The Economic Impact of Recycling to the Commonwealth of Pennsylvania

A Report of the Pennsylvania Recycling Markets Center

Pennsylvania Recycling Markets Center
Keystone of Circular Economy

JOHN DUNHAM & ASSOCIATES

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About John Dunham & Associates

John Dunham & Associates (JDA) is a leading economic consulting firm, specializing in the economics of fast-moving issues. JDA is an expert at translating complex economic concepts into clear, easily understandable messages for a wide range of audiences. JDA's clients have included a wide variety of businesses and organizations, including some of the largest Fortune 500 companies in America, such as:

- Altria
- Diageo
- Feld Entertainment
- Forbes Media
- MolsonCoors
- Verizon
- Wegmans Stores

John Dunham is a professional economist with nearly 40 years of experience. He holds a Master of Arts degree in Economics from the New School for Social Research as well as a Master of Business Administration from Columbia University. He also has a professional certificate in Logistics from New York University. Mr. Dunham has worked as a manager and an analyst in both the public and private sectors. He has experience in conducting cost-benefit modeling, industry analysis, transportation analysis, economic research, and tax and fiscal analysis. As a senior economist for Philip Morris, he developed tax analysis programs, increased cost-center productivity, and created economic research operations. He has presented testimony on economic and technical issues in federal court and before federal and state agencies.

Prior to Phillip Morris John was an economist with the Port Authority of New York and New Jersey, the Philadelphia Regional Port Authority, and the City of New York's Department of Ports & Trade.

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About the Pennsylvania Recycling Markets Center, Inc. (RMC) (www.pennrmc.org)

The Pennsylvania Recycling Markets Center Corporation (RMC) is an independent, Pennsylvania non-profit corporation with a mission to reduce or eliminate barriers that lead to new expanded use of Pennsylvania's recycled materials. The RMC team brings markets development assistance to a near endless list of stakeholders including entrepreneurs, manufacturers, recycled material processors, collection programs, haulers, and governmental agencies. In operation since 2005, and with funding from the Pennsylvania Department of Environmental Protection, the RMC has an affiliation with Penn State and is headquartered at Penn State Harrisburg with an office in Pittsburgh. Core areas of RMC outreach include feedstock conversion pairing, applied research and commercialization assistance; technology acceleration; and service as a concierge of technical and business growth information. Building and supporting Pennsylvania's $22.6B recycling marketplace, the Pennsylvania Recycling Markets Center bridges relationships between economic development and use of Pennsylvania's recycled materials supply.

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EXECUTIVE SUMMARY

Beyond the obvious benefits of a cleaner environment and avoided disposal costs, recycling reduces the extraction, energy, and transportation costs required to convert raw commodities into virgin materials. The Recycled Materials Association (ReMA) states that using recycled feedstock in manufacturing operations can save up to 95 percent of the energy required to produce products. Overall, industries that adopt recycling can see significant reductions in operational energy costs. The environmental benefits also contribute to long-term savings through reduced carbon emissions and resource conservation.

Since the passing of Pennsylvania's recycling law, Act 101 of 1988, the Pennsylvania Department of Environmental Protection (PA DEP) has tracked the amount of waste generated and recycled materials diverted from disposal. PA DEP's annual municipal waste recycling and biennial residual waste reports for 2024 indicate that Pennsylvania's residents, industrial, commercial, and institutional establishments, and manufacturers recycled 27,365,312 tons of waste. This amount is equivalent to the reported weight of 3,373 Washington Monuments or 4,165 pounds for every person in the Commonwealth.

A critical provision of Act 101 is the Recycling Fund, a $2-per-ton fee on all waste disposed of at municipal waste landfills and waste-to-energy facilities. This investment has certainly played a significant role in making a positive impact on the environment through recycling; however, recycling also leads to significant economic contributions that may not be as obvious.

To quantify the economic benefits of recycling in Pennsylvania, the Pennsylvania Recycling Markets Center (RMC) commissioned John Dunham & Associates (JDA) to conduct an in-depth analysis of the industry. The analysis examines the direct, indirect, and induced impacts for Pennsylvania and each of its 67 counties, as well as for the six PA DEP regions.

The data for the study was provided by RMC, Data Axle, and government sources. RMC gathered additional data through a survey of County recycling coordinators and authorities as well as the City of Philadelphia. The study results are presented in terms of jobs, wages, and economic activity. Tax data is also available at the state level.

For purposes of the study, Pennsylvania's direct recycling industry is defined by three key segments:

Core recycling: which includes both public and private recycling and hauling operations, recyclable material brokers, wholesalers, organics/compost processors, and materials recovery facilities (MRF's).

Reuse/remanufacturing: which is comprised of food recovery and distribution, tire re-treaders, wood reuse, clothing and textile reuse, chemical recycling, and used auto parts.

Downstream manufacturing: which covers a wide range of mills, foundries, and recycled-content manufacturers and processors that utilize recycled feedstocks such as glass, metals, plastics, rubber and electronics.

In sum, a total of 26 subcategories within these three sectors were examined as part of this study.

The results of the *Economic Impact of Recycling to the Commonwealth of Pennsylvania* study are summarized in Table 1. The key highlights from the study include:

- The recycling economy is a vital part of the economy in the Commonwealth of Pennsylvania. The industry directly accounts for nearly $76.9 billion in economic activity at firms or entities collecting and processing recycled materials, firms or entities promoting the reuse of goods and materials, and firms utilizing recycled materials as part of their production process.

- The recycling industry in the Commonwealth of Pennsylvania is responsible for a total of 319,628 full-time equivalent jobs in the state, paying average wages and benefits of nearly $84,600, or about $1,625 a week.[1] This is well above the living wage in the state.[2]

- In total, the recycling industry is responsible for $130.5 billion in economic activity in Pennsylvania, or roughly 7.2 percent of the state's total output.[3]

- These firms and entities directly create over 104,000 full-time-equivalent jobs, for people in all 67 of Pennsylvania's counties.

- Firms and entities in the direct segments (core, reuse and downstream) of the industry pay their employees over $10.3 billion in wages and benefits. This is equal to $99,380 per job.

- The Commonwealth and its localities receive over $4.3 billion in tax revenues as a result of the activities of the recycling industry.

Table 1
Total Economic Impact of Pennsylvania Recycling 2025

	Jobs		Wages		Economic Output
Direct Recycling Industry	104,033	$	10,338,939,200	$	76,853,927,721
Core Recycling Industry	10,633	$	935,453,600	$	3,486,587,000
Reuse Recycling Industry	18,172	$	1,055,587,100	$	3,039,888,800
Downstream Recycling Industry	75,228	$	8,347,898,500	$	70,327,451,921
Suppliers to the Recycling Industry	121,392	$	10,498,034,200	$	36,036,298,100.0
Induced Economic Effects	94,203	$	6,203,070,800	$	17,598,147,900
Total Impact of the Recycling Industry	319,628	$	27,040,044,200	$	130,488,373,721
Federal Taxes Generated				$	6,908,117,406
State Taxes Generated				$	2,532,304,172
Local Taxes Generated				$	1,806,514,739
Total Taxes Generated				$	11,246,936,317

RESULTS

Pennsylvania Recycling

Recycling is often touted as the environmentally and socially responsible thing to do. Beyond the obvious benefits of a cleaner environment, converting waste into usable commodity-grade materials substantially reduces the mining, energy, and transportation costs required to convert raw commodities into virgin materials. According to the Recycled Materials Association (ReMA), using recycled aluminum saves up to 95 percent of the energy required to produce new aluminum. Recycling paper can save about 60 percent of energy compared to producing new paper from trees. The use of recycled plastics can lower energy costs by 50-75 percent in production. Overall, industries that adopt recycling can see significant reductions in operational energy costs. The environmental benefits also contribute to long-term savings through reduced carbon emissions and resource conservation.

Since the passing of Pennsylvania's recycling law, Act 101 of 1988, the PA DEP has tracked the amount of waste generated and recycled materials diverted from disposal. PA DEP's annual municipal waste recycling and biennial residual waste reports for 2024 indicate that Pennsylvania's residents, industrial, commercial, and institutional establishments, and manufacturers recycled 27,365,312 tons of waste. This amount is equivalent to the reported weight of 3,373 Washington Monuments or 4,165 pounds for every person in the Commonwealth.

Act 101 created a comprehensive plan for the Commonwealth to properly manage its municipal waste. A major provision of this law was the establishment of the Recycling Fund, a $2-per-ton fee on all waste disposed at municipal waste landfills and waste-to-energy facilities. When compared with many other states, Pennsylvania has demonstrated prominence as a leader in recycling and responsible solid waste management. Given the challenges of a commodity marketplace, supporting both the Recycling Marketplace and material supply infrastructure enables Pennsylvanians to easily engage in recycling activity. This investment has certainly played a significant role in making a positive impacton the environment. However, recycling also leads to significant economic contributions that may not be as obvious.

To quantify the economic benefits of recycling in Pennsylvania, the RMC commissioned JDA to conduct an in-depth analysis of the industry. The analysis examined the direct, indirect, and induced impacts for Pennsylvania and each of its 67 counties**,** as well as for the six (PA DEP) regions – Northwest, Northcentral, Northeast, Southwest, Southcentral, and Southeast.

Headquartered at Penn State Harrisburg, the RMC is a non-profit organization whose mission is to develop and expand recycling markets in the Commonwealth of Pennsylvania. RMC works directly with economic development, governmental, technical assistance and environmental organizations to support generators, haulers, processors, manufacturers, and end users of recycled materials and products in what is known as the circular economy.

The results from this study are presented in terms of jobs, wages, and economic activity. Data on the taxes generated by the recycling industry is also available at the state level. JDA worked closely with RMC to gather data for the study. In addition to its extensive database, RMC conducted a survey of County recycling coordinators and authorities as well as the City of Philadelphia. Other data used for the study were provided by Data Axle and government sources.

Figure 1
Pennsylvania Recycling Industry Segments

For purposes of the study, the Pennsylvania recycling industry was defined by 26 categories that fell within three key segments: Core Recycling, Reuse/Remanufacturing, and Downstream Manufacturing. (See Figure 1 on the prior page). These categories include operations that are traditionally thought of as recycling such as Material Recovery Facilities (MRFs), and curbside collections. In the case of this analysis, the recycling industry extends to operations that reuse materials or products that might also be discarded and sent to landfills such as tire retreading firms, used merchandise stores (including thrift stores and antique dealers), and food banks. Finally, firms located in Pennsylvania that utilize recycled materials as a part of their production process are included. These could be iron and steel foundries, paper mills, glass product manufacturers, and computer refurbishing and repair companies.

When accounting for the direct industry, as well as all supplier and induced-spending linkages, the Pennsylvania recycling industry reaches into all corners of the Commonwealth's economy, creating nearly 319,630 FTE jobs, and generating $27.0 billion in wages and benefits. Pennsylvania recycling generates nearly $130.5 billion in economic activity in the Keystone State. (See Table 1 on page 5)

Table 2
Economic Impact of Core Recycling 2025

	Jobs		Wages		Economic Output
Collections and Processing	10,633	$	935,453,589	$	3,486,586,995
Suppliers to the Recycling Industry	6,555	$	532,920,445	$	1,432,544,153
Agriculture	3	$	147,437	$	268,656
Business and Personal Services	3,405	$	289,774,068	$	566,939,232
Construction	65	$	5,088,177	$	13,652,999
Finance, Insurance and Real Estate	957	$	67,757,982	$	304,378,589
Government	152	$	17,140,880	$	43,288,940
Manufacturing	206	$	19,903,025	$	117,089,086
Mining	8	$	1,083,137	$	7,882,365
Other	-	$	-	$	-
Retailing	43	$	2,271,135	$	6,317,353
Transportation and Communication	1,049	$	82,130,186	$	212,101,333
Travel and Entertainment	321	$	11,037,635	$	32,147,355
Wholesaling	346	$	36,586,785	$	128,478,245
Induced Economic Effects	6,717	$	440,826,973	$	1,250,207,598
Agriculture	30	$	1,252,006	$	3,310,061
Business and Personal Services	3,072	$	235,040,866	$	425,172,003
Construction	56	$	4,131,066	$	9,839,353
Finance, Insurance and Real Estate	781	$	54,188,345	$	360,765,216
Government	63	$	6,994,519	$	16,247,958
Manufacturing	65	$	5,508,805	$	39,227,465
Mining	3	$	464,413	$	3,399,974
Other	229	$	12,172,624	$	12,574,896
Retailing	974	$	41,988,395	$	109,639,855
Transportation and Communication	368	$	33,403,928	$	115,534,934
Travel and Entertainment	941	$	31,225,183	$	95,871,083
Wholesaling	135	$	14,456,824	$	58,624,799
Total Economic Impact	23,906	$	1,909,201,007	$	6,169,338,745

Core Recycling

Core recycling includes the operations that many people typically associate with recycling: the collection and transportation of recyclable materials; composting activities; material processing; and the resale of recycled materials (typically in baled format) to downstream sectors for use, in

many cases, as intermediate inputs. For both private- and public-sector operations, collection of recycled materials typically occurs in conjunction with the collection of materials destined for disposal.

The core recycling segment is responsible for the creation of over 23,900 FTE jobs with $1.9 billion in wages and benefits. Overall, core recycling generates almost $6.2 billion in economic activity in the Commonwealth of Pennsylvania. (See Table 2 on the prior page) The core segment of the recycling industry is responsible for generating nearly $733.6 million in taxes ($466.3 million federal, $156.8 million state, and $110.5 million local).

Table 3
Economic Impact of Reuse/Remanufacturing 2025

	Jobs		Wages		Economic Output
Reuse Segment of the Recycling Industry	18,172	$	1,055,587,100	$	3,039,888,800
Wholesale/Broker	2,018	$	190,870,000	$	746,111,200
Electronics	5,581	$	166,346,500	$	360,947,000
Collections	8,972	$	590,091,600	$	1,463,641,000
Other	1,601	$	108,279,000	$	469,189,600
Suppliers to the Recycling Industry	6,633	$	504,051,100	$	1,390,272,100
Agriculture	183	$	18,623,100	$	22,703,700
Business and Personal Services	2,351	$	208,180,200	$	430,250,500
Construction	60	$	4,714,300	$	12,758,200
Finance, Insurance and Real Estate	1,187	$	70,512,900	$	331,900,300
Government	164	$	17,897,600	$	29,782,200
Manufacturing	310	$	24,032,400	$	139,192,200
Mining	4	$	502,400	$	3,611,300
Other	-	$	-	$	-
Retailing	70	$	3,350,500	$	9,008,000
Transportation and Communication	1,626	$	106,692,100	$	259,340,600
Travel and Entertainment	338	$	11,523,300	$	33,840,200
Wholesaling	340	$	38,022,300	$	117,884,900
Induced E conomic Effects	6,829	$	449,901,100	$	1,275,986,500
Agriculture	30	$	1,257,100	$	3,322,800
Business and Personal Services	3,106	$	237,792,400	$	432,840,100
Construction	56	$	4,153,600	$	9,892,100
Finance, Insurance and Real Estate	787	$	54,559,600	$	363,007,100
Government	63	$	7,023,000	$	16,307,600
Manufacturing	65	$	5,530,400	$	39,373,700
Mining	3	$	466,200	$	3,413,000
Other	230	$	12,267,700	$	12,673,000
Retailing	978	$	42,180,900	$	110,142,500
Transportation and Communication	429	$	38,745,400	$	129,740,100
Travel and Entertainment	946	$	31,405,400	$	96,399,600
Wholesaling	136	$	14,519,400	$	58,874,900
Total Economic Impact	31,634	$	2,009,539,300	$	5,706,147,400

Reuse/Remanufacturing

The second segment of the Pennsylvania recycling industry is reuse and remanufacturing. Reuse focuses on extending the life of a product in its original or very slightly modified form, while remanufacturing involves restoring a used product to near-new condition, through industrial processes that may include repair, refurbishment, and replacement of parts. Organizations operating in this space are focused on food recovery and distribution, tire re-treading, wood reuse, clothing and textile reuse, chemical recycling, and used auto parts.

Reuse and remanufacturing employs 31,630 FTE workers, providing $2.0 billion in wages and benefits and resulting in $5.7 billion in economic activity in Pennsylvania. (See Table 3 on page 9)

Table 4
Economic Impact of Downstream Manufacturing 2025

	Jobs		Wages		Economic Output
Downstream Segment of the Recycling Industry	75,228	$	8,347,898,500	$	70,327,451,900
Wholesale/Broker	2,793	$	263,837,800	$	1,052,255,000
Metals	42,161	$	4,569,042,700	$	44,792,016,700
Paper	15,145	$	1,518,635,700	$	10,371,078,000
Glass	3,055	$	316,351,800	$	1,274,895,100
Plastics/Rubber	10,256	$	1,469,735,900	$	11,422,413,000
Construction	152	$	14,766,500	$	96,978,100
Electronics	11	$	327,900	$	711,400
Yard Waste	33	$	1,473,400	$	3,642,300
Collections	740	$	65,129,600	$	242,990,500
Other	882	$	128,597,200	$	1,070,471,800
Suppliers to the Recycling Industry	108,204	$	9,461,062,700	$	33,213,481,800
Agriculture	329	$	29,590,900	$	34,993,300
Business and Personal Services	31,705	$	2,754,977,900	$	5,496,419,600
Construction	1,947	$	153,301,300	$	416,413,800
Finance, Insurance and Real Estate	10,751	$	814,319,100	$	3,289,417,600
Government	1,493	$	164,067,400	$	317,604,300
Manufacturing	9,934	$	1,048,410,400	$	8,313,661,000
Mining	1,189	$	132,407,100	$	847,434,300
Other	-	$	-	$	-
Retailing	1,121	$	54,424,800	$	154,527,000
Transportation and Communication	31,064	$	2,587,129,800	$	7,871,710,400
Travel and Entertainment	2,612	$	90,711,900	$	264,887,800
Wholesaling	16,059	$	1,631,722,100	$	6,206,412,700
Induced Economic Effects	80,657	$	5,312,342,800	$	15,071,953,600
Agriculture	358	$	14,878,200	$	39,348,000
Business and Personal Services	36,670	$	2,807,160,200	$	5,110,027,200
Construction	661	$	49,059,100	$	116,854,300
Finance, Insurance and Real Estate	9,287	$	643,661,700	$	4,285,362,100
Government	745	$	83,133,600	$	193,137,400
Manufacturing	775	$	65,479,400	$	466,329,600
Mining	40	$	5,518,900	$	40,403,300
Other	2,711	$	144,393,700	$	149,165,300
Retailing	11,565	$	498,674,400	$	1,302,136,100
Transportation and Communication	5,072	$	458,100,100	$	1,534,880,800
Travel and Entertainment	11,163	$	370,533,500	$	1,137,795,000
Wholesaling	1,610	$	171,750,000	$	696,514,500
Total Economic Impact	264,089	$	23,121,304,000	$	118,612,887,300

Downstream Manufacturing

Once recyclable materials have been collected, processed (cleaned, sorted, or shredded), and prepared, the downstream manufacturing segment takes over. In this third and final segment of the Pennsylvania recycling industry, raw recycled materials are transformed and given a new life as components for manufacturing or finished goods. A wide range of mills, foundries, and processors that recycle materials like glass, metals, plastics, and electronics are included in this sector.

About 264,090 FTE jobs are attributed to downstream manufacturing, the largest component of the recycling industry in the Commonwealth. These jobs provide $23.1 billion in wages and benefits and generate over $118.6 billion in economic activity. (See Table 4 on the prior page) All told, the downstream sector (in effect, the industries in the state that utilize recycled materials in their production process) account for over 82.6 percent of the recycling jobs in Pennsylvania and almost 90.9 percent of the economic activity generated by recycling in the state.

Supplier and Induced Impacts

Other firms are related to the Pennsylvania recycling industry as suppliers. The supplier sector does not provide recycled materials, these come from the core sector, but rather other goods and services such as recycling equipment, fuel, advertising and legal services, and transportation services.

All told, suppliers to the Pennsylvania recycling industry are responsible for 121,392 FTE jobs paying wages and benefits totaling $10.5 billion. These firms generate about $36.0 billion in economic activity. These are summarized by industry group in Table 5.[1]

Table 5
Supplier Impacts of Pennsylvania Recycling 2025

Supplier Industries	Jobs	Wages	Economic Output
Agriculture	515	$ 48,361,437	$ 57,965,656
Business and Personal Services	37,461	$ 3,252,932,168	$ 6,493,609,332
Construction	2,072	$ 163,103,777	$ 442,824,999
Finance, Insurance and Real Estate	12,895	$ 952,589,982	$ 3,925,696,489
Government	1,809	$ 199,105,880	$ 390,675,440
Manufacturing	10,450	$ 1,092,345,825	$ 8,569,942,286
Mining	1,201	$ 133,992,637	$ 858,927,965
Retailing	1,234	$ 60,046,435	$ 169,852,353
Transportation and Communication	33,739	$ 2,775,952,086	$ 8,343,152,333
Travel and Entertainment	3,271	$ 113,272,835	$ 330,875,355
Wholesaling	16,745	$ 1,706,331,185	$ 6,452,775,845
Total	121,392	$ 10,498,034,245	$ 36,036,298,053

As the table shows, the most important supplier industry groupings in terms of economic activity are manufacturing sectors, with about 23.8 percent of the supplier output, transportation and communications sectors, with 23.2 percent, and business and personal services sectors with about 18.0 percent.

An economic analysis of the Pennsylvania recycling industry will also take additional linkages into account. While it is inappropriate to claim that suppliers to the suppliers are part of the industry being analyzed,[2] the spending by industry employees, and those of supplier firms that are directly dependent on the Pennsylvania recycling industry, should be included. This spending - on everything from housing, to food, to education, and medical care - makes up what is traditionally called the "induced impact," or multiplier effect, of the recycling industry. For 2025, the induced impact of the industry was responsible for about 94,200 FTE jobs paying total wages and benefits of $6.2 billion. About $17.6 billion in economic activity was induced in Pennsylvania from the recycling industry, for a multiplier of 0.23.[3] (See Table 6). In most

[1] JDA calculates supplier impacts for 528 sectors of the economy.
[2] These firms would more appropriately be considered as part of the indirect firm's industries.
[3] Often economic impact studies present results with very large multipliers – as high as 4 or 5. These studies invariably include the firms supplying the induced industries as part of the induced impact. John Dunham & Associates believes that this is not an appropriate definition of the induced impact and as such limits this calculation only to the effect of spending by direct and indirect employees.

respects, induced economic activities are representative of the general economy of the Commonwealth.[4]

Table 6
Induced Impacts of Pennsylvania Recycling 2025

Induced Industries	Jobs	Wages	Economic Output
Agriculture	418	$ 17,387,306	$ 45,980,861
Business and Personal Services	42,848	$ 3,279,993,466	$ 5,968,039,303
Construction	773	$ 57,343,766	$ 136,585,753
Finance, Insurance and Real Estate	10,855	$ 752,409,645	$ 5,009,134,416
Government	871	$ 97,151,119	$ 225,692,958
Manufacturing	905	$ 76,518,605	$ 544,930,765
Mining	46	$ 6,449,513	$ 47,216,274
Other	3,170	$ 168,834,024	$ 174,413,196
Retailing	13,517	$ 582,843,695	$ 1,521,918,455
Transportation and Communication	5,869	$ 530,249,428	$ 1,780,155,834
Travel and Entertainment	13,050	$ 433,164,083	$ 1,330,065,683
Wholesaling	1,881	$ 200,726,224	$ 814,014,199
Total	94,203	$ 6,203,070,873	$ 17,598,147,698

Fiscal Impacts

Another important part of an economic impact analysis is the calculation of the contribution of the industry to the public finances of federal, state, and local governments. In the case of the Pennsylvania recycling industry, the business taxes (including income taxes, property taxes, profits taxes, etc.) paid by firms and their employees provide a total of $6.9 billion to the federal government, and more than $2.5 billion to the state, and $1.8 billion to local governments.

Table 7
Fiscal Impact of Pennsylvania Recycling 2025

Taxes Generated	Core	Reuse	Downstream	Total
Federal Taxes	$ 466,296,779	$ 909,428,503	$ 5,532,392,124	$ 6,908,117,406
State Taxes	$ 156,812,811	$ 343,870,675	$ 2,031,620,685	$ 2,532,304,172
Local Taxes	$ 110,470,970	$ 256,707,260	$ 1,439,336,510	$ 1,806,514,739
Total Taxes	$ 733,580,560	$ 1,510,006,438	$ 9,003,349,319	$ 11,246,936,317

As with the overall economic activity, the bulk of tax revenues come from downstream manufacturing companies that utilize recycled materials in their production processes. This is partly due to the large amount of economic activity in these sectors, and also because many of the facilities and institutions involved in the core and reuse segments are government entities or not-for-profit enterprises.

Pennsylvania Department of Environmental Protection Regional Impacts

The Pennsylvania Department of Environmental Protection (PA DEP) is responsible for protecting and preserving the land, air, water, and public health through enforcement of the Commonwealth's environmental laws. Included in these responsibilities are the overseeing of recycling programs in 67 counties, which are divided up among PA DEP's six regions - Northwest, Northcentral, Northeast, Southwest, Southcentral, and Southeast.

[4] Note that both supplier and induced effects represent only activities occurring in the Commonwealth of Pennsylvania. Many supplier and induced activities are also generated by firms located outside of the state (for example a firm purchasing advertising services from New York City, or trucks from Michigan), or an employee purchasing items directly imported from abroad, or a car manufactured in Tennessee.

An examination of how the recycling industry spreads across regions shows that the overall bulk of the jobs and economic activity is in the southeastern region, which encompasses Philadelphia and the counties surrounding the city. This makes sense as this region has a high population and the largest number of collection jobs. There are also a substantial number of downstream manufacturing jobs in the region. It is interesting that this region also has the lowest average wage, considering that the Philadelphia region would be expected to have higher wage rates overall.

The region with the highest wages, the Northwest, has a preponderance of the metals processing and manufacturing jobs (26.7 percent of the total, and 67.6 percent of the region's direct jobs). These are highly productive activities with generally higher wage rates. This is the same reason why average wages in the Southwest region are also elevated.

Table 8
Economic Impact by PA DEP Regions 2025

	Northeast	Northcentral	Northwest	Southeast	Southcentral	Southwest	Total
Direct Industry							
Jobs	12,222	5,935	16,663	18,318	24,703	26,191	104,032
Wages	$ 1,089,951,716	$ 534,186,467	$ 1,691,043,298	$ 1,909,749,535	$ 2,393,196,360	$ 2,720,811,947	$ 10,338,939,322
Economic Output	$ 6,090,810,839	$ 3,340,538,190	$ 15,771,879,140	$ 14,494,033,651	$ 17,016,516,689	$ 20,140,149,213	$ 76,853,927,722
Suppliers to the Recycling Industry							
Jobs	16,096	5,741	10,219	39,421	26,051	23,865	121,394
Wages	$ 1,412,536,291	$ 523,983,104	$ 936,278,005	$ 3,230,451,123	$ 2,236,089,531	$ 2,158,696,132	$ 10,498,034,186
Economic Output	$ 5,062,183,911	$ 1,798,250,106	$ 4,242,986,591	$ 10,251,540,850	$ 7,520,457,052	$ 7,160,879,472	$ 36,036,297,981
Induced Economic Effects							
Jobs	11,573	4,948	7,540	33,759	18,093	18,290	94,203
Wages	$ 757,266,041	$ 314,108,615	$ 475,764,840	$ 2,261,951,747	$ 1,156,683,866	$ 1,237,295,570	$ 6,203,070,678
Economic Output	$ 2,119,582,819	$ 815,886,950	$ 1,306,086,147	$ 6,698,153,029	$ 3,362,858,415	$ 3,295,580,343	$ 17,598,147,703
Total							
Jobs	39,891	16,624	34,422	91,498	68,847	68,346	319,629
Wages	$ 3,259,754,048	$ 1,372,278,185	$ 3,103,086,142	$ 7,402,152,404	$ 5,785,969,758	$ 6,116,803,649	$ 27,040,044,186
Economic Output	$ 13,272,577,569	$ 5,954,675,246	$ 21,320,951,878	$ 31,443,727,530	$ 27,899,832,155	$ 30,596,609,028	$ 130,488,373,406
Average							
Wage/Job	$ 81,716	$ 82,549	$ 90,147	$ 80,900	$ 84,040	$ 89,497	$ 84,598
Output/Job	$ 332,719	$ 358,200	$ 619,393	$ 343,656	$ 405,241	$ 447,671	$ 408,250

More detail on the economic impact by region can be found in the Appendix to this report.

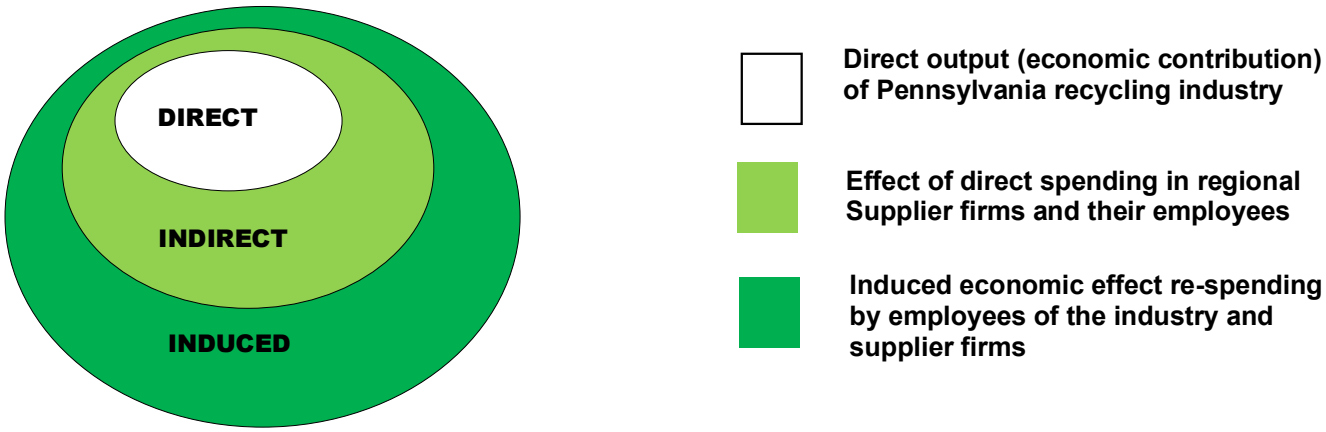
METHODOLOGY

Economic Impact Modeling

The economic impact study begins with an accounting of the direct employment for the Pennsylvania recycling industry. These employees work in one of three sectors that comprise the industry: Core manufacturing, reuse/remanufacturing and downstream manufacturing. The data comes from RMC and 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 expenditures for operating and maintaining a recycling processing center are the sum total of its impact on the local economy. However, a single economic activity 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 modeling.

The economic activities of the Pennsylvania recycling industry are linked to other industries in the state economy. Activities related to Pennsylvania recycling represent the direct effects on the economy. Supplier impacts occur when these activities require purchases of goods and services such as materials or advertising services from local or regional firms. Additional induced impacts occur when workers involved in direct and supplier activities spend their wages. The ratio between induced output and direct output is termed the multiplier.

Figure 2
Graphical Description of Economic Impact Modeling



This method of analysis allows the impact of economic activities to be quantified in terms of final demand, earnings, and employment in Pennsylvania as a whole. Once the direct impact of the industry has been calculated, the input-output methodology discussed below is used to calculate the contribution of the supplier sector and of the re-spending in the economy by employees in the industry and its supplier firms. This induced impact is the most controversial part of economic impact studies and is often quite inflated. In the case of The *Economic Impact of Recycling to the Commonwealth of Pennsylvania* only the most conservative estimate of the induced impact has been used.

Modeling Description and Data

This economic impact analysis was developed by JDA based on data provided by the RMC, Data Axle, and government sources. The analysis utilizes the IMPLAN model in order to quantify the economic impact of the Pennsylvania recycling industry on the economy in Pennsylvania, by Pennsylvania state legislative districts, and by PA DEP region.[5] The model adopts an accounting framework through which the relationships between different inputs and outputs across industries and sectors are computed. This model can show the impact of a given economic decision – such as a new facility opening – on a pre-defined, geographic region. It is based on the national income accounts generated by the US Department of Commerce, Bureau of Economic Analysis (BEA).[6]

Every economic impact analysis begins with a description of the industry or company being examined. In the case of this analysis, the economic impact of the Pennsylvania recycling industry begins with FTE employment figures for core manufacturing, reuse/remanufacturing, and downstream manufacturing.

The IMPLAN model is designed to run based on the input of specific direct economic factors. It uses a detailed methodology (see IMPLAN Methodology section) to generate estimates of the other direct impacts, tax impacts, and indirect and induced impacts based on these entries. In the case of the Pennsylvania recycling industry model, direct employment for the Pennsylvania recycling industry is a starting point for the analysis. Direct employment is based in part on data provided to John Dunham & Associates by the RMC, Data Axle, and government sources.

Data Axle data used in the analysis were as current as of August 2025. Data Axle data are recognized nationally as a premier source of micro industry data. Data Axle is the leading provider of business and consumer data for the top search engines and leading in-car navigation systems in North America. Data Axle gathers data from a variety of sources, by sourcing, refining, matching, appending, filtering, and delivering the best quality data. Data Axle verifies its data at the rate of almost 100,000 phone calls per day to ensure absolute accuracy.

Once the initial direct employment figures have been established, they are entered into a model linked to the IMPLAN database. The IMPLAN data are used to generate estimates of direct wages and output. Wages are derived from data from the U.S. Department of Labor's ES-202 reports that are used by IMPLAN to provide annual average wages and salaries, establishment counts, employment counts, and payrolls at the county level. Since this data only covers payroll employees, it is modified to add information on independent workers, agricultural employees, construction workers, and certain government employees. Wage data include not only cash wages, but health and life insurance payments, retirement payments, and other non-cash compensation. It includes all income paid to workers by employers.

Total output is the value of services by industry in a given state or district. It is estimated by IMPLAN from sources similar to those used by the BEA in its RIMS II series. Where no Census or government surveys are available, IMPLAN uses models such as the Bureau of Labor Statistics' growth model to estimate the missing output.

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[5] IMPLAN® model, 2023 Data, using inputs provided by the user and IMPLAN Group LLC, IMPLAN System (2025), 16905 Northcross Dr., Suite 120, Huntersville, NC 28078, www.IMPLAN.com

[6] The IMPLAN model is based on a series of national input-output accounts known as RIMS II. These data are developed and maintained by the U.S. Department of Commerce, Bureau of Economic Analysis as a policy and economic decision analysis tool.

The model also includes information on income received by the state and local governments and produces estimates for the following taxes at the state and local level: corporate profits, property, sales, severance, estate and gift and personal income taxes; licenses and fees and certain payroll taxes.[7]

While IMPLAN is used to calculate the state level impacts, the physical location of each facility is used in Pennsylvania state legislative and PA DEP regions level analysis. Each facility is mapped to its address using the Maptitude geographical analysis system developed by Caliper Corporation. In some cases, it is impossible to determine the exact address of a facility. In these cases, facilities were randomly placed inside of a zip code.

Data from Data Axle serve as the basis for Pennsylvania county and PA DEP region estimates for supplier and induced impacts. This model therefore uses actual physical location data provided by Data Axle by zip code. For zip codes entirely contained in a single county, jobs are allocated based on the percentage of total sector jobs in each zip code. For zip codes that are broken by geographies, allocations are based on the percentage of total jobs physically located in each segment of the zip code where the segment areas are weighted by the density of roads to account for urban/commercial versus rural areas. Regional data are derived by adding together county data for those counties contained in each region.

IMPLAN Methodology[8]

François Quesnay, one of the fathers of modern economics, first developed the analytical concept of inter-industry relationships in 1758. The concept was actualized into input-output analysis by Wassily Leontief during the Second World War, an accomplishment for which he received the 1973 Nobel Prize in Economics.

Input-Output analysis is an econometric technique used to examine the relationships within an economy. It captures all monetary market transactions for consumption in a given period and for a specific geography. The IMPLAN model uses data from many different sources – as published government data series, unpublished data, sets of relationships, ratios, or as estimates. IMPLAN, Inc. gathers this data, converts it into a consistent format, and estimates the missing components.

There are three different levels of data generally available in the United States: Federal, state and county. Most of the detailed data are available at the county level, but there are many issues with disclosure – especially in the case of smaller industries. IMPLAN overcomes these disclosure problems by combining a large number of datasets and by estimating those variables that are not found in any of them. The data is then converted into national input-output matrices (Use, Make, By-products, Absorption and Market Shares) as well as national tables for deflators, regional purchase coefficients, and margins.

The IMPLAN Make matrix represents the production of commodities by industry. The Bureau of Economic Analysis (BEA) Benchmark I/O Study of the US Make Table forms the bases of the IMPLAN model. The Benchmark Make Table is updated to current year prices and rearranged into the IMPLAN sector format. The IMPLAN Use matrix is based on estimates of final demand, value-added by sector and total industry and commodity output data as provided by government

[7] Note that the tax data developed through the most recent IMPLAN database is still impacted by the government-imposed shutdown of the economy resulting from COVID-19. The most recent tax data available at the time the model was constructed came from during the COVID-19 crisis, and therefore the model may reflect tax receipts to be somewhat lower that they actually would be.

[8] This section is paraphrased from IMPLAN Professional: Users Guide, Analysis Guide, Data Guide, Version 2.0, MIG, Inc., June 2000.

statistics or estimated by IMPLAN. The BEA Benchmark Use Table is then bridged to the IMPLAN sectors. Once the re-sectoring is complete, the Use Tables can be updated based on the other data and model calculations of interstate and international trade.

In the IMPLAN model, as with any input-output framework, all expenditures are in terms of producer prices. This allocates all expenditures to those industries that produce goods and services. As a result, all data not received in producer prices is converted using margins which are derived from the BEA Input-Output model. Margins represent the difference between producer and consumer prices. As such, the margins for any good add to one.

Deflators, which account for relative price changes during different time periods, are derived from the Bureau of Labor Statistics (BLS) Growth Model. The 224 sector BLS model is mapped to the 528 sectors of the IMPLAN model. Where data are missing, deflators from BEA's Survey of Current Businesses are used.

Finally, the Regional Purchase Coefficients (RPCs) – essential to the IMPLAN model – must be derived. IMPLAN is derived from a national model, which represents the "average" condition for a particular industry. Since national production functions do not necessarily represent particular regional differences, adjustments need to be made. Regional trade flows are estimated based on the Multi-Regional Input-Output Accounts, a cross-sectional database with consistent cross interstate trade flows. These data are updated and bridged to the 528 sector IMPLAN model.

Once the databases and matrices are created, they go through an extensive validation process. IMPLAN builds separate state and county models, and evaluates them, checking to ensure that no ratios are outside of recognized bounds. The final datasets and matrices are not released until extensive testing takes place.

APPENDIX
Impact By PA DEP Region

North Central - Recycling Industry

		Jobs	Wages	Output
DIRECT	Core Activities	1,206	$106,086,225	$395,419,867
	Downstream Activities	3,544	$359,580,296	$2,723,965,720
	Reuse Activities	1,185	$68,519,945	$221,152,603
	TOTAL DIRECT	**5,935**	**$534,186,467**	**$3,340,538,190**
SUPPLIER	Agriculture	156	$16,258,193	$18,565,376
	Mining	77	$7,923,277	$57,461,057
	Construction	84	$6,582,685	$17,887,581
	Manufacturing	609	$59,141,108	$401,977,127
	Transportation and Communication	1,520	$134,903,194	$437,501,776
	Wholesaling	1,046	$102,278,007	$405,672,779
	Retailing	101	$4,658,933	$13,714,619
	Finance, Insurance and Real Estate	406	$33,697,804	$124,837,090
	Travel and Entertainment	172	$5,795,848	$17,400,693
	Business and Personal Services	1,428	$137,151,039	$272,636,187
	Government	142	$15,593,015	$30,595,822
	Other	0	$0	$0
	TOTAL SUPPLIER	**5,741**	**$523,983,104**	**$1,798,250,106**
INDUCED	Agriculture	40	$1,691,517	$5,179,819
	Mining	3	$461,445	$3,331,130
	Construction	26	$1,948,651	$4,730,241
	Manufacturing	55	$4,334,697	$29,714,540
	Transportation and Communication	258	$23,944,231	$81,975,036
	Wholesaling	109	$10,517,991	$45,501,125
	Retailing	819	$35,132,651	$94,122,588
	Finance, Insurance and Real Estate	310	$21,391,946	$144,424,191
	Travel and Entertainment	717	$22,987,237	$72,807,188
	Business and Personal Services	2,371	$174,963,904	$306,998,394
	Government	68	$7,608,405	$17,675,186
	Other	171	$9,125,940	$9,427,511
	TOTAL INDUCED	**4,948**	**$314,108,615**	**$815,886,950**
TOTAL ECONOMIC IMPACT		**16,624**	**$1,372,278,185**	**$5,954,675,246**

North East - Recycling Industry

		Jobs	Wages	Output
DIRECT	Core Activities	1,850	$162,722,088	$606,255,185
	Downstream Activities	7,975	$783,469,782	$5,086,215,612
	Reuse Activities	2,397	$143,759,847	$398,340,042
	TOTAL DIRECT	**12,222**	**$1,089,951,716**	**$6,090,810,839**
SUPPLIER	Agriculture	60	$5,785,912	$6,523,240
	Mining	244	$23,913,988	$176,493,415
	Construction	226	$17,779,597	$48,268,263
	Manufacturing	1,391	$157,394,164	$1,098,017,063
	Transportation and Communication	4,948	$416,566,194	$1,439,814,464
	Wholesaling	2,584	$263,600,571	$966,077,909
	Retailing	190	$9,140,093	$26,164,491
	Finance, Insurance and Real Estate	1,271	$90,762,977	$439,123,783
	Travel and Entertainment	384	$12,832,027	$39,350,927
	Business and Personal Services	4,534	$385,645,879	$765,222,599
	Government	265	$29,114,890	$57,127,756
	Other	0	$0	$0
	TOTAL SUPPLIER	**16,096**	**$1,412,536,291**	**$5,062,183,911**
INDUCED	Agriculture	37	$1,441,946	$3,161,298
	Mining	6	$786,496	$5,616,075
	Construction	85	$6,325,043	$15,047,488
	Manufacturing	130	$11,056,598	$79,206,933
	Transportation and Communication	800	$72,167,234	$276,530,530
	Wholesaling	296	$30,703,345	$120,430,243
	Retailing	1,839	$78,874,566	$206,579,880
	Finance, Insurance and Real Estate	855	$58,353,377	$416,174,939
	Travel and Entertainment	1,732	$57,451,430	$184,444,505
	Business and Personal Services	5,294	$406,067,853	$758,900,976
	Government	127	$14,206,224	$33,002,667
	Other	372	$19,831,930	$20,487,285
	TOTAL INDUCED	**11,573**	**$757,266,041**	**$2,119,582,819**
TOTAL ECONOMIC IMPACT		**39,891**	**$3,259,754,048**	**$13,272,577,569**

North West - Recycling Industry

		Jobs	Wages	Output
DIRECT	Core Activities	1,035	$91,054,058	$339,512,410
	Downstream Activities	13,618	$1,485,096,776	$15,112,903,002
	Reuse Activities	2,011	$114,892,464	$319,463,728
	TOTAL DIRECT	**16,663**	**$1,691,043,298**	**$15,771,879,140**
SUPPLIER	Agriculture	126	$12,632,538	$14,411,288
	Mining	133	$15,225,417	$117,037,420
	Construction	195	$15,378,245	$41,829,411
	Manufacturing	2,310	$246,405,540	$2,211,009,491
	Transportation and Communication	2,364	$208,488,540	$603,273,981
	Wholesaling	1,434	$140,271,609	$538,844,895
	Retailing	124	$6,083,442	$17,315,966
	Finance, Insurance and Real Estate	809	$67,406,970	$240,952,225
	Travel and Entertainment	262	$8,756,005	$26,218,256
	Business and Personal Services	2,253	$192,628,026	$386,960,946
	Government	209	$23,001,672	$45,132,711
	Other	0	$0	$0
	TOTAL SUPPLIER	**10,219**	**$936,278,005**	**$4,242,986,591**
INDUCED	Agriculture	57	$2,291,952	$5,760,421
	Mining	9	$1,305,551	$9,710,748
	Construction	47	$3,593,230	$8,998,964
	Manufacturing	90	$8,273,906	$78,529,282
	Transportation and Communication	385	$34,877,766	$113,963,013
	Wholesaling	135	$13,274,022	$55,144,461
	Retailing	1,226	$53,489,903	$140,761,007
	Finance, Insurance and Real Estate	590	$43,835,567	$281,714,203
	Travel and Entertainment	1,109	$35,526,017	$111,909,396
	Business and Personal Services	3,484	$251,634,601	$456,539,317
	Government	101	$11,223,360	$26,073,138
	Other	309	$16,438,965	$16,982,198
	TOTAL INDUCED	**7,540**	**$475,764,840**	**$1,306,086,147**
TOTAL ECONOMIC IMPACT		**34,422**	**$3,103,086,142**	**$21,320,951,878**

South Central - Recycling Industry

		Output	Jobs	Wages
DIRECT	Core Activities	2,444	$215,013,614	$802,135,288
	Downstream Activities	18,444	$1,966,110,405	$15,599,906,695
	Reuse Activities	3,815	$212,072,341	$614,474,706
	TOTAL DIRECT	**24,703**	**$2,393,196,360**	**$17,016,516,689**
SUPPLIER	Agriculture	128	$10,800,897	$14,423,764
	Mining	398	$49,948,760	$231,798,500
	Construction	478	$37,619,668	$102,273,817
	Manufacturing	2,142	$205,213,933	$1,323,011,697
	Transportation and Communication	8,397	$698,372,542	$2,205,898,965
	Wholesaling	4,430	$437,631,127	$1,651,072,098
	Retailing	278	$13,561,898	$38,314,127
	Finance, Insurance and Real Estate	2,290	$178,038,130	$712,386,512
	Travel and Entertainment	616	$20,749,606	$62,099,126
	Business and Personal Services	6,493	$540,005,482	$1,092,554,490
	Government	401	$44,147,488	$86,623,954
	Other	0	$0	$0
	TOTAL SUPPLIER	**26,051**	**$2,236,089,531**	**$7,520,457,052**
INDUCED	Agriculture	164	$6,664,611	$20,602,926
	Mining	11	$1,575,936	$11,455,804
	Construction	133	$10,030,876	$24,668,215
	Manufacturing	271	$21,472,361	$133,070,933
	Transportation and Communication	1,196	$104,807,130	$376,999,564
	Wholesaling	502	$49,289,368	$193,152,640
	Retailing	2,960	$127,160,112	$329,601,186
	Finance, Insurance and Real Estate	1,782	$127,825,088	$883,455,189
	Travel and Entertainment	2,588	$83,658,630	$263,399,841
	Business and Personal Services	7,589	$565,225,098	$1,037,739,033
	Government	193	$21,541,180	$50,042,602
	Other	703	$37,433,475	$38,670,482
	TOTAL INDUCED	**18,093**	**$1,156,683,866**	**$3,362,858,415**
TOTAL ECONOMIC IMPACT		**68,847**	**$5,785,969,758**	**$27,899,832,155**

South East - Recycling Industry

		Jobs	Wages	Output
DIRECT	Core Activities	2,462	$216,552,987	$805,930,196
	Downstream Activities	11,464	$1,425,202,264	$12,886,611,306
	Reuse Activities	4,392	$267,994,284	$801,492,149
	TOTAL DIRECT	**18,318**	**$1,909,749,535**	**$14,494,033,651**
SUPPLIER	Agriculture	21	$922,351	$1,743,458
	Mining	59	$5,895,485	$34,182,920
	Construction	664	$52,279,193	$142,057,527
	Manufacturing	1,788	$185,084,029	$1,450,751,086
	Transportation and Communication	9,980	$783,714,163	$2,274,843,282
	Wholesaling	4,819	$515,134,074	$1,961,730,545
	Retailing	320	$15,725,180	$43,662,511
	Finance, Insurance and Real Estate	5,631	$402,013,508	$1,738,785,006
	Travel and Entertainment	1,229	$44,998,532	$121,018,344
	Business and Personal Services	14,458	$1,174,944,643	$2,385,168,944
	Government	452	$49,739,964	$97,597,227
	Other	0	$0	$0
	TOTAL SUPPLIER	**39,421**	**$3,230,451,123**	**$10,251,540,850**
INDUCED	Agriculture	85	$4,024,419	$8,823,667
	Mining	3	$435,259	$3,088,361
	Construction	208	$15,576,409	$37,781,925
	Manufacturing	246	$21,831,475	$160,623,277
	Transportation and Communication	2,099	$190,880,020	$620,676,306
	Wholesaling	562	$67,504,310	$283,512,247
	Retailing	4,252	$182,493,629	$475,390,083
	Finance, Insurance and Real Estate	5,372	$367,675,829	$2,421,572,642
	Travel and Entertainment	4,402	$152,565,262	$437,463,695
	Business and Personal Services	15,274	$1,179,366,423	$2,135,681,851
	Government	217	$24,269,954	$56,381,854
	Other	1,039	$55,328,757	$57,157,122
	TOTAL INDUCED	**33,759**	**$2,261,951,747**	**$6,698,153,029**
TOTAL ECONOMIC IMPACT		**91,498**	**$7,402,152,404**	**$31,443,727,530**

South West - Recycling Industry

		Output	Jobs	Wages
DIRECT	Core Activities	1,637	$144,024,616	$537,334,048
	Downstream Activities	20,183	$2,328,439,021	$18,917,849,586
	Reuse Activities	4,371	$248,348,310	$684,965,578
	TOTAL DIRECT	**26,191**	**$2,720,811,947**	**$20,140,149,213**
SUPPLIER	Agriculture	25	$1,961,507	$2,298,533
	Mining	290	$31,085,731	$241,954,659
	Construction	426	$33,464,336	$90,508,445
	Manufacturing	2,211	$239,107,035	$2,085,175,773
	Transportation and Communication	6,530	$533,907,408	$1,381,819,867
	Wholesaling	2,431	$247,415,810	$929,377,641
	Retailing	221	$10,876,897	$30,680,670
	Finance, Insurance and Real Estate	2,487	$180,670,630	$669,611,865
	Travel and Entertainment	609	$20,140,842	$64,787,984
	Business and Personal Services	8,295	$822,557,100	$1,591,066,100
	Government	341	$37,508,838	$73,597,934
	Other	0	$0	$0
	TOTAL SUPPLIER	**23,865**	**$2,158,696,133**	**$7,160,879,472**
INDUCED	Agriculture	37	$1,272,885	$2,452,743
	Mining	13	$1,884,791	$14,014,163
	Construction	272	$19,869,491	$45,358,915
	Manufacturing	115	$9,549,538	$63,785,713
	Transportation and Communication	1,131	$103,573,073	$310,011,393
	Wholesaling	277	$29,437,242	$116,273,546
	Retailing	2,421	$105,692,778	$275,463,707
	Finance, Insurance and Real Estate	1,945	$133,327,856	$861,793,189
	Travel and Entertainment	2,503	$80,975,452	$260,041,025
	Business and Personal Services	8,835	$702,735,550	$1,272,179,828
	Government	164	$18,301,939	$42,517,479
	Other	576	$30,674,974	$31,688,643
	TOTAL INDUCED	**18,290**	**$1,237,295,570**	**$3,295,580,343**
TOTAL ECONOMIC IMPACT		**68,346**	**$6,116,803,649**	**$30,596,609,028**