



# 2019

## Economic Impact Study, U.S.- Based Scrap Recycling Industry





## Executive Summary

**Scrap recycling is a major U.S.-based industry** dedicated to transforming end-of-life products and industrial scrap into new commodity-grade materials and **driving economies** by making the old new again. Recognized as one of the world's first green industries, scrap recycling **creates and supports jobs** and **has a positive impact on the environment** by reducing greenhouse gas emissions, saving energy, and protecting our natural resources. In 2019, the **Institute of Scrap Recycling Industries, Inc. (ISRI)**, retained the independent economic consulting firm of **John Dunham & Associates** to perform an economic impact analysis to document the size and scope of the scrap recycling industry in the United States and document its significant contribution to the U.S. economy in terms of employment, tax generation, and overall economic benefit.

The U.S. scrap recycling industry is not only a thriving economic engine, but also a pivotal player in environmental protection, resource conservation, and sustainability. The industry recycled 138 million metric tons of materials in 2018, transforming outdated or obsolete scrap into useful raw materials needed to produce a range of new products.<sup>1</sup> Recycling reduces greenhouse gas emissions by significantly saving the amount of energy needed to manufacture the products that we buy, build, and use every day. The energy saved by recycling may then be used for other purposes, such as heating our homes and powering our automobiles.

In addition to the industry being an environmental steward, the study confirmed that the U.S. scrap recycling industry plays a prominent role as an economic leader, job creator, and major exporter. Specifically, the study found that the people and firms that purchase, process, and broker old materials to be manufactured into new products in America provide 531,510 adults with good jobs in the United States and generate approximately \$109.78 billion annually in economic activity.



The industry recycled **138 million** metric tons of materials in 2018.

	Direct	Supplier	Induced	Total
Jobs	164,154	159,681	207,675	531,510
Wages	\$11,979,843,200	\$10,664,067,000	\$10,793,276,400	\$33,437,186,600
Economic Impact	\$41,755,731,500	\$33,735,199,300	\$34,288,057,900	\$109,778,988,700

<sup>1</sup> Institute of Scrap Recycling Industries, Inc., 2018



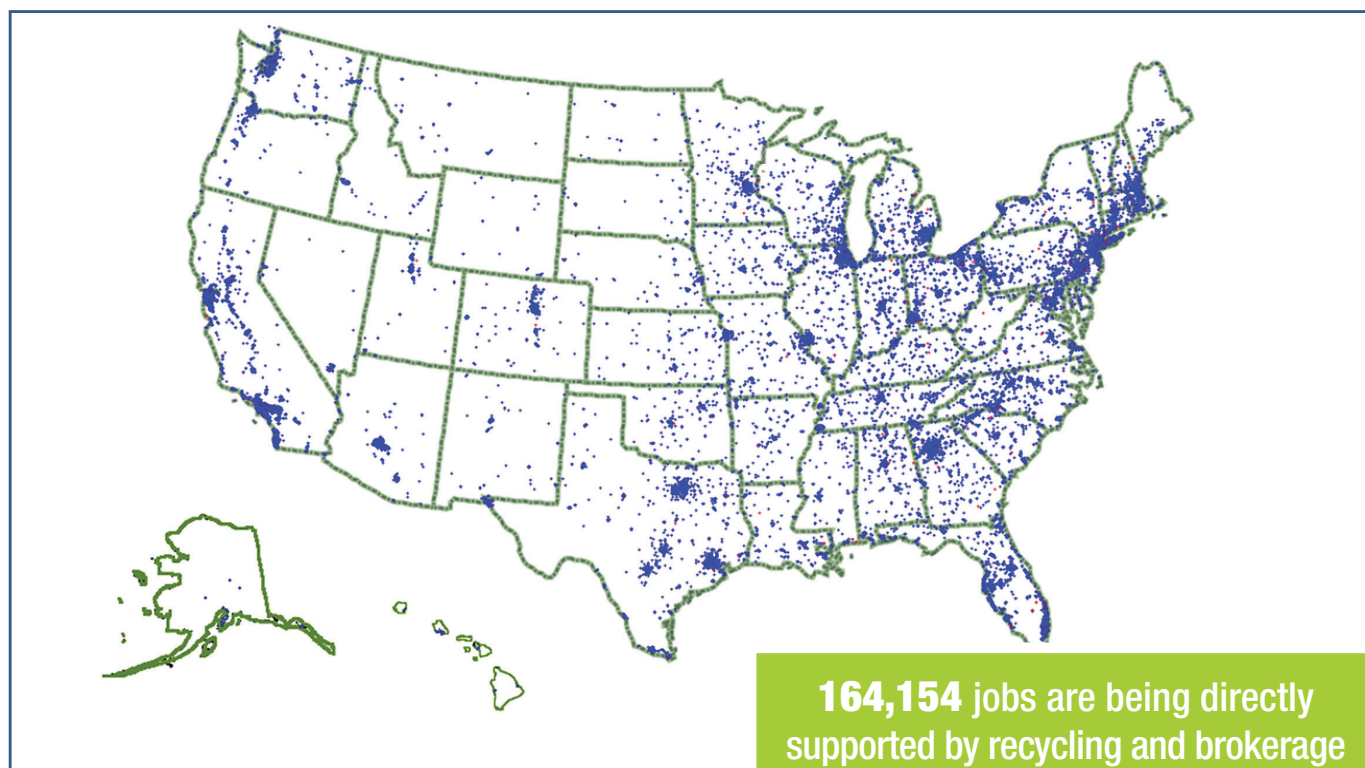
## Summary of Findings

### Employment: Source of Green Jobs

While many in the public policy world talk about the need for more green jobs, the scrap recycling industry has already been creating these environmentally friendly jobs and other opportunities here in the United States for decades. The study found that in 2019, 164,154

jobs are being directly supported by recycling and brokerage operations of the scrap industry in the United States.<sup>2</sup> These are good jobs paying an average of \$73,000 in wages and benefits to American workers. In addition to this, 367,356 jobs throughout the U.S. economy are indirectly supported by the scrap recycling industry through suppliers and the indirect impact of the industry's expenditures.<sup>3</sup>

### U.S. Scrap Recycling Industry Facilities



**164,154 jobs are being directly supported by recycling and brokerage operations of the scrap industry.**

These are real people with real jobs—not only in firms that process scrap materials into new, usable commodity inputs, but in firms that supply the industry with recycled materials, like auto yards and independent peddlers, as well as firms that supply machinery, trucks, and services to processors.

In addition, thousands of people in industries seemingly unrelated to scrap materials recycling, from servers in restaurants, to construction workers, to teachers in local schools, depend on the re-spending

2- This includes firms involved in the purchasing, processing, and brokering of scrap materials, including ferrous and nonferrous metals, paper, electronics, rubber, plastics, glass, and textiles.

3- Direct impacts are those associated with scrap processors and brokers. Supplier impacts are associated with firms providing goods and services to scrap recyclers and brokers, including peddlers, and induced impacts are those resulting from the re-spending of wages by workers in the direct and supplier sectors.







of the wages and taxes paid by the scrap recycling industry to their workers and suppliers. The economic benefits generated by the scrap recycling industry are widespread. Not only are scrap facilities located in every state throughout the country and in both urban and rural communities, but the firms that supply materials, goods, and services to processors and brokers are also located in every part of the country. This means that the U.S. scrap recycling industry provides good-paying jobs in every state in the union. The study results are broken down by state, congressional districts, state legislative districts, and cities at [ISRI.org/economy](http://ISRI.org/economy).

### Overall Economic Activity

The activities of the scrap recycling industry in the United States generate nearly \$109.78 billion annually in economic benefits here at home. All told, the U.S. scrap recycling industry accounts for 0.54 percent of the nation's total economic activity,<sup>4</sup> making it similar in size to the warehousing and storage industry.

### Tax Revenues to Federal, State, and Local Governments

The scrap recycling industry generates substantial revenues for state and local governments throughout the United States, as well as for the federal government.

- The industry generates about \$4.94 billion in state and local revenues annually, revenues that are used to help communities and people throughout the country.
- Another \$7.96 billion in federal taxes are paid annually by the industry and its employees.

### Domestic Activities: Supporting American Manufacturing

As the first link in the manufacturing supply chain, the scrap recycling industry provides the high value, environmentally friendly, and energy-saving raw materials that make America's manufacturers more competitive in the global marketplace. While export markets provide a needed outlet for the excess supply of scrap generated in the United States, 70 percent of all the recyclables processed in this country are consumed by domestic manufacturers. A wide range of manufacturers—including steel and paper mills, aluminum smelters, copper and brass mills, foundries

and ingot makers, plastics producers, and others—rely on scrap as a key raw material input. Scrap recyclers also support equipment manufacturers and the transportation industry through their purchases of shredders, balers, sorting machines, material handlers, trucks, railcars, and other capital equipment that is necessary to process and transport scrap across the country. Manufacturing is also a key source of scrap supply: As manufacturing output in the United States increases, so does the supply and demand for scrap. As a result, the health of the U.S. scrap and manufacturing industries are closely interconnected.

### Export Activities: Creating Thousands of Jobs Here at Home

Scrap commodities are among the nation's largest exports by value. Overall, exports account for 30.02 percent of the industry's economic activity. These exports create approximately 160,652 good green jobs in the United States and help strengthen the national economy. According to the study, in 2019, 50,543 jobs are directly supported by the export activities associated with the processing and brokerage operations of scrap recyclers operating in the United States.<sup>5</sup>



The activities of the scrap recycling industry in the United States generate nearly **\$109.78 billion** annually in economic benefits.

4- Bureau of Economic Analysis. GDP based on 2018 end of year value of \$20.494 trillion, see Gross Domestic Product: Level and Change from Preceding Period. Release date March 28, 2019.

5- This includes firms involved in the purchasing, processing, and brokering of scrap materials including ferrous and nonferrous metals, paper, electronics, rubber, plastics, glass, and textiles.





## Summary Table: Economic Impact of U.S. Scrap Recycling Exports

	Direct	Supplier	Induced	Total
Jobs	50,543	47,240	62,869	160,652
Wages	\$3,715,810,400	\$3,281,137,500	\$3,415,184,000	\$10,412,131,900
Economic Impact	\$12,535,188,000	\$10,021,586,200	\$10,552,436,900	\$33,109,211,100

This is because scrap materials that are intended for export must be collected, separated, and prepared for transport out of the United States. The steps in this process provide well-paying U.S. jobs. By opening up new markets, the nation's recycled materials producers capture the full economic and environmental benefits associated with recycling.

The scrap industry is the first link in the global supply chain for the growing demand for all manner of commodities, ranging from iron and steel to paper; nonferrous metals such as aluminum, copper, and zinc; plastics; electronics; rubber; and more. The result is economic and environmental sustainability for our nation and our world through the supply of high quality, environmentally friendly, and energy-saving raw materials to the global marketplace.

In 2018, the industry exported \$20 billion in commodity-grade scrap products to more than 150 countries, significantly helping the U.S. balance of trade.<sup>6</sup> In fact, in terms of volume, scrap materials are among the nation's largest commodity exports, in line with other important commodity export products like grain and corn, cotton, timber, and petroleum. The scrap materials processed in the United States are exported to other countries for manufacture into new products. Rather than encouraging the use of virgin materials, America's recycled materials help reduce worldwide energy demand and greenhouse gases as well as the need to mine and harvest virgin materials.



**70 percent** of all the recyclables processed in this country are consumed by domestic manufacturers.

### Economic Benefits of Exporting Scrap Commodities Are No Different Than Those That Occur Exporting Any Other Product

International trade is an important part of the American economy. In 2018, nearly \$2.50 trillion in goods and services were exported from

the United States, and about \$3.13 trillion were imported.<sup>7</sup> Nearly 39 million Americans work for companies that engage in international trade, according to the U.S. Chamber of Commerce, and one in five jobs depend on exports. The U.S. International Trade Association estimates that U.S. exports supported an approximately 10.7 million jobs in 2016.<sup>8</sup>

6 - Recycling Industry Yearbook, Institute of Scrap Recycling Industries, Inc., 2018, available online at [isri.org/news-publications](https://www.isri.org/news-publications).

7 - U.S. International Trade in Goods and Services: 2018, U.S. Census Bureau, Bureau of Economic Analysis, accessed July 2019. Available online at <https://www.census.gov/econ/currentdata/dbsearch?program=FTD&startYear=2015&endYear=2019&categories=BOPGS&dataType=IMP&geoLevel=US&adjusted=1&submit=GET+DATA&releaseScheduleId=>

8 - Jobs Supported by Exports 2016: December 2017, International Trade Association, accessed July 2019. Available online at [https://www.trade.gov/mas/ian/build/groups/public/@tg\\_ian/documents/webcontent/tg\\_ian\\_005558.pdf](https://www.trade.gov/mas/ian/build/groups/public/@tg_ian/documents/webcontent/tg_ian_005558.pdf).







To suggest that the export of recycled commodities would somehow destroy jobs in the United States is no different than stating that the export of corn, or of coal, or of cotton, somehow takes away American jobs. One way that China has responded to the tariffs imposed by the Trump administration is to greatly reduce the quantity of U.S. recycled products it imports.<sup>9</sup>

## Study Methodology

This study estimates the economic contributions made by the various components of the scrap processing industry to the U.S. economy in 2019. John Dunham & Associates conducted this research, which was funded by the Institute of Scrap Recycling Industries, Inc. (ISRI). This work used standard econometric models maintained by the IMPLAN Group LLC. Data came from industry sources, government publications, and Infogroup.

The study defines the scrap recycling industry as firms in the private sector involved in the processing and brokerage of scrap metals, plastics, rubber, paper, textiles, glass, and electronics. The study measures the number of jobs in the sector, the wages paid to employees, the value added, and total output.

The study also estimates taxes paid by the industry and its employees. Federal taxes include industry-specific excise and sales taxes, business and personal income taxes, FICA, and unemployment insurance. State and local tax systems vary widely. Direct retail taxes include state and local sales taxes, license fees, and applicable gross receipt taxes. Processors pay real estate and personal property taxes, business income taxes, and other business levies that vary in each state and municipality. All entities engaged in business activity generated by the industry pay similar taxes.

The economic impact study begins with an accounting of the direct employment in the processing of recycled scrap materials and the materials brokerage sectors. The data come from a variety of government and private sources. It is sometimes mistakenly thought that initial spending accounts for all of the impact of an economic activity or a product. For example, at

first glance it may appear that consumer expenditures for a product are the sum total of the impact on the local economy. However, one economic activity always leads to a ripple effect whereby other sectors and industries benefit from this initial spending. This inter-industry effect of an economic activity can be assessed using multipliers from regional input-output models.

Industries are linked to each other when one industry buys from another to produce its own products. Each industry in turn makes purchases from a different mix of other industries, and so on. Employees in all industries extend the economic impact when they spend their earnings. Thus, economic activity started by the scrap recycling industry is linked to other industries in the state and national economies. The activities required to process a ton of scrap iron—from sorting, to cutting, to baling, to shipping—generate the direct effects on the economy. Regional (or indirect) impacts occur when these activities require purchases of goods and services, such as machinery or electricity, from local or regional suppliers. Additional induced impacts occur when workers involved in direct and indirect activities spend their wages. The ratio between induced economic and direct impact is termed the multiplier.

Once the direct impact of the industry has been calculated, the impact of supplier firms and the “induced impact” of the re-spending by employees of industry and supplier firms is calculated using an input/output model of the United States. The study calculates the impact on a national basis, by state, by congressional district, and by state legislative district.

This method of analysis allows the impact of local production activities to be quantified in terms of final demand, earnings, and employment in the states and the nation as a whole. In the case of the ISRI model, only the most conservative estimate of the induced impact has been used.

9 - Staub, Colin. “Recycling will likely feel tariff impacts – again,” Resource Recycling. May 21, 2019. Available online at <https://resource-recycling.com/recycling/2019/05/21/recycling-will-likely-feel-tariff-impacts-again/>.



## Economic and Job Impacts on a State-by-State Level

	Direct			Suppliers			Induced			Total		
	Jobs	Wages	Output	Jobs	Wages	Output	Jobs	Wages	Output	Jobs	Wages	Output
AL	3,330	\$201,236,300	\$904,699,700	3,581	\$188,108,800	\$700,906,300	3,566	\$149,663,600	\$539,539,500	10,477	\$539,008,700	\$2,145,145,500
AK	263	\$25,343,300	\$64,704,600	215	\$16,040,800	\$55,447,400	335	\$17,969,600	\$58,906,500	813	\$59,353,700	\$179,058,500
AZ	2,936	\$254,500,800	\$717,984,300	2,666	\$159,519,900	\$486,452,500	4,113	\$193,766,200	\$608,591,600	9,715	\$607,786,900	\$1,813,028,400
AR	1,252	\$62,657,900	\$262,580,300	1,198	\$61,833,000	\$247,919,300	1,181	\$48,971,500	\$197,532,300	3,631	\$173,462,400	\$708,031,900
CA	16,877	\$1,271,592,100	\$4,173,407,700	15,702	\$1,154,502,100	\$3,317,701,200	21,307	\$1,298,088,000	\$3,873,289,900	53,886	\$3,724,182,200	\$11,364,398,800
CO	2,087	\$141,343,300	\$436,293,900	2,017	\$139,523,200	\$393,706,900	2,656	\$137,711,400	\$421,101,700	6,760	\$418,577,900	\$1,251,102,500
CT	2,372	\$186,313,900	\$562,240,300	1,859	\$163,028,500	\$409,304,700	2,680	\$175,955,600	\$451,830,800	6,911	\$525,298,000	\$1,423,375,800
DE	281	\$19,701,900	\$60,109,100	232	\$17,148,300	\$60,160,300	302	\$16,532,600	\$61,356,000	815	\$53,382,800	\$181,625,400
DC	75	\$4,931,600	\$19,165,700	45	\$5,083,900	\$12,389,900	46	\$3,928,300	\$9,463,100	166	\$13,943,800	\$41,018,700
FL	7,972	\$514,927,000	\$1,950,991,800	8,656	\$490,169,400	\$1,503,997,700	10,486	\$482,785,000	\$1,543,356,800	27,114	\$1,487,881,400	\$4,998,346,300
GA	3,747	\$219,323,600	\$864,168,400	4,064	\$246,942,900	\$825,996,000	4,574	\$219,631,200	\$767,285,300	12,385	\$685,897,700	\$2,457,449,700
HI	735	\$52,795,900	\$158,817,800	536	\$28,059,800	\$96,133,400	720	\$34,503,500	\$111,277,200	1,991	\$115,359,200	\$366,228,400
ID	593	\$63,394,900	\$146,321,700	568	\$31,556,200	\$102,927,400	953	\$39,929,300	\$142,227,300	2,114	\$134,880,400	\$391,476,400
IL	9,927	\$802,801,800	\$2,423,756,000	8,561	\$627,519,000	\$1,855,658,600	13,314	\$730,200,000	\$2,233,399,000	31,802	\$2,160,520,800	\$6,512,813,600
IN	6,228	\$397,604,700	\$1,717,729,800	5,801	\$346,780,600	\$1,248,859,300	6,859	\$326,326,000	\$1,108,384,000	18,888	\$1,070,711,300	\$4,074,973,100
IA	1,715	\$98,620,300	\$333,249,100	1,468	\$85,391,600	\$334,289,300	1,726	\$79,536,400	\$316,786,400	4,909	\$263,548,300	\$984,324,800
KS	1,189	\$73,265,500	\$256,236,000	1,095	\$65,650,500	\$230,582,800	1,312	\$60,469,800	\$238,840,100	3,596	\$199,385,800	\$725,658,900
KY	2,535	\$181,490,700	\$782,569,400	2,688	\$153,144,700	\$559,642,000	3,127	\$137,202,400	\$504,054,500	8,350	\$471,837,800	\$1,846,265,900
LA	1,668	\$116,098,900	\$380,977,600	1,756	\$117,145,500	\$552,658,600	2,086	\$95,110,500	\$369,801,100	5,510	\$328,354,900	\$1,303,437,300
ME	638	\$33,064,800	\$119,738,400	636	\$32,051,000	\$112,489,400	638	\$27,147,200	\$94,381,900	1,912	\$92,263,000	\$326,609,700
MD	2,048	\$149,548,500	\$441,106,000	1,670	\$112,902,900	\$322,765,400	2,229	\$121,601,300	\$363,490,000	5,947	\$384,052,700	\$1,127,361,400
MA	3,495	\$291,122,500	\$819,505,100	2,782	\$228,900,700	\$593,042,200	4,322	\$277,428,000	\$744,524,800	10,599	\$797,451,200	\$2,157,072,100
MI	5,620	\$386,398,900	\$1,252,053,700	5,339	\$340,865,100	\$1,117,286,400	6,886	\$332,161,400	\$1,118,483,000	17,845	\$1,059,425,400	\$3,487,823,100
MN	3,323	\$299,981,400	\$872,215,200	3,146	\$217,002,000	\$644,276,400	5,154	\$267,339,400	\$814,221,600	11,623	\$784,322,800	\$2,330,713,200
MS	1,128	\$69,196,600	\$358,070,800	1,342	\$61,557,600	\$256,530,900	1,247	\$47,287,700	\$197,621,000	3,717	\$178,041,900	\$812,222,700
MO	2,938	\$187,356,700	\$605,619,400	2,621	\$156,112,500	\$502,741,300	3,401	\$156,347,800	\$557,203,600	8,960	\$499,817,000	\$1,665,564,300
MT	352	\$23,094,000	\$77,563,000	348	\$19,410,500	\$82,140,700	404	\$16,481,500	\$60,518,400	1,104	\$58,986,000	\$220,222,100
NE	1,013	\$58,457,300	\$212,944,100	867	\$58,247,300	\$186,530,100	1,092	\$53,440,700	\$203,926,700	2,972	\$170,145,300	\$603,400,900
NV	1,184	\$79,856,500	\$246,146,000	1,012	\$61,018,100	\$192,945,200	1,196	\$57,459,000	\$188,990,700	3,392	\$198,333,600	\$628,081,900
NH	884	\$61,227,100	\$188,619,600	761	\$50,775,700	\$143,345,200	993	\$52,795,100	\$153,061,400	2,638	\$164,797,900	\$485,026,200
NJ	5,931	\$476,464,400	\$1,736,364,300	4,632	\$376,521,800	\$991,325,200	6,882	\$419,931,900	\$1,165,609,900	17,445	\$1,272,918,100	\$3,893,299,400
NM	534	\$41,595,400	\$122,269,900	468	\$24,851,600	\$97,569,600	629	\$25,423,400	\$95,311,400	1,631	\$91,870,400	\$315,150,900
NY	8,427	\$593,703,300	\$1,970,113,800	6,917	\$575,209,400	\$1,522,143,000	8,791	\$577,310,700	\$1,648,490,600	24,135	\$1,746,223,400	\$5,140,747,400
NC	5,011	\$289,946,500	\$1,193,789,200	5,181	\$296,608,200	\$996,520,500	5,717	\$265,352,400	\$945,304,900	15,909	\$851,907,100	\$3,135,614,600
ND	320	\$21,987,600	\$70,836,200	282	\$18,336,500	\$68,384,600	355	\$16,397,400	\$61,621,400	957	\$56,721,500	\$200,842,200
OH	8,682	\$662,746,800	\$2,142,396,000	8,396	\$531,857,100	\$1,781,493,500	11,629	\$539,863,900	\$1,842,629,300	28,707	\$1,734,467,800	\$5,766,518,800
OK	950	\$63,177,600	\$196,748,800	1,199	\$79,559,800	\$274,745,900	1,287	\$60,873,400	\$205,947,800	3,436	\$203,610,800	\$677,442,500
OR	3,519	\$258,981,700	\$1,048,311,800	4,164	\$253,418,900	\$762,487,800	4,884	\$233,032,300	\$712,954,700	12,567	\$745,432,900	\$2,523,754,300
PA	7,145	\$480,671,100	\$1,588,323,300	6,417	\$457,508,700	\$1,401,746,600	8,616	\$473,992,100	\$1,442,829,200	22,178	\$1,412,171,900	\$4,432,899,100
RI	820	\$55,495,000	\$178,272,400	631	\$39,414,200	\$114,990,900	846	\$42,868,000	\$130,182,200	2,297	\$137,777,200	\$423,445,500
SC	2,911	\$241,522,200	\$718,213,600	2,609	\$149,320,400	\$529,536,000	3,643	\$155,838,100	\$542,560,000	9,163	\$546,680,700	\$1,790,309,600
SD	526	\$27,561,600	\$95,899,300	468	\$26,470,100	\$94,915,300	493	\$23,105,300	\$83,044,300	1,487	\$77,137,000	\$273,858,900
TN	3,862	\$265,611,000	\$1,052,408,300	3,846	\$234,865,800	\$800,133,900	4,813	\$247,645,700	\$776,678,700	12,521	\$748,122,500	\$2,629,220,900
TX	12,354	\$992,096,600	\$3,158,107,400	13,328	\$1,015,184,700	\$3,471,653,000	18,451	\$988,420,000	\$3,114,791,900	44,133	\$2,995,701,300	\$9,744,552,300
UT	1,189	\$75,995,000	\$287,231,400	1,265	\$70,111,700	\$253,605,300	1,467	\$64,280,900	\$236,093,000	3,921	\$210,387,600	\$776,929,700
VT	580	\$31,914,600	\$117,679,700	453	\$23,815,200	\$75,262,700	517	\$22,974,300	\$76,680,400	1,550	\$78,704,100	\$269,622,800
VA	3,036	\$178,550,300	\$698,616,400	2,587	\$171,981,000	\$530,290,600	3,005	\$150,230,700	\$505,645,300	8,628	\$500,762,000	\$1,734,552,300
WA	4,228	\$402,026,000	\$1,770,554,600	5,638	\$413,679,800	\$1,241,578,900	7,193	\$394,700,800	\$1,194,976,100	17,059	\$1,210,406,600	\$4,207,109,600
WV	713	\$38,764,200	\$163,543,500	767	\$43,952,700	\$194,534,200	711	\$29,854,000	\$115,785,900	2,191	\$112,570,900	\$473,863,600
WI	4,737	\$436,576,800	\$1,982,497,900	6,956	\$409,321,600	\$1,310,578,100	8,591	\$392,096,000	\$1,291,102,800	20,284	\$1,237,994,400	\$4,584,178,800
WY	274	\$17,206,800	\$53,969,200	245	\$16,085,700	\$72,876,900	250	\$11,315,100	\$46,371,900	769	\$44,607,600	\$173,218,000
<b>Total</b>	<b>164,154</b>	<b>\$11,979,843,200</b>	<b>\$41,755,731,500</b>	<b>159,681</b>	<b>\$10,664,067,000</b>	<b>\$33,735,199,300</b>	<b>207,675</b>	<b>\$10,793,276,400</b>	<b>\$34,288,057,900</b>	<b>531,510</b>	<b>\$33,437,186,600</b>	<b>\$109,778,988,700</b>

The study also calculated the impact of the U.S.-based scrap recycling industry on a state by state basis (as well as by congressional and state legislative districts and cities). The table above summarizes those impacts. Specific tables—by state, congressional district, and state legislative districts, as well as cities—can be accessed at [isri.org/economy](http://isri.org/economy).





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2019 Economic Impact Study, U.S.-Based Scrap Recycling Industry,  
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