



South Carolina
Recycling Market Development Advisory Council
2014 Annual Report



South Carolina
Department of Commerce

Just right for business.



South Carolina Department of Commerce
Recycling Market Development Advisory Council
2014 Annual Report

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EXECUTIVE SUMMARY

The SC Department of Commerce provides staff support for the Recycling Market Development Advisory Council as well as assists with economic development activities with the recycling industry sector. In addition, Recycling Market Development program staff undertakes specific activities in support of recycling market development. Commerce's Recycling Market Development program staff has focused its efforts on:

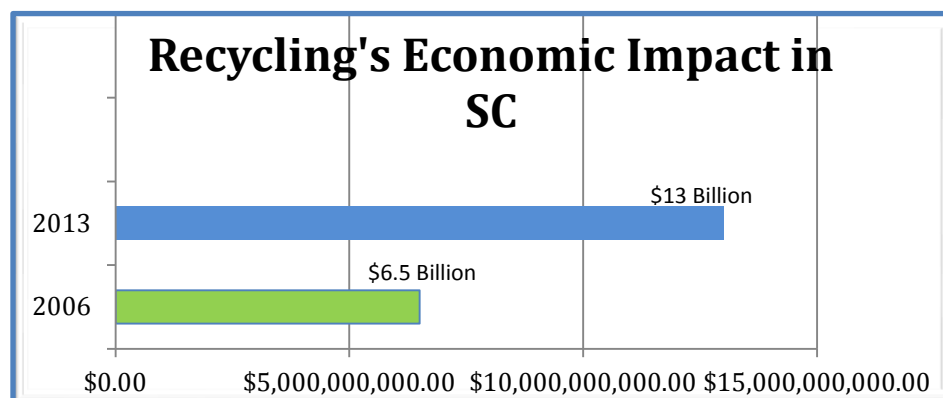
- Market based solutions to help increase recycling through support and coordination of stakeholder groups.
- Promoting recycling's economic strength and impact to the state, and prepare marketing materials that enumerate SC's economic strength and position in recycling.
- Working with the state's recycling industry through a variety of mechanisms, such as service on stakeholder groups, boards and councils.
- Providing assistance to the state's new or expanding recycling businesses.
- Providing technical assistance to existing industry to deliver solutions to their recycling needs.

2014 Recycling Industry Investments

- \$155,600,000 in capital investments
- 586 recycling related jobs created in the state
- 9 recycling related companies

As the recycling industry continues to grow, new companies are coming to South Carolina and existing industries are expanding their operations. According to the SC Department of Commerce Recycling Market Development Advisory Council staff, the recycling industry announced \$155.6 million in capital investment, creation of over 580 jobs with 9 new or existing companies investing in S.C. in 2014.

The recycling industry is comprised of haulers, collectors, processors, brokers, recycling equipment sales and manufacturers, and end-users or manufacturers who take recycled material feedstock and make recycled content products from them. The industry grew from 320 companies with a \$6.5 billion impact in 2006 to 520 companies with a \$13 billion economic impact in 2014.



This report also provides information on RMDAC's work plan, economic development data, resources and market information for the glass, paper, plastics, scrap tires, used oil, nonferrous aluminum and ferrous scrap metal industries.

The mission of RMDAC is to support the economic growth of SC's recycling industry through building recycling markets, increasing material recovery, and promoting the recycling value chain.

Staff helps facilitate job growth and capital investment by assisting recycling industry companies operating within the state through programs that:

- Encourage markets for recyclable materials
- Increase the recovery of recyclable materials
- Connect new and existing companies with outlets for recyclable products

In 2014, RMDAC pursued market development activities in the following areas:

- Plastics container recycling
- Carpet recycling
- Coastal recycling
- Organics management

Staff works closely with DHEC's Office of Solid Waste Reduction and Recycling in developing programs and stakeholder groups.

RECYCLING MARKET DEVELOPMENT ADVISORY COUNCIL RECOMMENDATIONS

For more than 20 years, RMDAC has been leading the charge to increase recycling markets in the state to help with recycling and recovery of materials. RMDAC was established by the 1991 Solid Waste Policy and Management Act and was fully staffed by May 1992. Managed within the South Carolina Department of Commerce (Commerce), the Recycling Market Development program staff coordinates the activities of the Council while providing technical and economic development assistance to recycling businesses and industry.

RMDAC is a governor-appointed council that represents recycling sectors, government, solid waste industry, higher education and the general public. Its mission is to support the economic growth of South Carolina's recycling industry through building recycling markets, increasing material recovery and promoting the recycling value chain.

RMDAC Member	Represents
Ronnie Grant, Sonoco, RMDAC Chair	Paper Industry
Wes Westbrooks, BMW, RMDAC Vice-Chair	S. C. Department of Commerce
Brad Dutton, PolyQuest	Plastics Industry
Roger Player, Dilmar Oil	Petroleum Industry
Vic Carpenter, Kershaw County	County Government
Kristen Brown, MY ECO	General Public
Glenn Odom, Wellman Plastics Recycling	Recycling Industry
Dan Chuy, Michelin North America	Tire Industry
Lauren Cox, Alcoa Mt. Holly	Aluminum Industry
Blake Stanley, CRC Scrap Metal Recycling	Scrap Metal Industry
Norman Chandler, Republic Services	Solid Waste Industry
Chuck LaGrange, Greater Greenville Sanitation Commission	Municipalities
Donna London, Clemson University	Higher Education
Esther Murphy, Horry County Solid Waste Authority	Glass Industry

Recommendations

RMDAC, created by the Solid Waste Policy and Management Act of 1991, is required to submit an annual report to the Governor and General Assembly. Requirements of the report include, but are not limited to:

Any revisions which the Council determines are necessary to its initial report;

There are no revisions to be added.

A description and analysis of the amounts and types of solid waste materials recovered or recycled in this State during the preceding year;

In fiscal year 2014, the South Carolina Department of Health and Environmental Control (DHEC) reports:

- 1,263,495 tons municipal solid waste (MSW) recycled
- MSW recycling rate of 29.2 percent
- MSW disposal rate of 3.5 pounds per person per day

The 2014 Municipal Solid Waste (MSW) recycling rate of 29.2 percent went down by 2.3% from the 2013 rate of 31.5%. This is due to the fact that businesses are not required to report (local governments are) so it is unclear how much volume in recycling is missed. MSW generation is generally broken down by roughly 60 percent residential and 40 percent commercial, so there is potential to improve upon the recycling rate by additional reporting.

RMDAC will continue to work with DHEC and other organizations to identify and grow recycling markets, develop strategies to help increase the recovery of materials and encourage business reporting.

Recommendations regarding materials which should be added to or deleted from source separation, recovery, and recycling programs; and increase the recovery of recyclable materials

With South Carolina’s strong recycling industry and over 500 businesses to take materials, RMDAC will continue to promote recovery, recycling and sustainable material options for:

Traditional Recyclable Materials	Emerging Recyclable Materials Markets
• Plastics	• Carpet
• Metals	• Organics
• Paper	• Mattresses
• Glass	• Construction and Demolition Materials
• Tires/Rubber	• Biomass
• Petroleum	• Electronics
	• Textiles
	• Carbon Fiber
	• By-products from the manufacturing process

Traditional recyclable materials are those that are managed in residential recycling programs and have been managed for the last 20 years. *Emerging markets* are those additional materials that can be recycled and have end markets in the state but need further recycling market development either on the collection side at the local government level.

Food waste is the largest component of the nation’s municipal solid waste (MSW) stream accounting for more than 36 million tons (about 21 percent) of the nearly 251 million tons generated in 2012 according to the U.S. Environmental Protection Agency (EPA). Applying that percentage to South Carolina’s MSW generation, the state produced an estimated 906,602 tons of food waste in fiscal year (FY) 2014 (July 1, 2013 to June 30, 2014). (Source: DHEC)

- According to the “State of Composting in the US”, on a per-ton basis, the research found that composting sustains four times the number of jobs as landfill or incinerator disposal (Platt and Seldman, 2000).
- Utilizing 10,000 tons of finished compost annually in green infrastructure can sustain one new business. For every 10,000 tons of compost used annually by these businesses, 18 full-time equivalent jobs can be sustained.
- For every 1 million tons of organic material composted followed by local use of the resulting compost in green infrastructure, almost 1,400 new full time equivalent jobs could potentially be supported.
- Composting and compost use represent place-based industries that cannot be outsourced.
- Work with all stakeholders to improve infrastructure as possible to increase the quality and quantity of recovered food waste.

Composting sustains four times the number of jobs as landfill

Any other recommendations, including tax incentives, to facilitate the development of markets for recovered materials or products in this State

Over 1,000 are employed by the state’s PET plastics recycling industry. Annual sales are nearly \$400 million. Recent investment has been over \$130 million. Clearly, South Carolina has a strong plastics recycling sector, yet over 70% of plastic bottles are thrown away. Each bottle disposed adds additional cost while each bottle recycled not only adds no cost to recycling but in fact reduces that cost. An example, if disposal costs \$48 per ton and plastic bottles have a current market value of \$80 per ton, then each ton we shift from the trash can to the recycling bin is worth a total of \$128. So if each household in the Carolinas recycles just 2 more plastic bottles each week, local governments are \$4 million better off and potentially create 300 new jobs in the industry.

If each household in the Carolinas recycles just 2 more plastic bottles each week, local governments are \$4 million better off and potentially create 300 new jobs in the industry companies.

Policy considerations to boost plastic bottle recovery might include encouraging the development of policy for meeting a 40% recycling rate vs a 40% recycling goal, exploring a plastic bottle ban similar to North Carolina’s, pursuing Pay as You Throw, and providing incentives for the manufacture of recycled content materials with post-consumer plastics, or providing incentives for consumers to participate in recycling like RecycleBank or RecyclePerks. Below are a few recommendations to boost the recycling rate:



- Encourage municipalities to offer single-stream recycling. When single-stream recycling service is provided to a curbside collection community, the amount of material recycled increases an average of 22%. (Source: CVP)
- Reduce waste by not generating it – encourage waste prevention by both the residential and business sectors
- Increase resource recovery and recycling
 - Improve recycling convenience; encourage that trash cans are twinned with recycling carts (i.e., twin the bin)
 - Encourage commercial business recycling.
- Help grow organics management and composting - the frontier right now is around organic waste. Creating more municipal composting programs along with private sector hauling and service would boost composting and overall recycling rates.
- Encourage buy recycled. The more purchases around recycled content products, the stronger the industry is.

RMDAC will continue to work with various organizations to support and increase market-based solutions to recycling in South Carolina. These organizations include, but are not limited to:

- Commerce
- DHEC
- RecyclonomicsSC
- Solid Waste Association of North America (SWANA) Palmetto Chapter
- South Carolina Recycling and Solid Waste Professionals Association
- Carolina Recycling Association (CRA)
- Southeast Recycling Development Council (SERDC)
- Recycling Coalition of South Carolina
- Carolina Plastics Recycling Council
- South Carolina Carpet Recovery Coalition
- Carpet America Recovery Effort

SOUTH CAROLINA RECYCLING INDUSTRY ECONOMIC IMPACT

In 2014, Commerce partnered with DHEC, South Carolina's Council on Competitiveness and RecyclonomicsSC to update the recycling industry's economic impact report. Commerce issued a press release with the 2014 recycling industry economic impact numbers which was picked up by over 12 media outlets as well as developed a fact card with economic information. (See Appendix: pp 43-45)

The report, compiled by Dr. Frank Hefner of the College of Charleston, shows that the industry contributes:

- \$13 billion in total economic impact – double the impact of \$6.5 billion in 2006
- 22,403 direct jobs attributable to recycling in S.C.
- 54,121 total (direct and indirect) jobs, up 44 percent from 37,440 jobs eight years ago
- \$2.7 billion in labor income, up 80 percent from the 2006 report
- \$329 million in state and local taxes
- Average annual wage is \$40,203 (vs. average wage in SC for all jobs of \$38,700)
- A total of \$2.7 billion in labor income generated annually
- There are more than 520 recycling-related companies in S.C.
- The average number of employees per company is 63, while the median number of employees is 14
- 63.8% of respondents indicate they are planning an expansion in 2014 at an average of 3.5 employees each - with 521 firms in the industry, this implies 332 firms will expand in 2014, projecting to add an additional 1,162 employees in 2014
- 89% of respondents indicate recycling is a growing industry, with an average annual growth rate of 19%
- In just 8 years, the industry has doubled its annual total economic impact: from \$6.5 billion in 2006 to \$13 billion in 2014.

Recycling Industry Impact
\$13 billion in total economic
impact – double the impact of
\$6.5 billion in 2006



Since 2006, Commerce has recruited \$4.8 billion in capital investment and 8,200 new jobs in the recycling-related sector. Since 2011, \$1.056 billion in capital investment has been announced with 2,900 jobs and 53 companies.

SC Recycling Impact			
	Capital (Millions)	New Jobs	Businesses
2011	\$333	837	15
2012	\$463	771	19
2014	\$104	765	10
2015	\$156	586	9
Total	\$1056.00	2921	53

In 2014, Commerce helped facilitate the recycling industry recruitment of:

- 586 jobs
- \$155.6 million in capital investment
- 9 new or existing companies investing in South Carolina

Company Name	County	Investment	Jobs
Portucel, S.A.	Greenwood	\$110,000,000	70
Quality Farms	Marion	\$1,900,000	27
The Recon Group Inc. (TRG)	Cherokee	\$1,300,000	248
ACI Plastics South, LLC	Oconee	\$4,100,000	25
Viva Recycling of South Carolina, LLC	Anderson	\$6,900,000	14
CRR Carbon Resources Recovery SC LLC	Anderson	\$20,000,000	30
packIQ, LLC (formerly Tech Source Inc.)	Anderson	\$2,100,000	50
Greenfield Industries Inc.	Oconee	\$8,200,000	38
Dixie Poly Drum Corporation	Hampton	\$1,100,000	84
Total Companies: 9		\$155,600,000.00	586

With more than 520 recycling-related companies that haul, collect, process, manufacture and broker, the South Carolina’s recycling industry is growing and boosting the economy. (See page 12 for infographic)



SOUTH CAROLINA IS
**JUST RIGHT FOR
 RECYCLING**

PALMETTO STATE RECYCLING MARKETS SNAPSHOT



Recycling Fuels Manufacturing
 With a strong manufacturing presence, South Carolina has a high demand for recycled content feedstock. Manufacturers use recycled content materials for their finished products.

CONSUMED PER DAY

1,100 tons **Plastics (PET & HDPE)**

2,600 tons **Paper**

16,000 tons **Steel**

ANNUAL DEMAND

375,000 tons **Plastics (PET & HDPE)**

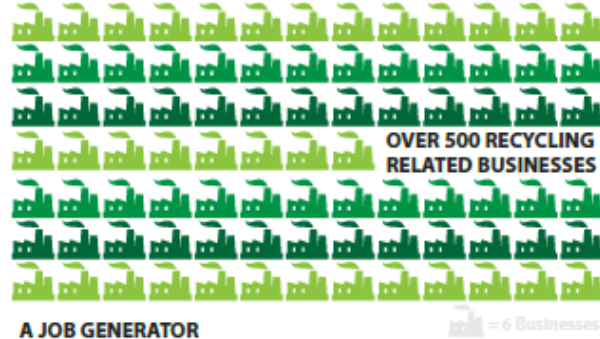
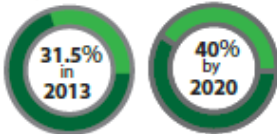
975,000 tons **Paper**

5,400,000 tons **Steel**

REDUCE, REUSE, RECYCLE

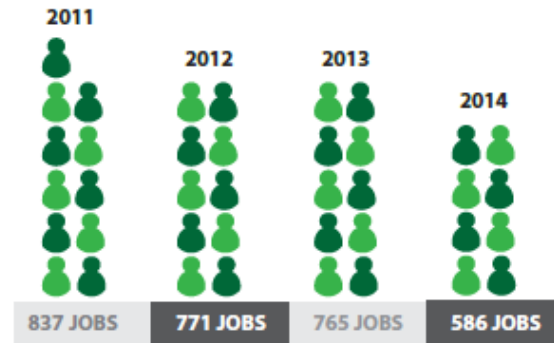
In 2013, 1,371,960 tons of Municipal Solid Waste was recycled. That is the equivalent of 4,962 Boeing 787 planes, loaded with the maximum take-off weight.

In 2013, South Carolina's MSW recycling rate was 31.5%. By 2020, the state's goal is to increase the recycling rate to 40%.



A JOB GENERATOR

Since 2011, capital investment in the recycling-related sector has created nearly 3,000 jobs in South Carolina.



RECYCLING IN SC

South Carolina has 4 times more jobs in recycling per capita than California and Massachusetts.

**RECYCLING INVESTMENT
 BY YEAR**



A Green State of Mind

With a business-friendly environment, it is easy being green in South Carolina. Since 2006, South Carolina has recruited more than **\$4.7 billion** in capital investment in the recycling-related sector. In 2014, the recycling industry had an economic impact of **\$13 billion** and supported **22,400 jobs**.



The above economic data is from the South Carolina Department of Commerce's internal records. The MSW data is from the South Carolina Department of Health and Environmental Control.

ANALYSIS OF THE STATE'S EXISTING RECYCLING INDUSTRY

The state's recycling industry is strong. SC has 4 times more jobs per capita related to recycling than Massachusetts or California, both of which are recycling leaders. The state has over 500 recycling businesses that haul, process or manufacture recycled content materials. The state has robust plastics, metal, paper, textile, carpet, biomass, petroleum and rubber recycling industries. South Carolina is growing in its competitiveness by developing businesses in the following recycling sectors: glass, electronics, construction and demolition, organics and carbon fiber. Having additional processor and end-user capacity in these areas would ensure that new value-added products would be returned to the marketplace instead of landfilled.

SC has 4 times more jobs per capita related to recycling than Massachusetts or California

As markets mature and develop, they can help to increase the state's 2014 MSW recycling rate of 29.2%.

Metals

Long-Term Capacity of Existing Markets

Recyclable metals can be categorized into two categories: ferrous and nonferrous metals. Ferrous metals are those that contain iron including various forms of steel and cast iron materials. Non-ferrous metals are those metal alloys that contain only residual amounts of iron. Nonferrous metals include aluminum, copper, brass, lead, nickel, and zinc.

In South Carolina, metal recycling is a strong, healthy sector. This sector's robust status can be attributed to the fact that metals recycling has solid demand domestically and the global marketplace has augmented demand for different types of scrap metals. In addition, higher energy prices have made recycling metals more attractive. It is more economical to make new steel from old steel than to produce virgin steel.

Steel mills represent the primary consumer of recyclable metals. Because of the vast amounts of scrap material needed by steel mills that purchase recycled metals for melting, the four steel mill facilities are located anywhere from 50-100 miles apart and have access to the ports. Geographically speaking, there are two electric arc furnace (EAF) mills located near the coast, one in the Pee Dee region and one in the Midlands. There are no EAF mills in the upstate.



Electric Arc Furnace

SC's electric arc furnace mills consume anywhere from 55-99.6% post-consumer scrap steel as their major feedstock. SC's

strong automotive and aerospace sectors produce volumes of industrial scrap to feed the EAF mills. The 4 EAF mills produce structural beams and reinforcement bar for the construction industry as well as wire which goes in to the manufacture of automotive products. A complex network businesses and individuals involved in the metals recycling industry has evolved across the state. This network includes collectors, haulers, brokers and processors. Scrap metal collectors are fairly evenly distributed around the state. Processors of metals are fewer in number in the state than are collectors. The main purpose of processors is to convert the scrap metals to an acceptable form for transporting and re-melting. Processors typically have shears, baling equipment and cranes which all require large capital investments.

For non-ferrous, there is a secondary aluminum smelter located near the coast. There are no copper, brass, lead, nickel or zinc smelters, but there are foundries who can take various scrap metals.

The metal recycling industry continues to see investments in processing capacity and supports many major manufacturers like BMW, Boeing, as well as automotive and aerospace suppliers.

- Triple M Recycling provides metals recycling to an Upstate BMW supplier.
- Reclim, an appliance recycler, recently invested in capacity in Graniteville, SC and is working with Pepsi Bottling Ventures to recycle vending machines. The plant will feature the first use of environmentally friendly German recycling technology in the US and will recycle appliances, vending machines and other apparatus. Long-term, the metals recycling industry has staying power in SC to be able to handle post-consumer and post-industrial scrap metal.



Various steel and aluminum recycled products made in SC

South Carolina has 103 scrap yards that employ more than 3,305 people.

South Carolina's 4 steel mills employ 1,700 people and recycle about 16,000 tons of material per day. These electric arc furnace steel mills produce structural material for the construction and building industry.

According to the U.S. Department of Commerce (Bureau of Census), the top export countries in 2014 for scrap iron and steel via South Carolina were:

- India
- China
- Pakistan
- Canada
- Vietnam



CMC Steel supplied recycled content steel to Hubbell Lighting Building Greenville.

Plastics

Long-Term Capacity of Existing Markets

- PET #1 - Polyethylene Terephthalate plastics (soda and water bottles) have a robust market in the state. With 11 recyclers of PET material, end-use markets are strong and demand for material is greater than supply. There is a system of haulers, collectors and processors in place to support these end-users.
- HDPE #2 - High Density Polyethylene post-consumer plastics (milk jugs, laundry detergent and shampoo bottles) have no end markets in the state. However, demand from the closest processor in Reidsville, NC is strong. The other closest market is in Troy, AL. There is a system of haulers, collectors and processors in place that collect HDPE and export it out of state and out of country.
- PVC #3 – Vinyl (clear food packaging, pipes, cooking oil bottles) plastics do not have any end markets in SC for post-consumer plastics. Postindustrial rigid PVC is processed by a recycler in York County and flexible PVC is recycled by a flooring company in Jonesville, SC.
- LDPE#4 - Low Density Polyethylene (grocery bags, bubble wrap and shrink wrap) plastics are recycled in Hemingway, SC and demand exceeds supply. There is also a system of haulers, collectors and processors in place that collect LDPE and export it out of state.
- PP#5 - Polypropylene plastics (yogurt containers and ketchup bottles) do not have any end markets in SC for post-consumer plastics. Postindustrial PP is processed by a recycler in Barnwell County. There is also a system of haulers, collectors and processors in place that collect PP and export it out of state and out of country.
- PS #6 – Polystyrene (egg cartons, disposable plates and cups) plastics do not have any end markets in SC for post-consumer plastics.
- Other #7 plastics (polycarbonate and bio-based plastics) do not have any end markets in SC for post-consumer plastics. The nearest market is in Atlanta, GA.

Current Market Status

South Carolina has 120 companies in the plastics recycling value chain. There are 2 plastics reclaiming companies that can take the entire plastic bottle and convert it into a resin for end-use applications such as new bottles, food grade plastics and fiber. Regional market demand is 347,500 tons of material. An estimated 550,092 tons (12.7 percent of MSW) of plastics material is generated. According to DHEC, only 16,777 tons were recycled in FY 14.

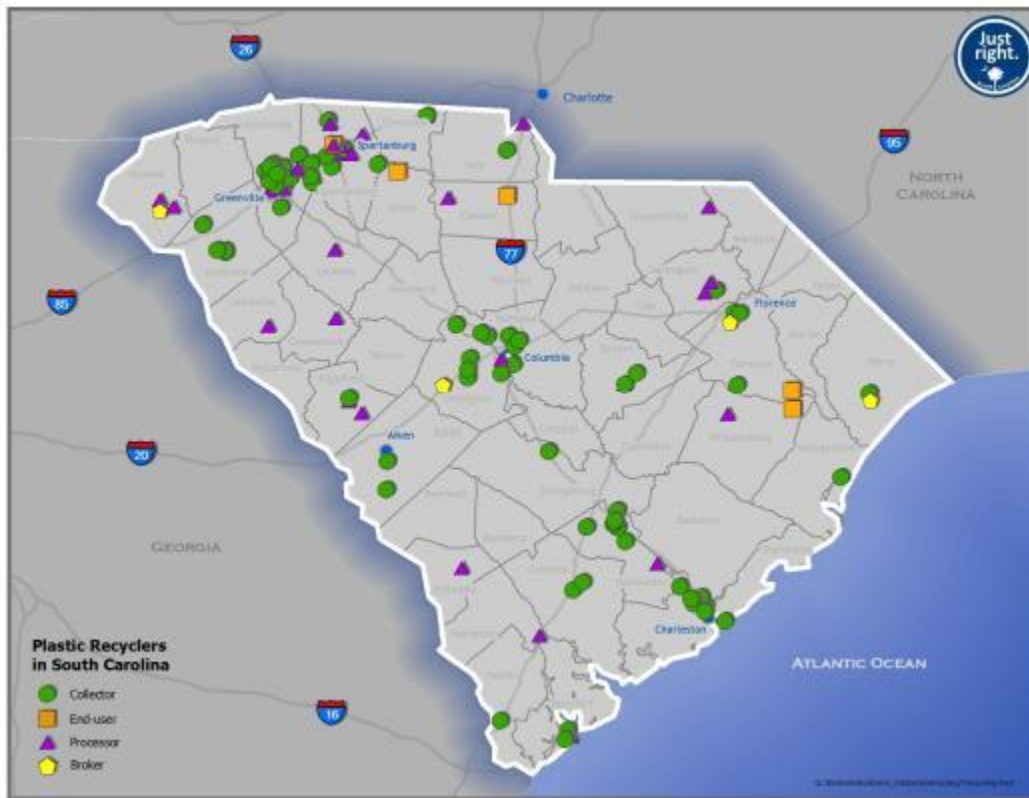
- Plastic recycling decreased nearly 19 percent from FY13 to FY14. More than 75 percent of plastic recycled came from commercial, institutional and industrial sources. Local governments reported earning \$300,000 from the sale of recovered plastic. On average, each South Carolinian recycled six pounds of plastic in FY14.

According to the U.S. Department of Commerce (Bureau of Census), the top export countries for plastics scrap were:

- China

- Hong Kong
- India
- Malaysia
- Dominican Republic

Plastics Recyclers in South Carolina



• *This map may not be representative of all entities in the SC plastic recycling value chain.

Industrial plastics (some common abbreviations are ABS, PC/ABS, PP, Nylon, HIPS, LLDPE, LDPE, PE, PS) are generated from automotive and packaging industries. There are 14 industrial plastics recyclers in the state. There are 5 textile recyclers in the state. Textile recyclers handle polyester and other non-woven materials that are part of the plastics recycling value chain.

Industrial and Textile Recyclers in SC

Type	Company Name	City	State
Industrial Plastics	ACI Plastics	Anderson	SC
Industrial Plastics	Alterra Polymers	Seneca	SC
Industrial Plastics	ATD Inc	Greenville	SC
Industrial Plastics	Carolina Plastics	Seneca	SC
Industrial Plastics	Carolina Recycling Company	Greenville	SC

Industrial and Textile Recyclers in SC continued

Type	Company Name	City	State
Industrial Plastics	ICE Recycling	Lake City	SC
Industrial Plastics	Industrial Recovery and Recycling	Greer	SC
Industrial Plastics	Innovative Plastics	Ridgeway	SC
Industrial Plastics	Mumford Industries	Ninety Six	SC
Industrial Plastics	Residue Recycling Inc	Pendleton	SC
Industrial Plastics	Stewart Recycling	Sumter	SC
Industrial Plastics	Sworn Plastics	Greenville	SC
Industrial Plastics	Tahoma Rubber and Plastics	Abbeville	SC
Industrial Plastics	Waste Zero Envirobag	Hemingway	SC
Textiles	Carolina Textile Recycling	Walterboro	SC
Textiles	Martex Fibers	Spartanburg	SC
Textiles	Leigh Fibers	Wellford	SC
Textiles	Plastex Inc	Edgefield	SC
Textiles	Phoenix of Anderson	Anderson	SC

Paper

Long-Term Capacity of Existing Markets

Paper recycling is one of the oldest, longest standing recycling sectors in the state with the presence of Sonoco in Hartsville, SC. Sonoco began recycling in the early 1900's, making textile cones out of recycled paper instead of wood. Paper makes up about 27 percent of municipal solid waste nationwide. Americans recycled about 65 percent of the paper they used in 2012. The paper recycling sector can take many grades of paper, especially those found at MRF's - mixed and sorted paper, old newsprint (ONP) and old corrugated cardboard (OCC).

SC has a comprehensive network of collectors, haulers, shredders, processors and mills. There are 4 paper mills that use recycled OCC to make new paperboard— two mills are in the Pee Dee region, and two are in the Upstate. These OCC mills vary in their capacity to take other grades of paper other than OCC such as mixed paper.

- Mixed paper is beginning to develop a strong domestic market as mills are finding ways to substitute in mixed paper instead of cardboard.
- There are no ONP mills in SC. This commodity is on the decline with the advent of electronic media. The closest mill is in Dublin, GA, and they are looking to diversify their offerings into packaging materials rather than solely ONP.

Paper recycling has long been a part of residential and commercial recycling. Many cities have large recycling carts which can take cardboard in their curbside recycling programs. Businesses can avoid disposal costs by recycling paper and even receive revenues from the sale of these materials. Further improvements in paper recycling will also help to grow the market, as recent advances have made it possible to recycle coated paper packaging along with corrugated paper. This will reduce the cost of recycling significantly, driving up the demand for recycled paper.

Current Market Status

The markets for paper – OCC, mixed paper are strong in SC. An estimated 81 companies exist in the paper and (OCC) recovery value chain in South Carolina. There are 4 recycled paper processing mills that consume 952,000 tons annually. They employ approximately 2,500 people in SC. These processing mills produce liner board, paperboard, tubes and cores (i.e., paper towel cores), game board and other packaging material for the consumer products industry.

Examples of paper and OCC end-users in South Carolina include:

- Sonoco
- Pratt
- Carastar
- RockTenn

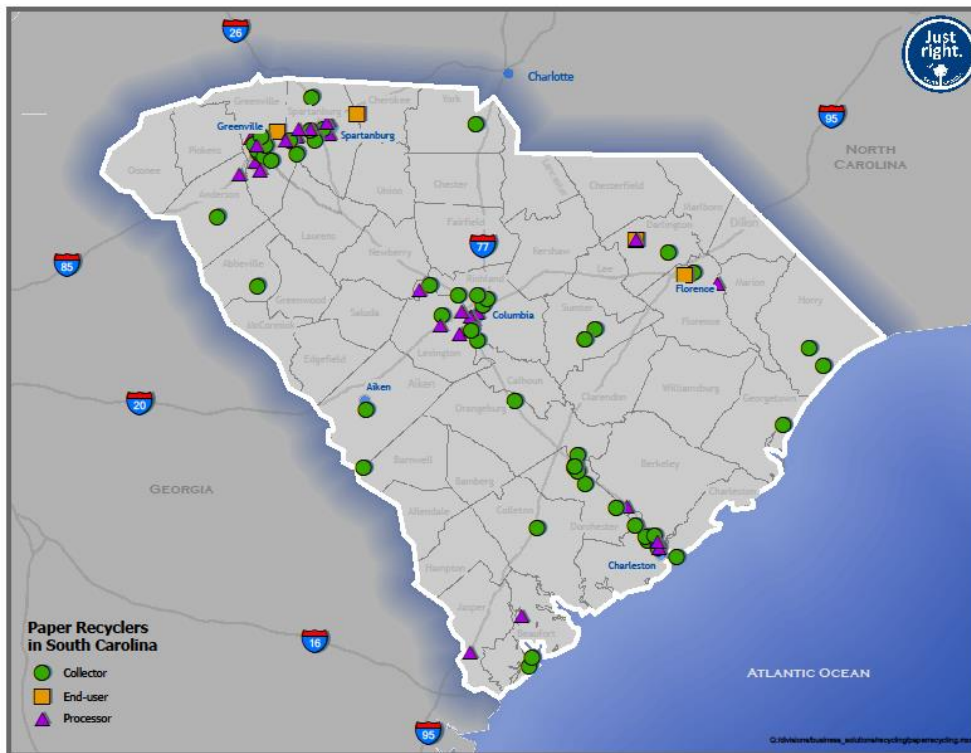
According to the U.S. Department of Commerce (Bureau of Census), the top export countries for recovered paper were:

- India
- China
- Korean Republic
- Mexico
- Netherlands

Paper comprised about 25 percent of MSW recycled in FY14. Cardboard accounted for 76 percent of all paper recycled. Local governments reported earning \$2 million from the sale of fiber in FY14. On average, each South Carolinian recycled 132 pounds of paper in FY14. (Source: DHEC)

According to the American Forest & Paper Association, since 2009, more than 60 percent of paper consumed in the U.S. has been recovered for recycling each year. In addition, an estimated 78 percent of U.S. paper mills use recovered fiber to manufacture office paper, packaging and tissue products. (Source: AF&PA)

Paper Recyclers in South Carolina



*This map may not be representative of all entities in the SC paper recycling value chain.

Glass

Long-Term Capacity of Existing Markets

Glass is a commodity with limited end-use markets in the state. Challenges to glass recycling are primarily due to its low market value, the weight of the material, the distance to market and its abrasive effect on processors recycling equipment. Single stream collection and processing practices lower the market value for glass as all glass colors (clear, amber, and green) are commingled. This results in a lower value three color-mix (three-mix) coming out of single stream programs which processors then have to sort back out into the individual colors. In addition, blue glass is an additional color that is becoming more mainstream and has to be sorted out because of the cobalt in it.



Blue glass for recycling at Reflective Recycling in Pacolet, SC

It is estimated 199,246 tons of glass (4.6 percent of MSW) are generated in South Carolina. The estimated amount generated is calculated by applying the U.S. Environmental Protection Agency's national MSW generation rates to South Carolina's MSW generation (Source: DHEC's South Carolina Solid Waste Management Annual Report for Fiscal Year 2014.) In FY 2014, 5,976 tons of glass were recycled (this excludes glass collected in commingled recycling programs). About 96 percent of glass recovered in the state came from residential sources. Local governments reported earning more than \$28,000 from glass in FY14. On average, each South Carolinian recycled 2.5 pounds of glass in FY14.

Current Market Status

Regional market demand: 210,000 tons annually (reflects glass tonnages being pulled out of SC by Reflective Recycling in Pacolet, SC and Strategic Materials which has NC and GA locations)

- Reflective Recycling
 - Has 3,000 tons a month post-consumer glass processing capacity
 - Post-industrial glass processing adds another 2,000 tons of material per month
 - Secondary glass processor with the capability to process glass into color-sorted furnace-ready cullet
 - Cullet used by glass manufacturers need to make new glass

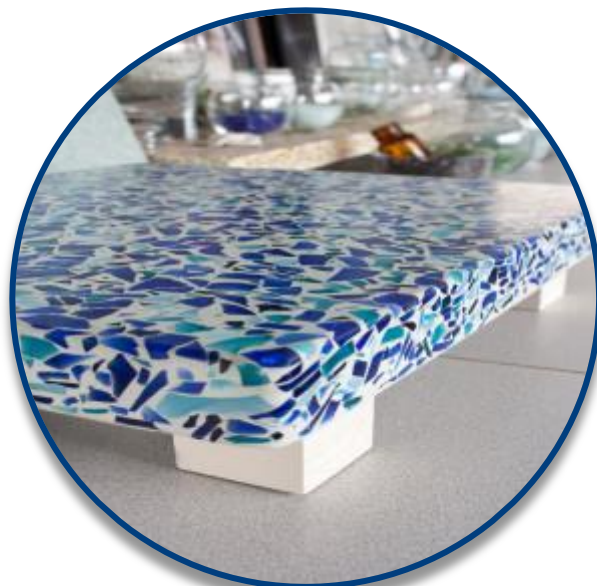


Recycled glass uses

- Reflective also has a facility in Wilson, NC provides feedstock to a nearby glass container plant.

Major uses for the processed glass from Reflective Recycling's processed glass are for:

- Container remanufacturing
- Highway bead
- Sand blasting abrasive
- Products produced: cullet (used to make new glass), glass beads, sand-blasting abrasive (used for reflective highway paint),



Fisher Recycling recycled glass countertop

Direct impact: no direct end users in SC

Indirect impact: 20 companies who reuse, hauler, collect, or process glass.

- Fisher Recycling
- Horry County Solid Waste Authority
- Reflective Recycling

Success Stories:

- Fisher Recycling: Founded by Chris Fisher in 1992, Fisher Recycling manufactures the GlassECO product line of glass countertops and landscape cullet from 100 percent postconsumer content. Glass is crushed with glass crusher equipment and produces eight different sizes of cullet.

Others uses for recycled glass:

- Safety reflective beads
- Countertops
- Road beds
- Landscaping materials
- Alternative landfill cover
- Drinkware - reuse

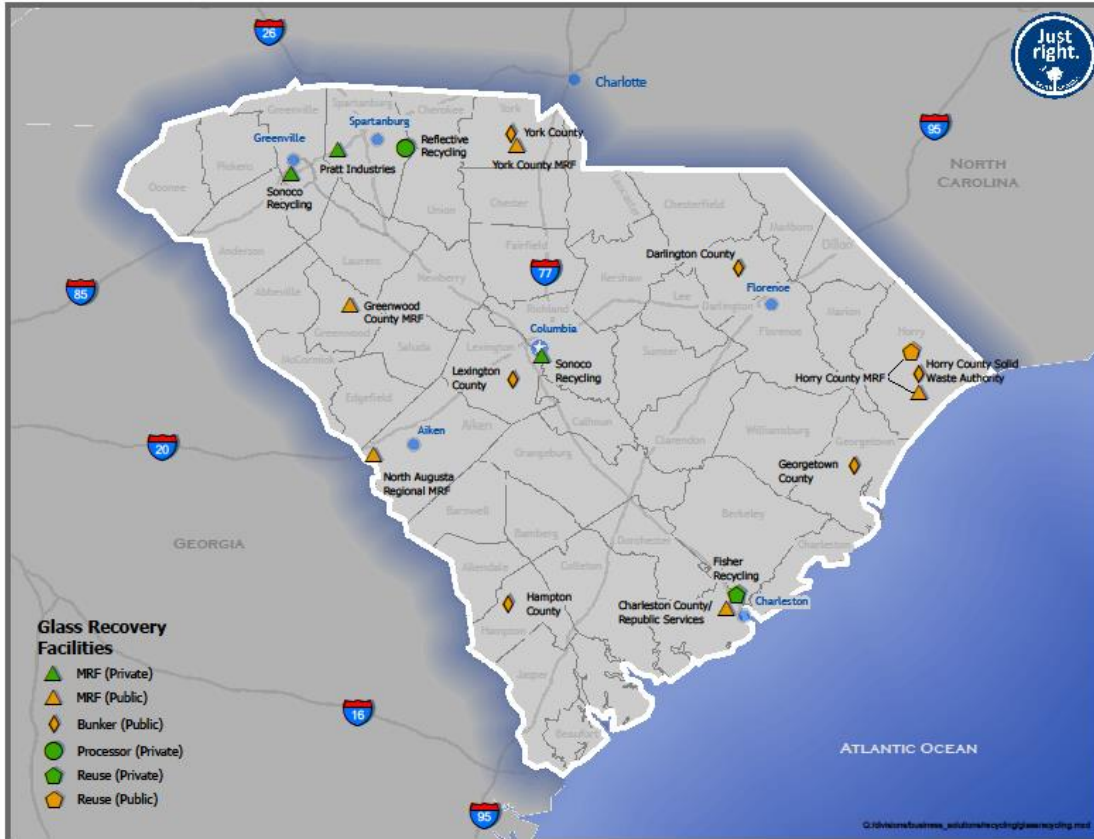
Fast facts about **Glass**

According to the U.S. Environmental Protection Agency (EPA)

- 11.6 million tons of glass was generated in 2012.
- Glass containers are manufactured from sand, soda ash, limestone and cullet.
- Glass can be recycled endlessly with no loss in purity or quality.
- Recycled glass or cullet is used in the glass manufacturing process to supplement raw materials.
- An estimated 90 percent of recovered glass containers are made into new bottles.

Due to its low value, transportation and processing costs, markets for glass are limited. Some public and private material recovery facilities (MRFs) in the state are equipped with glass breaking technology to manage glass collected via single stream. South Carolina does not have any bottle to bottle glass recycling, but other application uses for glass exist.

Glass Recovery Facilities



*This map may not be representative of all entities in the SC glass recycling value chain.

RECYCLING STAKEHOLDER GROUPS

South Carolina Carpet Recovery Coalition

Staff to RMDAC manages the activities of the South Carolina Carpet Recovery Coalition (CRC) in partnership with DHEC and other entities to help increase the recovery of carpet and carpet padding in the state. As a carpet recycling leader in the Southeast, South Carolina has a diverse network of companies with several hundred million pounds of recycling capacity. These businesses include collectors, processors and end users that utilize recovered carpet to manufacture new products for the automotive, construction, electronics and lawn and garden industries.



In 2014, the CRC accomplishments included:

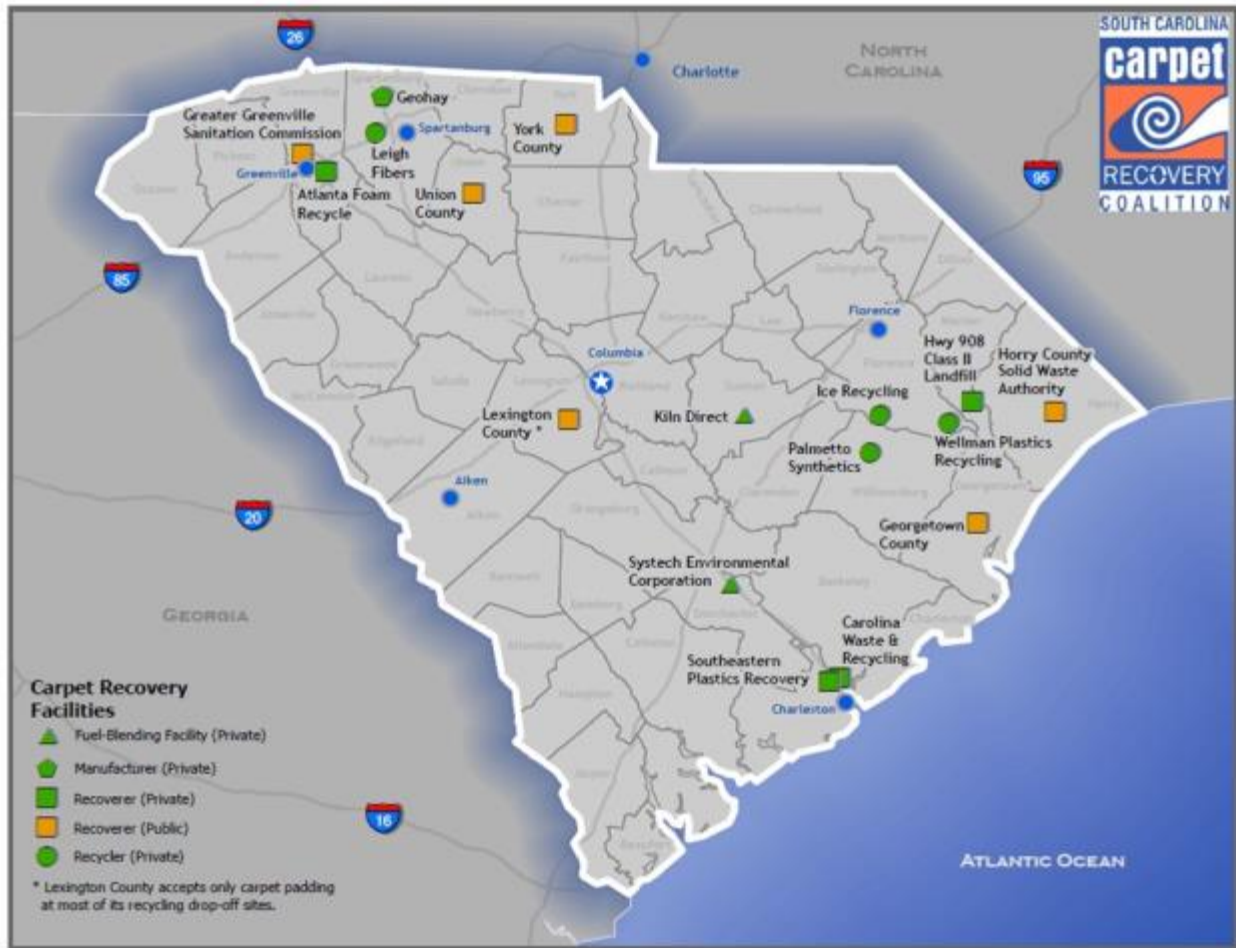
- Development of a post-consumer carpet recovery brochure (See Appendix: pp 46-47)
- Created carpet recovery facilities map
- Produced a carpet recovery flyer for landfills
- Designed a carpet recovery ad for the RecyclonomicsSC magazine
- Held a stakeholder holder meeting
- Conducted five CRC steering committee conference calls
- Met with local governments to promote carpet recycling
- Generated letters to CARE and Carpet Recycling Institute regarding CRC and its efforts
- Presentation to class 2 landfill training class
- Drafted carpet recycling information for Commerce and DHEC websites
- Developed carpet recovery fact card
- Presented to CARE (Glenn Odom presented at October CARE conference on behalf of SC CRC)
- CARE recognized market development activities by SC

Data: South Carolina is a carpet recycling leader in the southeast. Increased carpet recycling has the capacity to lead to increased jobs, energy savings for end-use markets, and increased capital investment by companies that will provide hauling, collection, processing and end-use components for the recycling industry.

- The SC carpet recycling industry employs about 1,280 workers.
- Ford is using recycled plastic extracted from discarded carpets for parts in some of its most popular vehicles' engines. Wellman Plastics Recycling, a carpet recycler, supplies that material to Ford from its Johnsonville, SC, location.

Background: Stemming from the initial carpet recovery meeting that was held on January 24, 2013, staff continued to support the stakeholder group and its activities.

Infrastructure: Commerce worked with DHEC to identify private and public carpet recovery facilities in the state. A map was developed to illustrate this infrastructure and identify facility type. In addition, a post-consumer brochure was developed for local governments, and a DHEC carpet recovery web page was developed. York County is bringing on carpet recycling capacity through the grant they received from DHEC. Greater Greenville Sanitation Commission is also looking at setting up a collection center. Richland County and Charleston County both are interested in collecting carpet but have not made any commitments. Other local governments have been approached and informed about carpet recycling.



*This map may not be representative of all entities in the SC carpet recycling value chain.

CRC Steering Committee: Coalition steering committee members were identified:

- Commerce
- USC
- Wellman Plastics Recycling
- Georgetown County
- Southeastern Plastics Recovery
- Greater Greenville Sanitation Commission
- DHEC

Monthly steering committee conference calls were held in 2014 as well as a face-to-face stakeholder meeting.

Activities planned for 2015:

Activities identified for the next fiscal year include:

- Survey collectors/recyclers
- Letter to county administrators/managers
- Counties w/short landfill life span
- Include specific data for the area
- Partner with other programs i.e. air quality coalitions
- Potential DHEC grant opportunities
- Potential student projects (USC)
- Explore things the carpet coalition has not been able to do
- DHEC Website
- Determine specific date for data to be added to website (after March 2015)
- 2015 meetings and calls
- Explore opportunities to collaborate with CARE and CRI
- Update on PET carpet



Creating a carpet recycling infrastructure with local governments takes time. While county progress in adding carpet collection capacity has been slow to come online, they are showing interest in recovery of carpet. Through education and outreach to local governments, landfills, and county administrators, the CRC feels that it can gain traction and create more collection infrastructure. Some of the recoverers try to make it easier for local governments by accepting commingled carpet and carpet padding, but other recyclers want it separated. The CRC is off to a good start and is looking at the education, outreach and infrastructure development as a long term investment for the state.

CARE recognized the CRC for its efforts to promote carpet recovery in South Carolina. A copy of the letter is located in the Appendix on page 48.

Carolina Plastics Recycling Council (CPRC)

The CPRC is an effort between public and private partners in North Carolina and South Carolina to recover more plastic bottle.

Staff managed the activities of the Carolinas Plastics Recycling Council for the 2013-2014 contract year. This stakeholder group is active and has grown over the three years of staff's management of the CPRC.

Data: It is estimated 300 million pounds of plastic bottles are landfilled in the Carolinas; these are potential feed stocks that could be turned into new recycled content products by businesses who employ South Carolinians as well as generate taxes.



South Carolina recycled 19,814 tons of plastic in fiscal year (FY) 2013 (July 1, 2012 to June 30, 2013). On average, each South Carolinian recycled more than 8 pounds of plastic. Overall, the state had a 42.7 percent recycling rate for plastic containers. Of the 92,500 tons of commingled material that was recycled by local governments, it is difficult to tell what portion and type of that is plastic that was collected in commingled recycling programs. It is estimated that in South Carolina nearly 35,000 tons of plastic containers were disposed of in FY13. As a result, more than \$17 million in potential revenue from the sale of this material was lost.

Accomplishments Overview:

- Held quarterly steering committee calls
- Formed two committees
- Updated CPRC fact sheet
- Created Your Bottle Means Jobs logo
- Created case for support for fundraising for Your Bottle Means Jobs initiative
- Held bi-weekly conference calls for Your Bottle Means Jobs campaign as well as quarterly in person meetings
- Conducted two CPRC events that were well-attended (between 75-90 attendees at the meetings)
- Fundraising committee raised over \$43,000 for Your Bottle Means Jobs
- Created retail plastics factsheet in conjunction with APR and DHEC
- Conducted outreach for retail plastics meeting

CPRC Steering Committee

- Clear Path Recycling
- US Fibers
- Envision Plastics
- Orange County
- SC Commerce

- SC DHEC
- APR

Overall, the CPRC meetings are a success and have grown in attendance. From the first meeting at the APR fall conference in Charlotte in 2011 where the idea of a group formed around plastics recycling in the Carolinas was a new, untested concept to the last meeting in 2014 with over 90 participants, it is clear that the plastics recycling industry values the information, networking and business opportunities that are provided by the collaborative effort between North and South Carolina's industry and government stakeholders. Feedback from these meetings is positive. APR continues to support the effort with its attendance and input on various initiatives.



Outreach Campaign: Outreach to the citizen through marketing and outreach is one way the CPRC has identified to help increase recycling. Developing messaging around jobs is a relatively new concept at the local government level, but as the CPRC committee has discussed with many of the SC/NC local governments, they are ready for new messaging. However, there are system problems in residential recycling:

- There is a disconnect between the value of recycled material and signs from the market place to the citizen that these scrap materials have an intrinsic value, with the exception of used beverage cans (UBC's).
- In addition, the infrastructure to recapture that material has not been fully expanded to capture volumes necessary (for example, changing community collection from bins to carts, event recycling or on the go recycling programs).

Activities Planned for 2015

Staff plans to:

- coordinate two CPRC meetings for 2015 – one in the spring and one in the fall
- continue to hold biweekly conference calls for the fundraising committee and will coordinate periodic in person meetings as needed
- work with Big Eyed Bird on associated marketing materials related to the Your Bottle Means Jobs campaign
- coordinate the activities of the Retail Plastics initiative
- communicate progress to CPRC stakeholders
- make presentations on behalf of the CPRC
- map the industry and communicate its economic impact
- other activities as needed

Organics

State composting regulations were finalized in 2014. Commerce organized a meeting on September 24, 2014, to engage potential stakeholders and to promote the recovery of organics in South Carolina. The outcome of this meeting included:

- List of other potential stakeholders
- Ways to increase public awareness
 - Regional meetings
 - Multi-media campaign
 - Showcase financial benefits
 - Create a compost council



Commerce developed a fact card that showcased:

- Economic and environmental benefits of recovering food waste
- South Carolina composting and organic and waste diversion businesses

A copy of the fact sheet is located in the Appendix on pages 49-50.

Coastal Recycling

Another ongoing recycling industry stakeholder groups includes coastal recycling:

- Focused on increasing glass and beverage container recycling along the state's coast
 - Horry County
 - Georgetown County
 - Beaufort County



Activities in the Coastal Recycling initiative included staff monitoring the City of Myrtle Beach's pilot project on increased collection along the beach. In 2014, the City of Myrtle Beach's Recycling pilot program was moved to the residential area between 31st Ave N and 52nd Ave N. The containers were clustered around each street end beach access.

- Start-up costs for 40 containers and labor to implement the program was \$256 using the same containers from the prior year. The program began April 14 and ended October 30, 2014.
- A total of 12 tons of recyclable materials were collected from the 40 containers. In 2013 collections in the commercial district totaled 13.65 tons.
- From May 1 to Sept 17 the scrap metal program collected about 28 tons of chairs, umbrellas, and tents. From May 1 to November 6 in 2013 the total was 26.72 tons.
- The net revenue in 2014 was \$4140.60, up from \$2664.86 in 2013. The residential pilot had similar volume and weight totals compared to the other area more heavily visited by tourists despite a significantly lower volume of people who use the beaches in the residential areas.

SOUTHEAST/US RECYCLING MARKETS – THE YEAR IN REVIEW

Ferrous Metal

2014 started with high expectation as there was strong steel demand from the automotive industry; unfortunately a hard winter slowed auto sales and ultimately contributed to weaker scrap pricing at the end of the first quarter.

The second and third quarter saw pricing relatively flat with a slightly downward trend as domestic demand for scrap was met as export offers and sales were limited.

The fourth quarter and January 2015 has seen market pricing drop.

Industry unease is due to:

- Several mills have announced layoffs and production cutbacks.
- Lack of export demand for scrap.
- Strong US dollar.
- Reduced steel demand as buyers wait for steel prices to “hit” bottom.
- Increased U.S. imports of steel up 35%
- Low iron ore prices. Advantage is integrated mills; China is predominately integrated mill.
- All scrap metal prices show weakness, except for aluminum.

The rationalized steel mill capacity is from mills that supply the energy industry. The strong dollar and excess steel in the global market has resulted in increased imports of steel and less exports of scrap. Increased imports of steel have resulted in reduced domestic steel production and less demand for ferrous scrap.

Ferrous scrap 2014 started out with a positive outlook for demand and pricing but ultimately finished the year with weak demand and falling prices.

The most significant detriment for eroding prices to the ferrous industry was the lack of export demand from Taiwan, Turkey, India, and China. Scrap exports are down 16% from last year. China is the largest steel producer in the world and has excess supply of steel that has resulted in China exporting steel (finished and semi-finished steel) to Turkey, Africa, Taiwan and South Korea. As Turkey and the other countries lose steel sales to China their need for ferrous scrap is diminished and the mills are able to meet their reduced scrap needs from closer and more cost competitive markets.

Nucor’s direct reduced iron (DRI) plant in Louisiana has experienced a major failure at their plant which has resulted in several months of lost production. This has had no impact on ferrous scrap markets as they are in a scrap surplus.

In short, ferrous scrap 2014 started out with a positive outlook for demand and pricing but ultimately finished the year with weak demand and falling prices.

Steel Recycling Rates



(Source: Steel Recycling Institute)

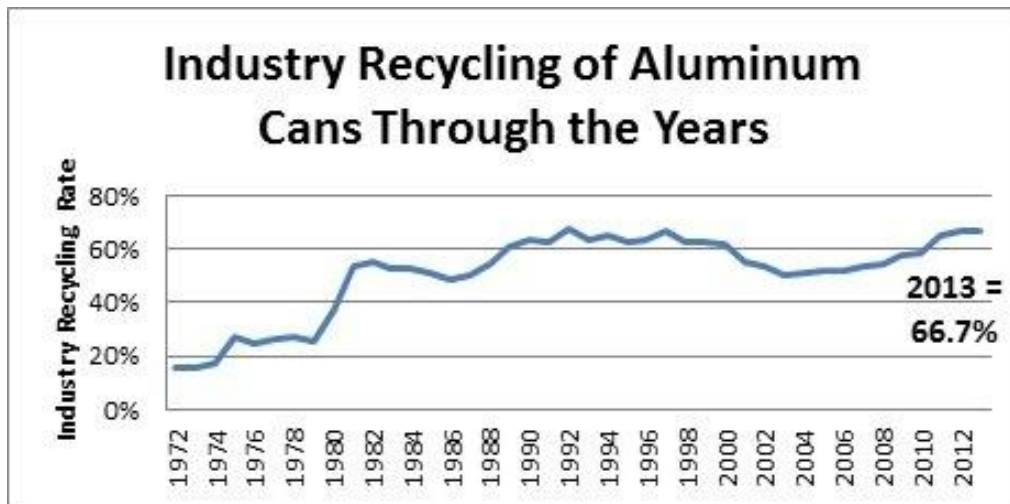
RMDAC should continue to help support the metal recycling industry in South Carolina through working with law enforcement to stop illegitimate recyclers that do not comply with laws as well as supply grants or funding to companies for new technology in areas that lack or have a need for recycling infrastructure, increase funding for infrastructure that improves logistical costs while creating increased demand for steel, education and outreach so the public learns the benefits that the recycling industry has on the state.

Non-ferrous Metal

Aluminum beverage cans are the most recycled beverage packaging type in the United States with an industry recycling rate of 66.7 percent in 2013, according to data released by the Aluminum Association, Can Manufacturers Institute (CMI) and Institute of Scrap Recycling Industries (ISRI). This is the highest recycling rate since the early 1990s and is the second highest rate reported since the survey began in 1972. The new rate marks progress toward the industry's goal of 75% recycling by 2015. In 2012, the aluminum can industry recycled some 62 billion domestic and imported cans while shipping 92 billion cans in the U.S.

Aluminum beverage cans were recycled at a 67% recycling rate in 2013.

The Aluminum Association began reporting an annual aluminum can recycling rate in 1972, with a rate of 15.4 percent.



(Source: Aluminum Association)

While the rate of industry can recycling has risen significantly over the past decade, much of the growth in recent years has come from the addition of imported used cans entering the U.S. recycling stream. In 2012 alone, the industry imported and recycled close to 13 billion cans, nearly double the amount imported just five years ago. Because of aluminum's high inherent value and the closed loop recycling process of can-making, U.S. recyclers often import used cans from Canada, Mexico, Saudi Arabia and other countries. While the number of imported cans decreased slightly from 2012, the number of cans recycled by U.S. consumers increased slightly, offsetting the decline.

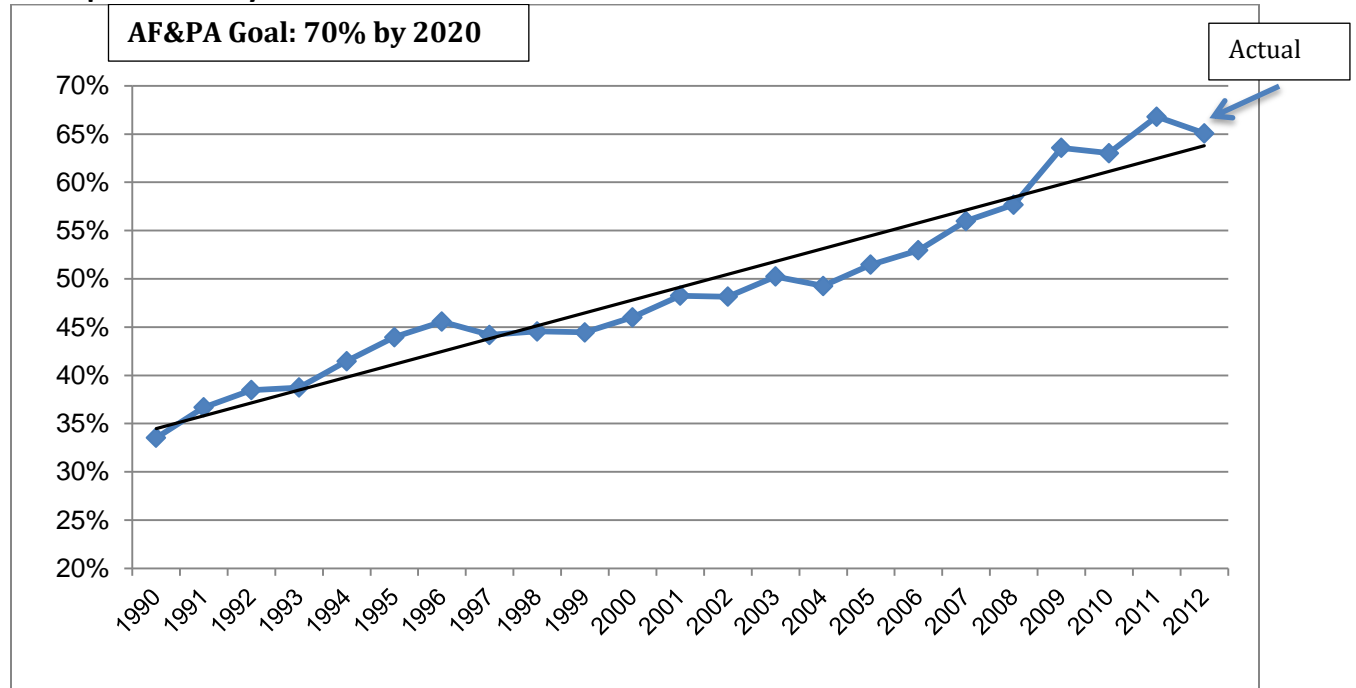
In 2013, \$812 million worth of aluminum cans were not recycled, and subsequently ended up in landfills. These landfilled cans, which could otherwise have been recycled and made into new cans, present an enormous opportunity to save energy and create jobs.

Demand for primary aluminum was higher than the supply in 2014. The demand remains high in several markets, primarily in the automotive and aerospace markets. In 2014, Ford introduced the new Ford F150 with an aluminum body. Car manufacturers are using lightweight aluminum to replace heavier metal parts due to pressure from CAFÉ regulations to make cars more fuel efficient. At the end of 2014, global primary aluminum inventories were at 63 days of consumption which is the lowest level since November 2008. New rules for warehouse queues may influence the inventory levels going into 2015 and will have an influence on the supply/demand balance for aluminum.

Paper

Nationwide, the recovery of paper and paper-based packaging was 63.5% in 2013. Paper is the most-recycled material in the U.S. today: more paper (by weight) is recovered for recycling from municipal solid waste streams than glass, plastic and aluminum combined.

US Paper Recovery Rate 1990-2012



(Source: AF&PA)

Below is a market recap for the 2014 calendar for the various grades of paper.

- **OCC - Old Corrugated Containers**

2014 started out at \$100/ton for OCC. The market jumped to \$125/ton in March with winter storms and an upswing in export demand as responsible factors. In April, the market dropped to \$110/ton to \$105/ton. May brought about a \$5/ton downswing to \$105/ton. The market remained constant through June and July. In August, it dropped another \$5/ton to \$100/ton. September saw another \$5/ton drop to \$95/ton. Following that, there were no changes again until January 2015 where it dropped to \$90/ton.

The OCC Market averaged \$103/ton in 2014. Domestic mills ran strong for 2014, and that is not expected to change for 2015.

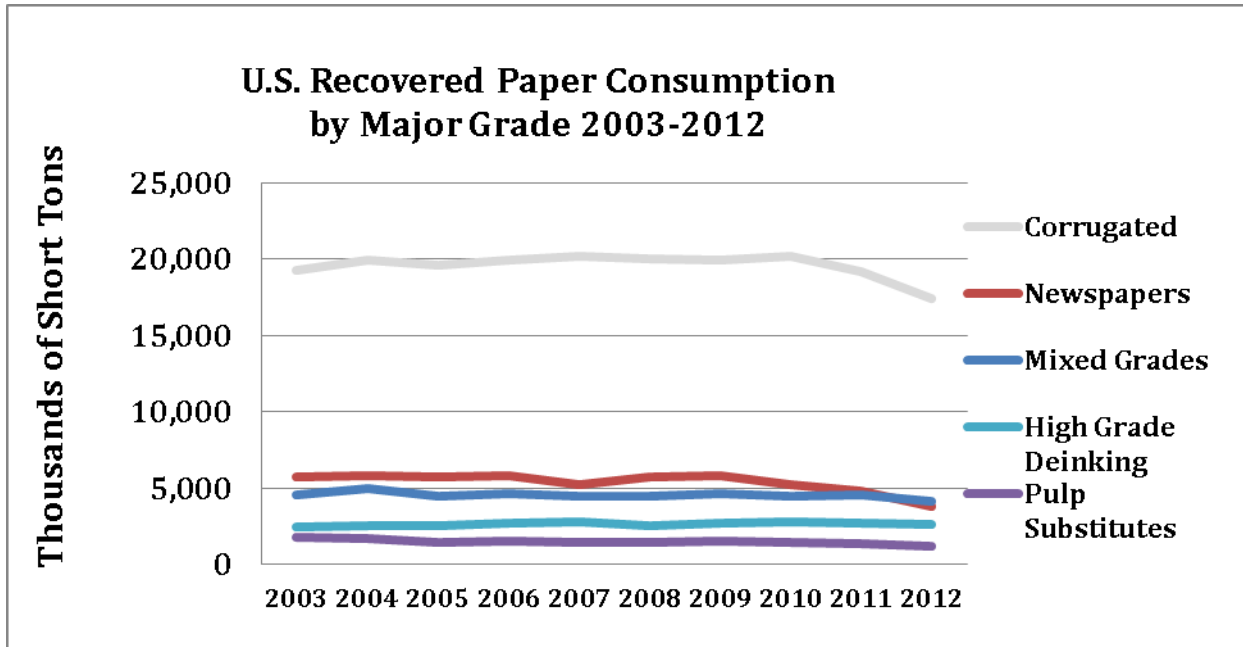
- **Mixed Paper**

January 2014 mixed paper brought \$55/ton. Pricing remained steady throughout the year and is still at \$55/ton in January 2015.

- **News - ONP #8**
News (ONP) trends followed mixed paper as it brought in \$60/ton in January 2014 and has seen no change. January 2015, ONP is still at \$60/ton.
- **SOP – Sorted Office Paper**
Sorted Office Paper was bringing \$135/ton in January 2014. Price increased to \$140/ton in February. Market demand brought about another \$5/ton increase in March closing at \$145/ton. April markets held at \$145/ton and remained there through year end. January 2015 brought a \$10/ton increase to \$155/ton.

Outlook

- **OCC - Old Corrugated Containers**
Old Corrugated Containers have been steady with movement and price most of 2014. Little change is expected in 2015, due to China's weak economy. The OCC Market averaged \$103/ton in 2014. Domestic mills ran strong for 2014, and that is not expected to change for 2015.
- **Mixed Paper**
Generation of mixed paper continues to grow and is being off-set by demand. More and more paper mills are learning how to consume this grade. There is expected to be no change for 2015.
- **News - ONP #8**
News is a dying grade. Many MRF's have seen newsprint production decline significantly. Paper companies that have traditionally produced newsprint are shifting some of their production from newsprint to other types of paper products, such as packaging paper. News should see some peaks in 2015 due to high demand and low generation.
- **SOP – Sorted Office Paper**
SOP should continue to be strong in 2015 due to the high grade demand.



(Source: AF&PA)

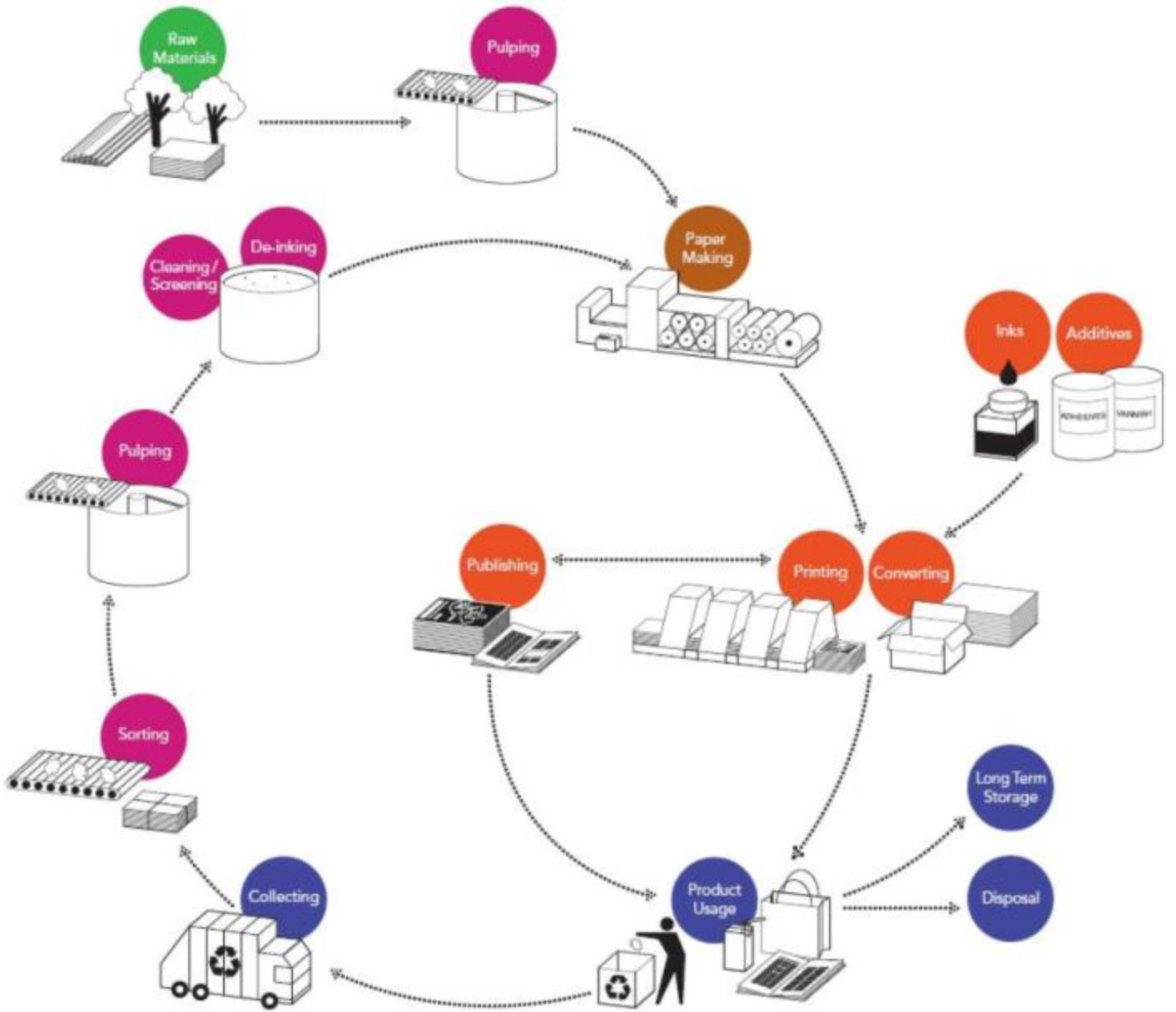
Exports

On the East Coast, exporters in this region say they are seeing a market-oriented challenge because of a fairly substantial drop in shipments of bulk grades to India. With China's cut back on purchasing from U.S. sources, many exporters have shifted exports to India. However, toward the end of 2014, the Indian market became saturated with recovered fiber imports.

RMDAC will continue to support DHEC and Recyclonomics SC ideas, education, and public awareness to increase recyclable collections and reduce out throws. This will help achieve our ultimate goal to increase our states recycling numbers.

Paper Lifecycle

(courtesy ClimateTechWiki)



Plastics

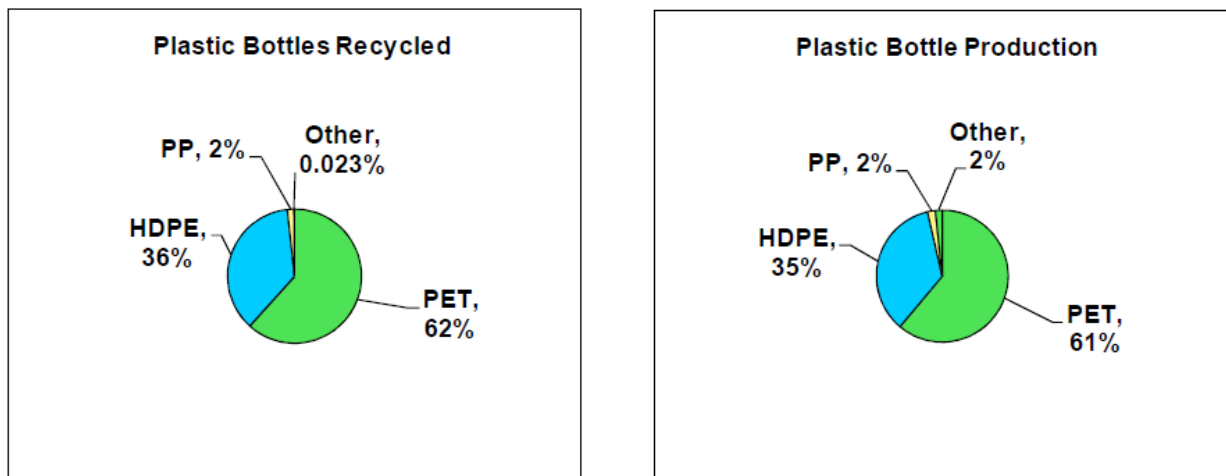
According to recently published 2013 recycling rates from the National Association for PET Container Resources (NAPCOR), 1,798 million pounds of PET bottles were recycled out of 5,764 million pounds sold for a recycling rate of 31.2 percent. The recycling rate grew .4 percent over 2012. PET bottles collected increased by 80 million pounds over 2012.

According to the NAPCOR 2012 recycling rates, 1045.4 million of high density polyethylene (HDPE) bottles were recycled out of 3,304 million pounds sold for a recycling rate of 31.6 percent. The recycling rate held steady while the pounds collected rose by 26.2 million pounds.

According to NAPCOR, 1,798 million pounds of PET bottles were recycled out of 5,764 million pounds sold for a recycling rate of 31.2 percent

Exports of postconsumer plastic bottle bales fell in 2013 compared to 2012 and reached the lowest percentage of total exports in five years, 20% overall. HDPE exports dropped substantially in 2013 compared to 2012. PET exports continued, dramatically, a decrease in percentage of material collected, which started after the peak in exports in 2008. PET exported bales were the lowest in at least 10 years, percentage-wise. The export of recycled PP bottles rose in 2013 to 15% of that collected, even as more material was processed domestically. An increased amount of PP bottle material was isolated as PP as opposed to being mixed with other resins.

2013 Plastic Bottles Recycled and Plastic Bottle Production by Resin



Source: Moore Recycling Associates, Inc. 2014
NAPCOR, 2014

The use of recycled polyethylene terephthalate (RPET) in fiber is growing. Notable this year was the continued year-over-year growth in the bottle sector, with Food and Beverage Bottle recycled PET usage up 34 percent to 369 million pounds, and usage in Non-Food and Beverages more than doubling, from 50 to 106 million pounds. When combined with Sheet & Film category's 315 million pounds, 790 million pounds of recycled PET went back into PET

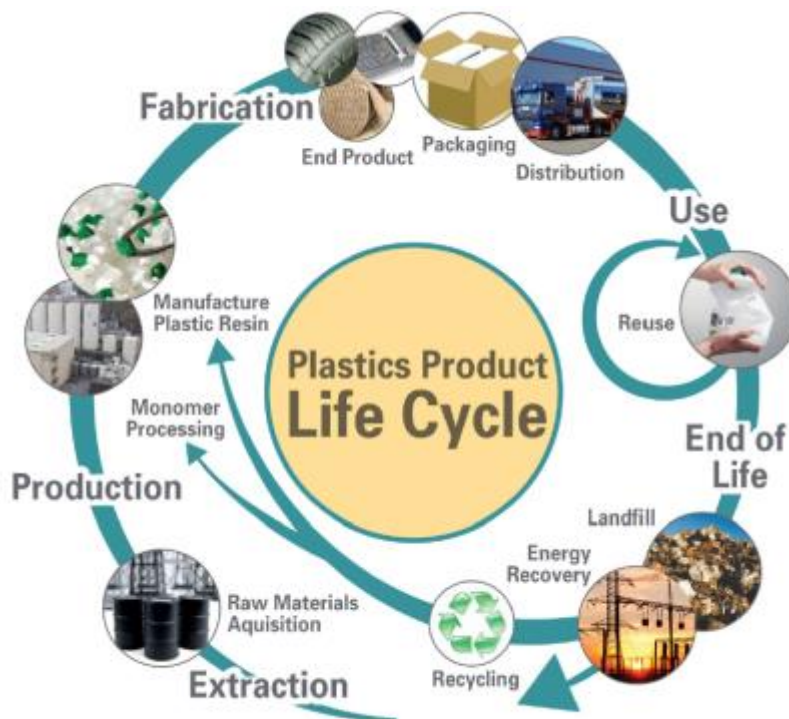
packaging. Growth in Fiber application end use also stood out in 2013, with a nine percent increase over 2012 to a total of 558 million pounds used in domestic end market. This reflects continued investment in fiber market applications, primarily in the southeastern United States, as was reported in 2012.

U.S. reclaimers increased their purchases by 201 million pounds from 2012, increasing 15 percent of all U.S. bottles collected. U.S. reclaimers had to supplement domestic purchases by importing 96 million pounds of post-consumer bottles. 456.4 million pounds of post-consumer bottles collected in the U.S. were purchased by export markets in 2013. With further growth for RPET packaging applications, and increases in new demand from expansions within the U.S., domestic demand is expected to be stronger for 2014.

Collection of PET bottles for recycling continues to lag far behind demand.

Collection of PET bottles for recycling continues to lag far behind demand, underutilizing a robust domestic PET recycling infrastructure with more than 2 billion pounds of capacity. Low PET bale yields— a measure of usable PET derived from the recycling process—add significant cost to reclaimer operations and stress the infrastructure. These low yields are due to increasing presence of non-PET materials in PET bales, and the growth of non-recyclable package innovations. The organizations are working to increase both the quality and the quantity of the supply of PET bottles by encouraging improved bale quality, promoting recycling-friendly package design, and fostering greater collection.

Plastics Products Lifecycle



Courtesy of Styron, LLC

RMDAC will continue to work closely with DHEC to increase collections and develop new markets. All areas should be reviewed to increase collections and keep PET bottles in the U.S. for reclaimers.

Scrap Tires

DHEC's list of approved scrap tire processors include in-state and out-of-state companies. South Carolina has six scrap tire processors and recyclers located in the state. One of SC's tire recyclers processed 3 million tires in 2013 collected from South Carolina and contiguous states.

Tire-derived fuel, civil engineering and ground rubber applications were the main markets for scrap tires. Other uses are:

- Landfill construction
- Alternative daily cover
- Playground and sports surface
- Crumb rubber

The primary markets for scrap tires will continue to be TDF, civil engineered applications and ground rubber applications.

RMDAC should continue to work with DHEC, ARTS, businesses and other entities on initiatives to promote markets and applications for scrap tires.

Glass

The recycled glass market remained stable in 2014. Nationally, market prices for recycled glass ranged from \$10 to \$20 per ton for clear flint and \$5 per ton for mixed (amber/brown, green, blue) glass. Pricing for mixed color glass is dependent upon the quality of the material. It is anticipated that market pricing for glass cullet will remain stable for 2015.

In 2012, 41% of beer and soft drink bottles were recovered for recycling, according to the U.S. EPA. Another 34% of wine and liquor bottles and 15% of food and other glass jars were recycled. In total, 34.1% of all glass containers were recycled.

As in previous years, glass container and fiberglass industries are continually in need of more clean, recycled glass and cullet to utilize in the manufacturing of their respective products. These markets have stringent quality specifications, which often limits the ability to utilize single stream material.

Due to strict quality requirements of cullet end users, challenges with transporting recycled glass and an increase in single stream collection systems, alternative uses for recovered glass material has increased. These alternate uses include:

- The manufacturing of glass beads for reflective highway paint
- The construction of recycled glass counter tops and flooring

- The production of recycled glass aggregate for use in landscaping and road cover

RMDAC will continue to encourage the recovery of glass in South Carolina and promote the use of alternative markets for recovered glass.

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Used Oil

The statewide used motor oil recycling program targeting do-it-yourselfers (DIYers; those who change their own oil) continues to flourish. Through a combination of educational programs, technical assistance and grant funding for local governments, South Carolina has developed one of the nation's most comprehensive used motor oil recycling programs for DIYers.

DIYers recycled more than 951,531 gallons of oil which equates to about 3,330 tons. This is a 14% increase over the previous year.

According to figures compiled by DHEC's Office of Solid Waste Reduction and Recycling (Office), DIYers recycled 828,838 gallons of used motor oil in (calendar year) 2013. For fiscal year (FY) 2014 (July 1, 2013 – June 30, 2014), DIYers recycled more than 951,531 gallons which equates to about 3,330 tons. This is a 14% increase over the previous year. Overall, more than 19 million gallons have been collected from DIYers since used motor oil recycling efforts began in South Carolina in 1990.

Used motor oil, used oil filter and oil bottle recycling programs should continue to see growth. The priorities of the Office regarding the used motor oil recycling program are:

- To continue to collect and recycle motor oil bottles. Most counties are using oil bottle drain racks to drain the bottles and make them easier to recycle.
- To continue to expand the farmer oil collection program by adding collection tanks where needed. There are currently 67 farmer oil collection sites in 43 counties. Each of the tanks holds at least 600 gallons of used motor oil and is fitted with a pump and hose to make it easier for farmers to recycle up to 55 gallons of used motor oil at one time.
- To continue to expand the oil/gasoline mixture collection program by adding collection tanks where needed. There are currently 105 oil/gasoline mixture collection sites in 43 counties. The oil/gasoline mixture tanks typically hold 500 gallons and are designed to accept motor oil, gasoline and oil/gasoline mixtures from lawn equipment and recreational vehicles.
- To secure and maintain markets or other uses for used motor oil, bottles and filters.

DHEC will continue to provide grant funding to local governments to set up, maintain and improve used motor oil recycling programs. DHEC also will continue to promote used motor oil recycling using a variety of educational materials and the “Green Driver Project.”

RMDAC should continue its work promoting, supporting and securing markets for the state’s used motor oil recycling program.

2014 SOUTH CAROLINA Recycling Industry ECONOMIC IMPACT STUDY

Many see the social value of recycling, but few understand its economic impact. To better address this, four partners - S.C. Department of Commerce, S.C. Department of Health and Environmental Control, New Carolina and RecyclonomicsSC - commissioned a 2014 update to a 2006 recycling industry economic impact study. The results are in, and the growth is impressive.

Both studies were completed by economist Dr. Frank Hefner of the College of Charleston Department of Economics and Finance. In 2006, Dr. Hefner concluded, "That recycling is beneficial for the environment is a virtually uncontested proposition. What is becoming increasingly more obvious is that recycling contributes to the economic health of a state's economy." That conclusion holds true today as the recycling industry in South Carolina has grown from 340 firms in 2006 to 524 firms in 2014.

By The Numbers:

- There are **22,403** jobs attributable to recycling in S.C.
- There is a total economic impact of **54,121** jobs in the Palmetto State
- **44%** increase in recycling employment from 2006 to 2014 = **4.7%** annual growth rate
- Average annual wage is **\$40,203** (vs. average wage in SC for all jobs of \$38,700)
- A total of **\$2.7 billion** in labor income generated annually*
- There are more than **520** recycling-related companies in S.C.
- **\$329 million** in state & local taxes each year*
- The average number of employees per company is **63**, while the median number of employees is **14**
- **63.8%** of respondents indicate they are planning an expansion in 2014 at an average of 3.5 employees each - with 521 firms in the industry, this implies **332** firms will expand in 2014, projecting to add an additional **1,162** employees in 2014
- **89%** of respondents indicate recycling is a growing industry, with an average annual growth rate of **19%**
- In just 8 years, the industry has doubled its annual total economic impact: from \$6.5 billion in 2006 to **\$13 billion** in 2014

THE INDUSTRY HAS AN
annual total economic impact OF
\$13
BILLION



*Annual figures reflect 2013 data.

Research completed by economist Dr. Frank Hefner of the College of Charleston Department of Economics and Finance, April 2014.

South Carolina is Just Right for Recycling



Economic Impact of \$13 Billion

South Carolina has a high demand for recycled content, with manufacturers using recycled materials to create new products. These activities are boosting employment in the state, the recycling sector has created 2,400 jobs in the past three years. South Carolina now has four times more jobs in recycling per capita than California and Massachusetts.

South Carolina
Just  right.
SCcommerce.com

Recycling Economic Impact Fact Card – back



Recycling means jobs

- In 2013, 1.4 million tons of solid waste was recycled, which is equivalent to nearly 5,000 Boeing 787 planes loaded to the maximum weight.
- Since 2006, South Carolina has recruited more than \$4.5 billion in capital investment in the recycling industry.
- There are more than 520 recycling-related companies in South Carolina.
- In just eight years, the industry has doubled its annual economic impact: from \$6.5 billion in 2006 to \$13 billion in 2014.

It's easy being green

The average person generates 4.5 pounds of trash every day—about 1.5 tons of solid waste per year, and 75% of that waste is recyclable.



SC recycling companies recycle everything from A to Z:

- **Aluminum** – melted into new aluminum products for packaging and construction industries
- **Carbon Fiber** – reclaimed and made into new products for the automotive industry
- **Glass** – recycled glass makes new glass bottles, counter tops and decorative items
- **Metals** – collected, processed and turned into new products
- **Plastic** – bottles can go into recycled resins for new bottles, strapping, textiles or film
- **Petroleum** – re-refined or burned for energy recovery
- **Steel** – steel mills make products for the automotive and green building sectors
- **Tires** – transformed into new playground and landscape surfacing materials, tire-derived fuel
- **Textiles** – recycled textiles used in automotive industry, furniture
- **Wood** - converted into biomass, new pallets and mulch
- **Zinc** – zinc and other metals recycled into new products for the construction, container and automotive industries

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South Carolina is Just Right for Carpet Recovery



There are many different kinds of carpet and nearly all are recyclable. Carpet is a petroleum-based product and accounts for more than 3.5% of the waste disposed of in U.S. landfills.

By recycling your carpet and foam carpet padding, you will be reducing the use of millions of barrels of oil to produce new carpeting.

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Carpet Recycling Fact Card – back



The Carpet Recovery Industry: A Growing Economic Sector

As a carpet recycling leader in the Southeast, South Carolina has a diverse network of companies with several hundred million pounds of recycling capacity. These businesses include collectors, processors and end users that utilize recovered carpet to manufacture new products for the automotive, construction, electronics and lawn and garden industries.

South Carolina Carpet Recovery Coalition

SOUTH CAROLINA

RECOVERY COALITION

The South Carolina Carpet Recovery Coalition is a cooperative effort between governments, colleges and universities to increase the recovery of post-consumer carpet and carpet padding. The coalition's goal is to maximize the economic and environmental benefits of carpet recycling.

Fast Facts

- South Carolina employs an estimated 1,280 workers in the carpet recycling and recovery industry.
- Recycled carpet is typically turned back into plastic resin to create new products or manufacture new carpet.
- Recovered carpet can be used as a fuel to create energy.
- 5 billion pounds of carpet are landfilled every year.
- Almost 60 percent of the carpet made in the U.S. is made of nylon. Nylon fibers have the highest economic value in the recycling process making them ideal for recycling into new products.

Carpet Recovery in South Carolina

Geohay	Spartanburg County
Leigh Fibers	Spartanburg County
Atlanta Foam Recycle	Greenville County
Kiln Direct	Sumter County
Wellman Plastics Recycling	Florence County
ICE Recycling	Florence County
Southeastern Plastics Recovery	Charleston County
Palmetto Synthetics	Williamsburg County
Carolina Waste and Recycling	Charleston County
Hwy 908 Class II Landfill	Marion County
Systech Environmental Corporation	Dorchester County
Geocycle	Orangeburg County



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Carpet Recognition Letter – back



CARPET AMERICA RECOVERY EFFORTSM Developing market-based solutions for the recycling & reuse of post-consumer carpet

January 5, 2015

Dear Members of the South Carolina Carpet Recovery Coalition (CRC),

On behalf of the Carpet America Recovery Effort (CARE), I want to thank CRC and your teams for the commitment and dedication you have made to maximize the economic and environmental benefits of post-consumer carpet recycling in South Carolina.

Your innovative program serves as a model to other states and municipalities for how a collaborative effort can raise awareness in local communities, grow jobs in South Carolina, create and support local businesses, and keep post-consumer carpet out of the landfill.

South Carolina has been a leader in post-consumer carpet diversion and recycling, as the home of:

- Carpet Collection companies
- Processors that process post-consumer carpet for new consumer and industrial applications
- Local government collection sites for post-consumer carpet
- Companies that can produce a post-consumer carpet recycled resin
- Companies that can use carpet as a fuel to create energy as an alternative to landfill
- Manufacturer of erosion control products from 100% recycled content carpet

We especially wish to recognize the hard work and leadership of the CRC team including Fred Davis, Georgetown County; Stacey Washington South Carolina Department of Health and Environment; Larry Cook, University of South Carolina; Ed Marr, Greater Greenville Sanitation Commission; John Votaw, Southeastern Plastics Recovery; Chantal Fryer and Tonya Lott, South Carolina Department of Commerce; and Glenn Odom, Wellman Plastics. This team is instrumental in making the CRC program successful, through establishing post-consumer carpet recycling in local counties and training landfill personnel, launching the CRC web site, and developing educational materials for consumers and participants.

We believe that market-based programs, such as CRC, are examples of how cooperative efforts can achieve real change and sustainable results. Thank you again for your leadership, vision and commitment to CRC.

Sincerely,

A handwritten signature in black ink, appearing to read 'Robert Peoples'.

Robert Peoples, Ph.D.
Executive Director, CARE

South Carolina is Just Right for Composting



In most of the world, we do one of two things with our ordinary garbage: burn it or bury it. As a result, alternatives to the burn-or-bury options are increasingly attractive, and composting leads the list.

Benefits of Composting

- Provides local jobs for communities
- Green option to save money and landfill space
- Creates a product that you can use

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Composting Fact Card – back



Composting: Waste that Never Sees the Landfill

Recovering food waste provides South Carolina with an opportunity to add to the recycling industry's \$13 billion economic impact in addition to its environmental benefits.

Recycling in South Carolina has become big business

- South Carolina recruits and promotes the composting industry
- Over 30% of material in landfills is organic waste
- Over 50% of garbage can be composted
- The composting industry can work together with other sectors: agribusiness, recycling, packaging, distribution centers, construction, governments and manufacturing

Compost more and throw away less

- Reduce waste and disposal fees
- Enhance your company's public image
- Save energy
- Promote your green efforts to customers
- Meet your business sustainability goals
- Create new jobs in the recycling and manufacturing industries

Composting and Organic Waste Diversion Businesses

Company	County	Service/Product
Becker Complete Compacter	Lexington	Equipment
Compost Matters	Spartanburg	Hauler
Divergent Energy	Greenville	Equipment
Food Waste Disposal	Charleston	Hauler
GenEarth Berkeley	Berkeley	Biogas digester
Humble Acres Organics	Barnwell	Bloomin' EZ Organic Compost
Refresh Services	Lexington	Equipment
River Run Farms	Orangeburg	Stout Ollie Compost
Scoop-D-Doo	York	Palmetto Supreme Organic Compost



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