

Economic Impact Study U.S.-Based Scrap Recycling Industry (2011) *Executive Summary* www.isri.org/jobs

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 2011, the Institute of Scrap Recycling Industries (ISRI), Inc. retained the independent economic consulting firm of John Dunham and 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 The industry recycled more than 130 million metric tons of materials in 2010, transforming outdated or obsolete scrap into useful raw materials needed to produce a range of new products.¹ Recycling reduces greenhouse gas emissions by significantly saving the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 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 459,140 adults with good jobs in the United States² and generate more than \$90 billion annually in economic activity.

(\$ Million)	Direct	Supplier	Induced	Total
Jobs	137,640	132,490	189,010	459,140
Wages	\$9,181.20	\$7,875.00	\$9,052.25	\$26,108.45
Economic Impact	\$32,825.00	\$27,898.81	\$29,915.41	\$90,639.22

¹ Data from a U.S. Geological Survey and the U.S. International Trade Commission.

² Based on the Economic Impact of the Scrap Recycling Industry in the United States (2011), produced for the Institute of Scrap Recycling Industries, Inc. by John Dunham and Associates, 2011.

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 2011, 137,640 jobs are being supported by the manufacturing and brokerage operations of the scrap recycling industry in the United States.³ These are good jobs paying an average wage of \$66,704 in wages and benefits to American workers. In addition to this, 321,500 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.⁴

U.S. Scrap Recycling Industry Facilities By Type



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 of the wages and taxes paid by 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, good and service 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 district and state legislative districts at www.isri.org/jobs.

³ 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.

⁴ 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.

Overall Economic Activity

The activities of the scrap recycling industry in the United States generate nearly \$90.6 billion annually in economic benefits here at home. All told, the U.S. scrap recycling industry accounts for 0.62% of the nation's total economic activity,⁵ making it similar in size to the nation's forestry and fishing industries combined, nearly all of the nation's professional sports teams and the toy 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 nearly \$4.3 billion in state and local revenues annually, revenues that are used to help communities and people throughout the country.
- Another \$6.1 billion in federal taxes are paid annually by the industry and its employees.



Export Activities: Creating Thousands of Jobs Here at Home

Scrap commodities are among the nation's largest exports by value, and overall, exports account for 34% of the industry's economic activity. These exports create approximately 162,000 good green jobs in the United States and help strengthen the national economy. According to the study, in 2011, 51,768 jobs are directly supported by the export activities associated with the processing and brokerage operations of scrap recyclers operating in the United States.⁶ An additional 110,163 jobs are supported by supplier operations and through the indirect effects of scrap recycling exports. These jobs pay a total of \$5.8 billion in wages. All of this activity generates \$30.7 billion in economic benefits in the United States and contributes \$2.1 billion in tax revenues for the federal government and \$1.5 billion in state and local taxes.

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

	Direct	Supplier	Induced	Total
Jobs	51,768	44,239	65,924	161,931
Wages	\$3,319,496,039	\$2,629,558,666	\$3,157,347,749	\$9,106,402,454
Economic Impact	\$10,960,609,646	\$9,315,702,683	\$10,434,233,448	\$30,710,545,777

⁵ Bureau of Economic Analysis. GDP based on first quarter of 2011, second revision value of \$15.101 trillion, see: *Gross Domestic Product, First Quarter 2011 (second estimate); Corporate Profits, First Quarter 2011 (preliminary estimate)*, Bureau of Economic Analysis, May 26, 2011.

⁶ 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.

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. In fact, were it not for these export markets, many materials, including post-consumer paper and electronics would probably not be recycled at all simply because there is no demand for them in the United States.⁷ By opening up new markets, the nation's recycled materials producers create demand for materials that might otherwise end up in landfills.

In the case of electronic products, for example, there simply is not enough demand in the United States for the more expensive post consumer materials including gold and titanium that may be smelted out of circuit boards, capacitors and other electronic parts. On the other hand, countries like India, where demand for gold is particularly high, see value in these materials.⁸

The scrap industry is the first link in the global supply chain for the growing demand of 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 2010, the industry exported nearly \$30 billion in commodity grade scrap products to more than 155 countries, significantly helping the U.S. balance of trade. 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

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. Through August 2011, nearly \$1.387 trillion in goods and services were exported from the United States, and about \$1.763 trillion

⁷ One reason that so much waste paper is sent to China for reprocessing is that wood pulp is very expensive in Asia. In the United States, on the other hand, integrated paper manufacturers use a mixture of pre- and post-consumer recycled paper as well as wood pulp from specially raised forests to manufacture paper products.

⁸ India accounted for over one-third of world gold demand in the 2nd quarter of 2011, the last period for which data are available. Together, India and China accounted for nearly ¾ of world demand. The United States, on the other hand accounted for just fewer than 6 percent. About 8 percent of India's gold comes from recycled materials. See: [Gold Demand Trends: Second Quarter 2011](#), World Gold Council, August 2011.

were imported.⁹ More than 50 million Americans work for companies that engage in international trade, according to the U.S. Chamber of Commerce, and one in three manufacturing jobs depends on exports.¹⁰ The U.S. International Trade Association projects that U.S. exports supported an estimated 9.2 million jobs in 2010, up from 8.7 million in 2009.¹¹

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. In fact, President Barack Obama, in his first State of the Union address to Congress, highlighted exports as a pillar of economic growth on which the country will depend in the future.¹²

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



Economic Contribution of Scrap Recycling Industry, 2011
(\$ 000)

All Industries	Direct			Suppliers			Induced			Total		
	Jobs	Wages	Output	Jobs	Wages	Output	Jobs	Wages	Output	Jobs	Wages	Output
Alabama	2,962	\$ 184,298	\$ 631,656	2,668	\$ 133,971	\$ 526,751	3,103	\$ 117,748	\$ 398,751	8,733	\$ 436,017	\$ 1,557,158
Alaska	122	\$ 7,901	\$ 23,245	107	\$ 11,883	\$ 41,111	117	\$ 5,324	\$ 18,343	346	\$ 25,108	\$ 82,698
Arizona	2,153	\$ 168,567	\$ 676,390	2,645	\$ 134,671	\$ 443,382	3,864	\$ 170,625	\$ 532,236	8,661	\$ 473,862	\$ 1,652,008
Arkansas	1,269	\$ 55,844	\$ 180,966	1,102	\$ 50,883	\$ 225,925	931	\$ 33,571	\$ 112,381	3,202	\$ 140,298	\$ 519,272
California	15,286	\$ 1,152,692	\$ 4,437,412	19,564	\$ 1,195,829	\$ 3,918,533	27,548	\$ 1,550,728	\$ 5,454,003	62,397	\$ 3,899,247	\$ 13,809,947
Colorado	1,548	\$ 141,356	\$ 373,456	1,457	\$ 104,896	\$ 329,935	2,895	\$ 137,504	\$ 435,306	5,899	\$ 383,757	\$ 1,138,700
Connecticut	1,640	\$ 99,727	\$ 319,785	931	\$ 80,707	\$ 237,216	974	\$ 58,241	\$ 165,532	3,545	\$ 238,675	\$ 725,533
Delaware	270	\$ 16,100	\$ 49,720	206	\$ 17,744	\$ 71,014	259	\$ 12,542	\$ 38,993	735	\$ 46,386	\$ 159,728
District of Columbia	310	\$ 14,042	\$ 50,548	102	\$ 19,371	\$ 41,771	61	\$ 4,110	\$ 11,366	474	\$ 37,523	\$ 103,685
Florida	6,500	\$ 407,349	\$ 1,606,801	8,405	\$ 402,867	\$ 1,246,197	11,635	\$ 508,944	\$ 1,664,824	26,540	\$ 1,319,160	\$ 4,517,821
Georgia	5,548	\$ 354,886	\$ 1,441,528	6,228	\$ 317,411	\$ 1,117,231	8,210	\$ 363,570	\$ 1,171,127	19,985	\$ 1,035,866	\$ 3,729,886
Hawaii	333	\$ 18,801	\$ 53,128	230	\$ 16,464	\$ 50,093	385	\$ 16,498	\$ 54,616	949	\$ 51,763	\$ 157,837
Idaho	410	\$ 8,069	\$ 45,326	490	\$ 24,960	\$ 99,734	203	\$ 6,862	\$ 23,377	1,103	\$ 39,891	\$ 168,438
Illinois	6,536	\$ 504,831	\$ 1,788,751	6,240	\$ 402,919	\$ 1,302,977	11,019	\$ 583,778	\$ 1,882,426	23,795	\$ 1,491,527	\$ 4,974,154
Indiana	3,960	\$ 230,285	\$ 753,189	2,719	\$ 141,056	\$ 534,439	3,472	\$ 137,273	\$ 459,454	10,151	\$ 508,614	\$ 1,747,082
Iowa	1,613	\$ 83,515	\$ 353,637	1,321	\$ 62,871	\$ 261,980	1,430	\$ 51,695	\$ 172,728	4,364	\$ 198,082	\$ 788,345
Kansas	1,004	\$ 50,244	\$ 163,335	720	\$ 41,527	\$ 180,855	880	\$ 33,995	\$ 112,110	2,604	\$ 125,765	\$ 456,309
Kentucky	2,441	\$ 123,503	\$ 376,705	1,694	\$ 89,321	\$ 329,076	2,007	\$ 76,385	\$ 262,145	6,142	\$ 289,209	\$ 967,926
Louisiana	1,309	\$ 76,149	\$ 239,174	1,204	\$ 85,739	\$ 520,788	1,313	\$ 52,292	\$ 183,464	3,826	\$ 214,180	\$ 943,426
Maine	666	\$ 32,948	\$ 130,649	857	\$ 37,932	\$ 154,974	829	\$ 32,286	\$ 104,548	2,352	\$ 103,166	\$ 390,172
Maryland	1,618	\$ 115,144	\$ 484,883	1,567	\$ 103,031	\$ 329,595	1,986	\$ 96,661	\$ 298,948	5,171	\$ 314,836	\$ 1,113,426
Massachusetts	2,943	\$ 209,477	\$ 663,880	2,167	\$ 170,810	\$ 471,244	3,772	\$ 220,238	\$ 642,209	8,883	\$ 600,325	\$ 1,777,333
Michigan	4,303	\$ 327,907	\$ 1,100,859	3,920	\$ 230,691	\$ 789,386	6,914	\$ 309,164	\$ 1,015,595	15,137	\$ 867,762	\$ 2,905,840
Minnesota	2,369	\$ 125,848	\$ 455,343	1,903	\$ 117,653	\$ 382,169	2,724	\$ 126,069	\$ 415,636	6,996	\$ 369,570	\$ 1,253,148
Mississippi	940	\$ 57,795	\$ 240,415	1,236	\$ 55,727	\$ 278,952	1,030	\$ 34,962	\$ 120,535	3,206	\$ 148,485	\$ 639,903
Missouri	3,019	\$ 156,738	\$ 526,226	2,005	\$ 108,950	\$ 373,486	2,919	\$ 121,864	\$ 400,840	7,943	\$ 387,553	\$ 1,300,552
Montana	350	\$ 15,324	\$ 54,082	408	\$ 19,344	\$ 90,027	322	\$ 11,309	\$ 37,473	1,080	\$ 45,977	\$ 181,582
Nebraska	627	\$ 27,290	\$ 94,434	483	\$ 28,122	\$ 117,535	511	\$ 19,163	\$ 62,847	1,621	\$ 74,575	\$ 274,817
Nevada	538	\$ 30,648	\$ 95,364	396	\$ 43,296	\$ 121,679	453	\$ 20,700	\$ 63,971	1,387	\$ 94,644	\$ 281,014
New Hampshire	788	\$ 53,996	\$ 181,753	677	\$ 36,207	\$ 121,514	1,018	\$ 46,836	\$ 140,807	2,483	\$ 137,040	\$ 444,074
New Jersey	5,171	\$ 407,395	\$ 1,563,883	4,789	\$ 323,516	\$ 997,055	6,533	\$ 381,197	\$ 1,208,093	16,493	\$ 1,112,108	\$ 3,769,032
New Mexico	346	\$ 19,839	\$ 57,699	297	\$ 19,885	\$ 71,277	305	\$ 10,928	\$ 36,033	918	\$ 50,652	\$ 165,009
New York	7,637	\$ 573,400	\$ 2,078,858	6,375	\$ 520,483	\$ 1,522,967	9,892	\$ 615,732	\$ 1,822,481	23,904	\$ 1,709,615	\$ 5,424,326
North Carolina	4,653	\$ 277,199	\$ 1,169,434	5,119	\$ 244,868	\$ 912,334	6,119	\$ 248,719	\$ 828,329	15,891	\$ 770,786	\$ 2,910,098
North Dakota	109	\$ 5,499	\$ 19,241	113	\$ 7,839	\$ 36,841	74	\$ 2,670	\$ 8,664	296	\$ 16,008	\$ 64,746
Ohio	7,557	\$ 469,331	\$ 1,619,715	6,553	\$ 333,550	\$ 1,166,848	10,347	\$ 432,344	\$ 1,427,397	24,457	\$ 1,235,226	\$ 4,213,960
Oklahoma	1,150	\$ 52,960	\$ 200,283	1,086	\$ 62,023	\$ 282,613	1,008	\$ 38,698	\$ 131,362	3,245	\$ 153,680	\$ 614,259
Oregon	2,338	\$ 165,587	\$ 577,110	2,968	\$ 158,218	\$ 553,851	3,834	\$ 159,632	\$ 530,571	9,140	\$ 483,438	\$ 1,661,532
Pennsylvania	6,570	\$ 378,169	\$ 1,210,956	4,292	\$ 269,412	\$ 936,412	7,641	\$ 371,219	\$ 1,205,944	18,503	\$ 1,018,799	\$ 3,353,313
Rhode Island	700	\$ 38,522	\$ 114,521	404	\$ 22,671	\$ 69,704	767	\$ 35,902	\$ 106,639	1,871	\$ 97,095	\$ 290,863
South Carolina	2,588	\$ 202,217	\$ 691,265	2,798	\$ 137,844	\$ 555,685	3,747	\$ 139,433	\$ 456,663	9,133	\$ 479,494	\$ 1,703,613
South Dakota	272	\$ 10,480	\$ 24,443	155	\$ 8,487	\$ 42,387	163	\$ 5,897	\$ 19,004	590	\$ 24,863	\$ 85,835
Tennessee	3,375	\$ 231,403	\$ 782,741	3,363	\$ 188,394	\$ 748,424	4,837	\$ 213,374	\$ 687,930	11,575	\$ 633,171	\$ 2,219,095
Texas	11,612	\$ 878,466	\$ 3,015,401	11,286	\$ 721,590	\$ 3,217,702	18,921	\$ 912,152	\$ 3,217,168	41,819	\$ 2,512,207	\$ 9,450,271
Utah	1,450	\$ 63,648	\$ 234,709	795	\$ 44,296	\$ 163,440	1,257	\$ 47,123	\$ 160,956	3,502	\$ 155,066	\$ 559,104
Vermont	163	\$ 9,303	\$ 29,179	206	\$ 9,057	\$ 45,021	183	\$ 7,260	\$ 23,141	552	\$ 25,620	\$ 97,341
Virginia	2,713	\$ 129,754	\$ 427,046	1,858	\$ 134,935	\$ 479,057	2,215	\$ 98,266	\$ 323,992	6,786	\$ 362,955	\$ 1,200,095
Washington	2,419	\$ 200,852	\$ 640,290	2,977	\$ 189,807	\$ 641,963	4,267	\$ 208,272	\$ 721,346	9,663	\$ 598,930	\$ 2,003,589
West Virginia	624	\$ 55,720	\$ 225,847	863	\$ 52,869	\$ 219,458	812	\$ 28,457	\$ 91,859	2,300	\$ 137,046	\$ 537,164
Wisconsin	2,636	\$ 151,032	\$ 518,998	2,387	\$ 121,540	\$ 452,499	3,207	\$ 130,374	\$ 435,724	8,230	\$ 402,946	\$ 1,407,222
Wyoming	177	\$ 9,107	\$ 30,755	186	\$ 17,108	\$ 73,666	102	\$ 3,673	\$ 12,519	465	\$ 29,888	\$ 116,940
Total	137,635	\$ 9,181,158	\$ 32,825,004	132,488	\$ 7,875,043	\$ 27,898,811	189,008	\$ 9,052,255	\$ 29,915,406	459,131	\$ 26,108,456	\$ 90,639,220

John Dunham and Associates: New York

⁹ *US International Trade in Goods and Services: August 2011*, Press Release, US Department of Commerce, Bureau of Economic Analysis, October 13, 2011. Available on-line at:

www.bea.gov/newsreleases/international/trade/tradnewsrelease.htm

¹⁰ *The Benefits of International Trade and Investment*, US Chamber of Commerce, on-line at:

www.uschamber.com/trade

¹¹ *Projected Jobs Supported by exports*: July 2011, International Trade Association. Available on-line at

http://www.trade.gov/mas/ian/build/groups/public/@tg_ian/documents/webcontent/tg_ian_003363.pdf

¹² *International Trade Administration*, ITA News Letters. Available on-line at:

http://trade.gov/press/publications/newsletters/ita_0210/nei_0210.asp



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 district). The table of the preceding page summarizes those impacts. Specific tables – by state, congressional district and state legislative district -- can be found at www.isri.org/jobs.

Study Methodology

The Scrap Recycling Industry Economic Impact Study estimates the economic contributions made by the various components of the scrap processing industry to the U.S. economy in 2011. John Dunham and 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 Minnesota IMPLAN Group. Data came from industry sources, government publications and Dun and Bradstreet, Inc. (D&B).

The study defines the scrap recycling industry as those firms 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 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. The framework in the chart above illustrates these linkages.

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.

Additional detail on the methodology used for this study can be found in www.isri.org/jobs.