandated recyclables and deliver them to an approved management facility. Haulers cannot charge a separate fee. All households and businesses are to have equal access to recycling and solid waste collection services, and public space recycling for mandated recyclables must also be provided. Vermont’s legislation represents one of the most comprehensive sets of recycling policies in the country.

Tied to a target

Twelve states, meanwhile, require local governments to establish statutory targets or goals, but only some hold local governments accountable for achieving them. Two examples are Maryland and California. As is true for previous examples, both have supporting policies and programs that help encourage compliance.

Maryland's 1988 Recycling Act requires Baltimore City as well as counties with populations greater than 150,000 to achieve a 35 percent recycling rate. The legislation also calls on counties with populations below 150,000 to achieve a 20 percent rate by Dec. 31, 2015. Maryland has also established a voluntary waste diversion goal of 60 percent and a voluntary recycling rate goal of 55 percent by 2020. The diversion goal includes credits for source reduction activities.

Local governments must produce a solid waste management plan and provide biannual updates. The Maryland Department of the Environment recently reported that residents and businesses recycled 45.2 percent of generated waste in 2011.

In **California**, meanwhile, the 1989 Integrated Waste Management Act mandated local governments to meet waste diversion goals of 25 percent by 1995 and 50 percent by 2000. Assembly Bill 341 in October 2011 increased the state goal to 75 percent disposal diversion and required achievement by 2020. The bill also mandates businesses generating 4 cubic yards or more of solid waste per week as well as multi-family residential complexes of five units or larger to arrange for recycling services. Businesses are given a range of approved options for diverting materials from disposal, and a property owner of a commercial business or multi-family residential dwelling may also require tenants to separate their recyclable materials.

Local governments are required to implement a commercial solid waste recycling program and to report their progress annually. In 2012, CalRecycle calculated the statewide diversion rate to be 66 percent.

Nothing on the books

An estimated 19 states have passed disposal bans and/or recycling requirements directly on or affecting PPP, leaving as many as 31

states with no bans or mandates. A number of these states responding to a North Carolina DENR survey cited a lack of necessary infrastructure or suitable political climate for such legislation (see Table C on page 27). Survey respondents also felt that such statutes would be unlikely to pass the first time they are introduced. The lesson for advocates of traditional policies is that it will take time to build political will for bans and mandates.

Moving forward

Disposal bans on packaging materials and printed paper have been adopted by only four states, and state-level recycling mandates on PPP exist in only about one-third of states.

Disposal bans generally apply state-wide regardless of the waste source, while mandates can target specific generating sources. Some recycling goal requirements allow communities to tailor programs to local needs and circumstances. Minimum-service-level mandates also address infrastructure needs in a targeted fashion.

Based on the frequency of use, mandates appear to be more politically palatable than disposal bans although most mandates are relatively old, enacted as part of original state recycling laws. Mandates and bans are enforced to varying degrees, indicating that enforcement also requires political will. Policies can gain acceptance by coupling a softer enforcement approach with phased implementation, grants and technical assistance.

Since 2005, only a few states have passed PPP legislation. The solid waste crisis drivers of the past are not present today, but new ones may arise to replace them. Packaging manufacturers and brand owners appear to prefer mandates as a path to boost sagging recovery rates.

One organization, the Carton Council, is interested in bans and mandates to expand carton recycling beyond what can be achieved in the absence of policy incentives. The Carton Council has invested in carton recycling infrastructure and now seeks to increase recovery where access has been achieved. Policies that increase participation and material capture would improve the performance of existing programs, including those in rural communities. The research reflected in this article was an important step for the Carton Council in exploring policy tools and implementation approaches

find more details on the research at cartonopportunities.org/policy.

The Carton Council and North Carolina DENR research has led to three important conclusions:

- Policy measures alone do not generate strong recycling performance results, especially if there is a lack of enforcement. Ban and mandate effectiveness results from using combined policy and program tools, with technical assistance and funding being particularly important.
- The best combination of policy and program tools can be highly location specific.
- In today's political climate, additional legislation is unlikely to pass without assertive, consistent cross-industry pressure on state legislatures.

With this research, the Carton Council and North Carolina DENR hope to spark a dialogue aimed at building a path forward. That path will most likely require the formation of industry coalitions that can then work diligently together on legislation. Coalition members will need to be aware of best practice recommendations that are state-specific as well as fact-based responses to opposition from the stakeholders that will be affected by policy implementation. State elected officials will need assurance that the proposed policies will not be just good for the environment but also for business and the economy at large.

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