



Beyond 34

Task 1.2:

Economic

Impact

Assessment

ASU Rob and Melani Walton
Sustainability Solutions Service
Arizona State University

U.S. CHAMBER OF COMMERCE FOUNDATION

BEYOND 34



PROCESS OVERVIEW

The Economic Impact Assessment (EIA) estimates the *maximum* gross economic impact of circular economy activities in a geographic region. Economic Impact Assessments are most commonly performed at the county or state level. While this can be done for a municipality or even for a zip code, the base data at this level is less reliable. The main objective of the Economic Impact Assessment outlined in this template is to establish the economic viability of increasing diversion and other circular economy activities in the selected region, while also providing a baseline against which progress can be measured for stakeholders. Upon completion, the Economic Impact Assessment can serve as an engagement tool with key political and governmental stakeholders to garner their support for increasing diversion in the region. Figure 1 below shows potential inputs that may be required to complete an Economic Impact Assessment as well as anticipated inputs and outputs.

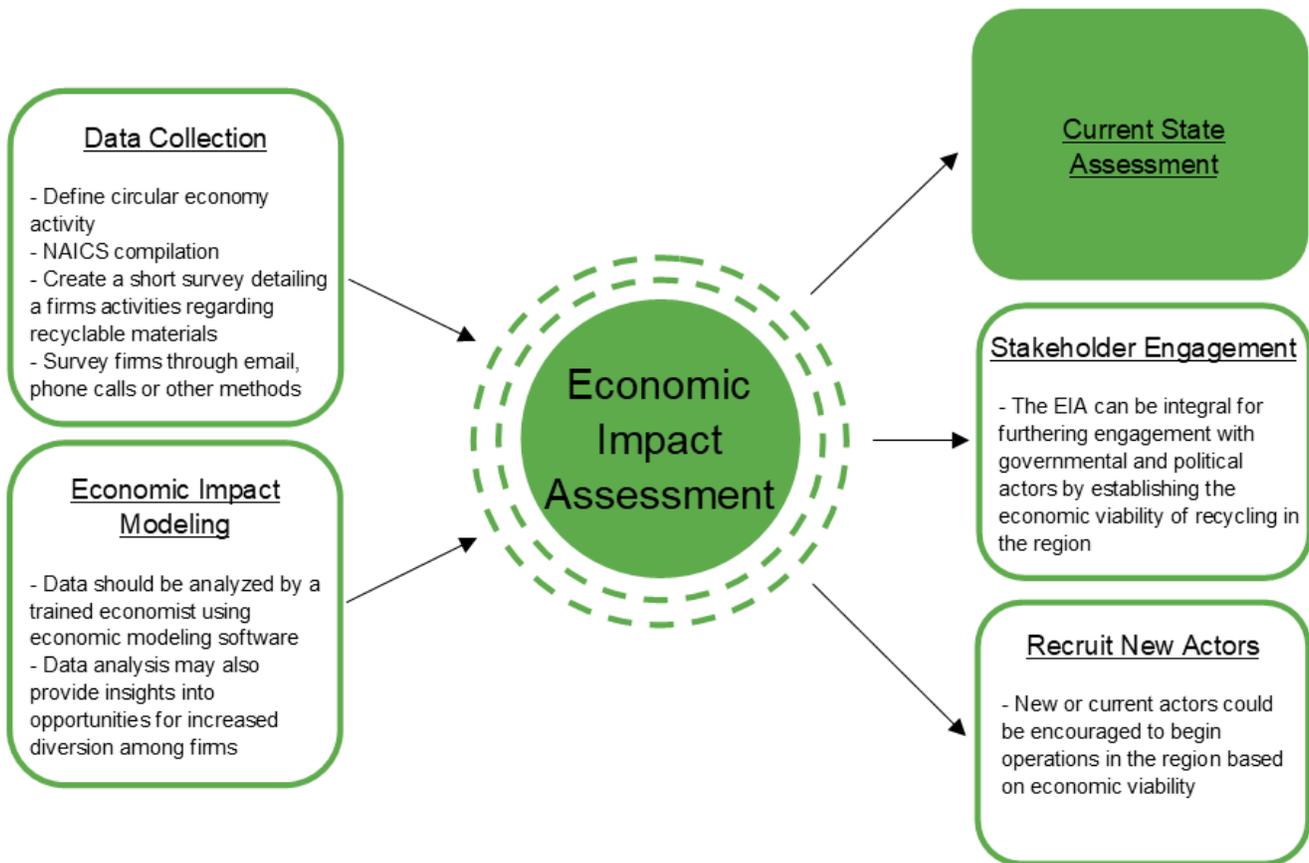


Figure 1: Economic Impact Assessment Inputs and Outputs



ECONOMIC IMPACT ASSESSMENT PROCESS FLOW

- ✓ Define the activities in the targeted region that will be considered circular economy activities
- ✓ Compile a list of NAICS codes representative of the organizations engaging in circular economy activities in the targeted region
- ✓ Collect relevant data from the organizations
- ✓ Calculate or estimate the percentage of circular economy activities as a part of each organizations' total activities.
- ✓ Using the outputs from the prior tasks, calculate the total annual economic impacts in the targeted region using economic impact modeling software

ECONOMIC IMPACT ASSESSMENT PROCESS

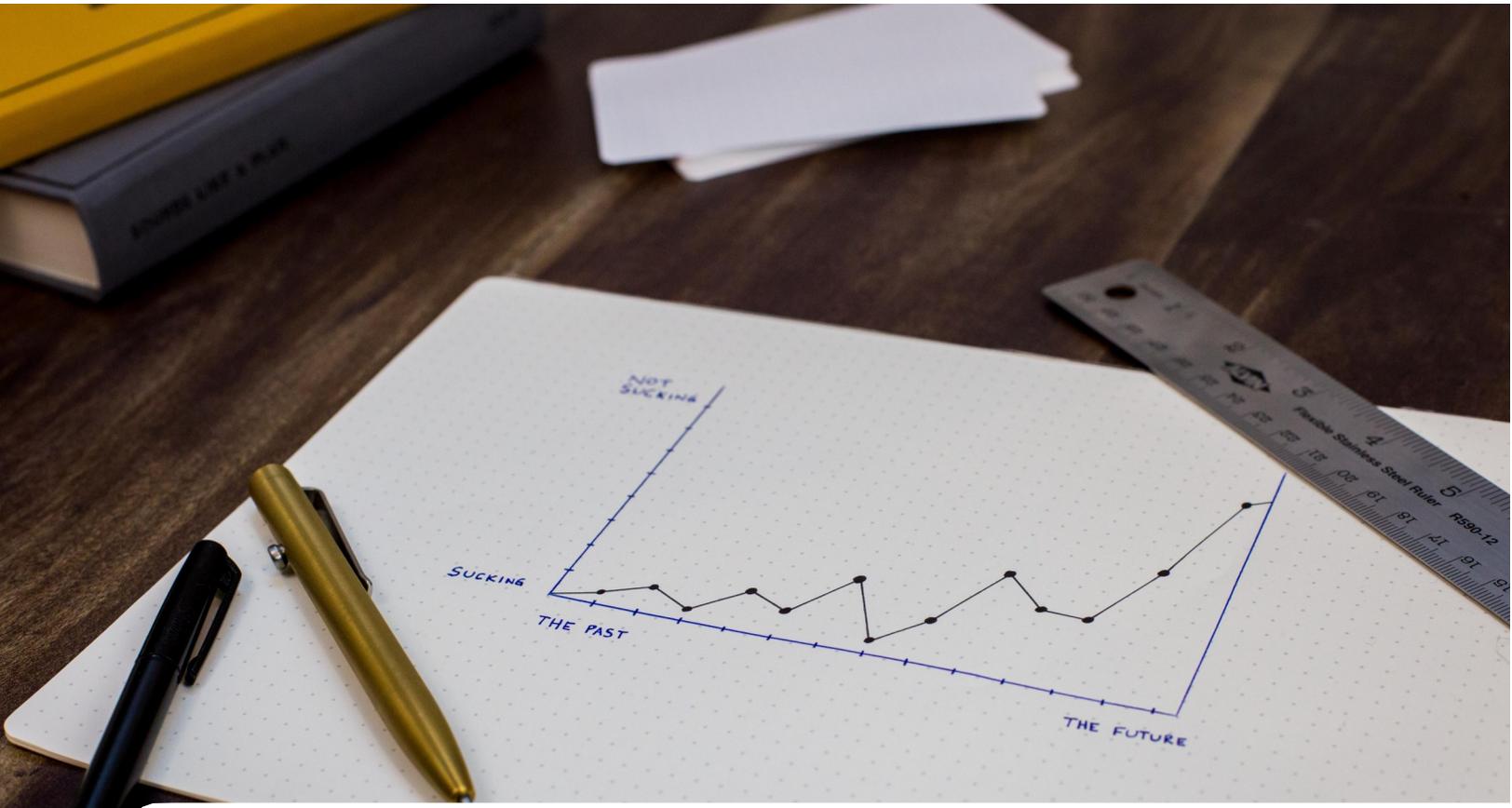
The first step in the Economic Impact Assessment is to define what is to be considered as circular economy activities in the targeted region. Recycle, reuse, and repair are common activities used to identify for circular economy organizations. Organizations that repurpose, remanufacture, and refurbish materials and products can also be included. Defining what activities contribute to a circular economy will allow for the identification of organizations to be analyzed in the region based on their North American Industry Classification System or NAICS codes. NAICS is a classification of business establishments by type of economic activity. It is used by government and business in Canada, Mexico, and the United States.

Once the activities and organizations to be included have been defined, compile a list of NAICS codes representative of the chosen organizations. All chosen NAICS codes should be evidence-based, using prior U.S. studies regarding circular economies and/or information relevant to the targeted region. See Appendix C for a list of prior studies currently available online.

Following this, collect the total number of organizations by NAICS code, their employment, and total average annual pay within the targeted region. This data can be sourced from the [U.S. Bureau of Labor Statistics - Databases, Tables & Calculators by Subject](#). Refer to Appendix A for the detailed, step-by-step process of how to properly collect the data from the U.S. Bureau of Labor Statistics (BLS). While this template will aid individuals in identifying organizations to analyze, estimates of each organization's circular economy practices that directly or indirectly contribute to a circular economy will need to be completed. This data can be collected by phone or email through a survey, like that found in Appendix B.

The use of economic impact modeling software is necessary to complete this assessment. Commercially available, these models combine a set of extensive databases, economic factors, multipliers, and demographic statistics to gain insight into the economic impact of an industry in a region.

For example, [IMPLAN](#) is widely used economic impact analysis software that can provide detailed estimates of secondary



expenditures and income generated as a result of business investment or operation for a finite period of time (typically one full calendar or fiscal year). It is recommended that an economist or someone trained to use and interpret economic models complete this task.

The final Economic Impact Assessment is a critical piece in the Beyond 34 initiative, as it will be used to communicate the benefits of increasing diversion and transitioning to a more circular economy to local government officials and other decision-makers who influence policy-making in the region. Other stakeholders, such as funders and local and regional economic development organizations, could also benefit from a better understanding of the current impact and economic opportunity. Finally, the results of the Economic Impact Assessment provide a baseline against which future growth in this sector can be measured.

APPENDIX A

DATA COLLECTION

- Collate the **total number of organizations by NAICS code**, their **employment** and **total average annual pay** within the selected geography.

This data can be sourced without any identifiers for specific organizations from the [U.S. Bureau of Labor Statistics - Databases, Tables & Calculators by Subject](#).

DISCLAIMER: This website and database is regularly updated, and the images shown below may have changed.

- Scroll down to the “**Employment**” section on the above link. Click on **Multi-screen Data Search** under “**State and County Employment and Wages**”.

Database Name	Special Notice	Top Picks	Data Finder	One Screen	Multi-Screen	Tables	Text Files
Monthly							
Employment, Hours, and Earnings - National (Current Employment Statistics - CES)	! SPECIAL NOTICE	★ TOP PICKS	🔍 DATA FINDER	🔍 ONE-SCREEN DATA SEARCH	📄 MULTI-SCREEN DATA SEARCH	📄 TABLES	📄 TEXT FILES
Employment, Hours, and Earnings - State and Metro Area (Current Employment Statistics - CES)	! SPECIAL NOTICE	★ TOP PICKS	🔍 DATA FINDER	🔍 ONE-SCREEN DATA SEARCH	📄 MULTI-SCREEN DATA SEARCH	📄 TABLES	📄 TEXT FILES
Labor Force Statistics (Current Population Survey - CPS)		★ TOP PICKS	🔍 DATA FINDER	🔍 ONE-SCREEN DATA SEARCH		📄 TABLES	📄 TEXT FILES
Job Openings and Labor Turnover Survey (JOLTS)	! SPECIAL NOTICE	★ TOP PICKS		🔍 ONE-SCREEN DATA SEARCH	📄 MULTI-SCREEN DATA SEARCH		📄 TEXT FILES
Quarterly							
State and County Employment and Wages (Quarterly Census of Employment & Wages - QCEW)	! SPECIAL NOTICE	★ TOP PICKS		🔍 ONE-SCREEN DATA SEARCH	📄 MULTI-SCREEN DATA SEARCH	📄 TABLES	📄 TEXT FILES
Business Employment Dynamics (BDM)		★ TOP PICKS	🔍 DATA FINDER	🔍 ONE-SCREEN DATA SEARCH	📄 MULTI-SCREEN DATA SEARCH		📄 TEXT FILES

- Under the sub-heading “**Create Customized Tables**”, a series of “forms” will be shown. Multiple line items can be selected on each form by using the “control” key. Each form will enable the selection of appropriate options for **Industry**, **Area**, **Owner** (select all government and private options), **Type** (choose “All Employees” and “Average Annual Pay”), and **Size** (choose “All establishment sizes”). Click the “**Next form**” button after selecting items on each form.

U.S. BUREAU OF LABOR STATISTICS

HOME ▾ SUBJECTS ▾ DATA TOOLS ▾ PUBLICATIONS ▾ ECONOMIC RELEASES ▾ STUDENTS ▾ BETA ▾

Create Customized Tables

Quarterly Census of Employment and Wages -- Industry (Screen 1 of 6)
 You have a total of **24337620** series to query for.
 Choose **Industry**:

21231 NAICS 21231 Stone mining and quarrying
 212311 NAICS 212311 Dimension stone mining and quarrying
 212312 NAICS 212312 Crushed and broken limestone mining
212313 NAICS 212313 Crushed and broken granite mining
 212319 NAICS 212319 Other crushed and broken stone mining
 21232 NAICS 21232 Sand, gravel, clay, and refractory mining

Next form **Reset form**

Search **Industry**:

Text **Search** (Text search is a close/approximate match.)

Code **Search** (Code search is an exact match. You can use wildcards * and ?.)

[Assistance with formulating a search.](#)

- C. The following screen will display one or more data files listed in a box bottom left. Click on the **“Retrieve data”** button to access the data.

U.S. BUREAU OF LABOR STATISTICS

HOME ▾ SUBJECTS ▾ DATA TOOLS ▾ PUBLICATIONS ▾ ECONOMIC RELEASES ▾ STUDENTS ▾ BETA ▾

Create Customized Tables

Quarterly Census of Employment and Wages -- Year (Screen 6 of 6)
 Your query has been narrowed to **1** series.
Tip for repeat users:

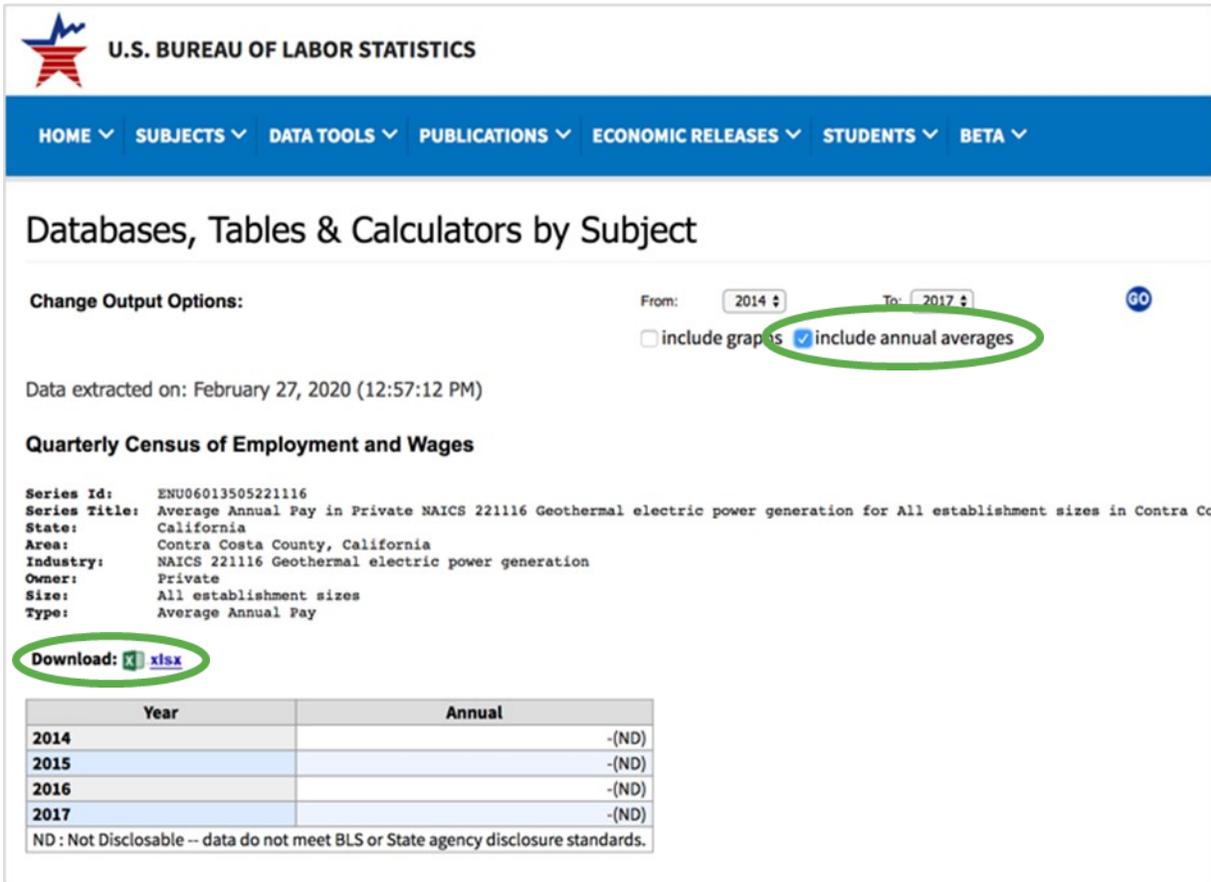
- You may wish to save the series ID(s) generated from this query for later use in Series Report.
- To save these series ID(s), cut and paste to a text file.

The following series ID(s) were generated from your query.
 To save these series ID(s), cut and paste to a text file.

(Edits are ignored.) change these series ID(s) you will need to restart Selective Access.)
 ENR06012505221116

Retrieve data

- D. On the following screen, check the “**include annual averages**” option and collate the annual data. Each relevant dataset can be downloaded as an Excel file by clicking the “**.xlsx**” hyperlink.



U.S. BUREAU OF LABOR STATISTICS

HOME ▾ SUBJECTS ▾ DATA TOOLS ▾ PUBLICATIONS ▾ ECONOMIC RELEASES ▾ STUDENTS ▾ BETA ▾

Databases, Tables & Calculators by Subject

Change Output Options: From: 2014 To: 2017 GO

include graphs include annual averages

Data extracted on: February 27, 2020 (12:57:12 PM)

Quarterly Census of Employment and Wages

Series Id: ENU06013505221116
 Series Title: Average Annual Pay in Private NAICS 221116 Geothermal electric power generation for All establishment sizes in Contra Co
 State: California
 Area: Contra Costa County, California
 Industry: NAICS 221116 Geothermal electric power generation
 Owner: Private
 Size: All establishment sizes
 Type: Average Annual Pay

Download: [xlsx](#)

Year	Annual
2014	-(ND)
2015	-(ND)
2016	-(ND)
2017	-(ND)

ND : Not Disclosable -- data do not meet BLS or State agency disclosure standards.

NOTE: the length of a NAICS code (2-digit, 3-digit, 4-digit, or 6-digit) displayed by BLS depends on the extent to which an organization or organizations could feasibly be identified. BLS will not report at a specific level of NAICS extraction if there are very few organizations classified with that NAICS operating within that area. Try a less granular level of extraction (e.g. 2-digit or 3-digit as opposed to 4-digit or 6-digit).

- E. Organizations that operate **reuse** and **repair** businesses or consume **recycled** materials cannot be assumed to be completely operating in these modes or solely consuming recycled materials. An **estimate of the percentage of recycled, reuse, repair activity** as part of each organization’s manufacturing processes must be made, using one of the two methods presented below.

Option 1: Source local or national estimates of the percentage of circular economy activities by NAICS code based on prior studies and current literature. Potential sources of relevance for this estimation include the American Chemistry Council, the Association of Postconsumer Plastic Recyclers, American Forest and Paper Association, ENVIRON International Corporation, the Institute of Scrap Recycling Industries, Moore Recycling Associates Inc., National Asphalt Paving Association, the U.S. Environmental Protection Agency, and the U.S. Tire Manufacturers Association (among others).

Option 2: Conduct a local survey of representative organizations. This approach will generate more accurate results, but is dependent on having an appropriate contact database and a high response rate. Local government agencies should be approached for an appropriate database of local contacts.

The survey should interview organizations regarding:

- a) Their use of recycled content as a percentage of overall manufacturing and/or production output, or the percentage of an organization's activities focused on reuse and/or repair work. Note that organizations may have multiple products and/or product lines that utilize recycled material or reuse/repair products.
 - b) The percentage of their customers located inside and outside the selected geography, since this will directly affect the economic impact within the region.
 - c) The total number of their full- and part-time employees.
- F. Apply the percent rates by NAICS code to the spreadsheets downloaded in **Step D**. The outcome of this step will result in **annual total employment** and **average annual pay** in the **reuse, repair, and recycling** industries within the select geography.
- G. Now that all the relevant NAICS code employment and pay data has been estimated, the technically demanding aspect of this Economic Impact Analysis must be completed. Enter the values into a commercially-licensed economic impact modeling software such as **IMPLAN** or **REMI** to estimate economic impact.

The outcome of this final step will quantify the **total annual direct and indirect/induced economic impacts on the Gross Domestic Product** in the selected geography.

This final stage should be implemented by an economist, or someone trained to use and interpret input-output economic models.



APPENDIX B

SURVEY INSTRUMENT

Q1. Does your organization make or manufacture something in *Geography X*?

Yes No

Q2. Does your organization currently use recycled material on a regular basis in *Geography X*?

Yes No

Q3. Please list up to 10 recycled or reused materials used in your manufacturing in the Type of Material column below. Then, state the percentage of recycled content used for each identified material in the adjacent column.

Type of Material	Percentage of Recycled Content Used within the Material

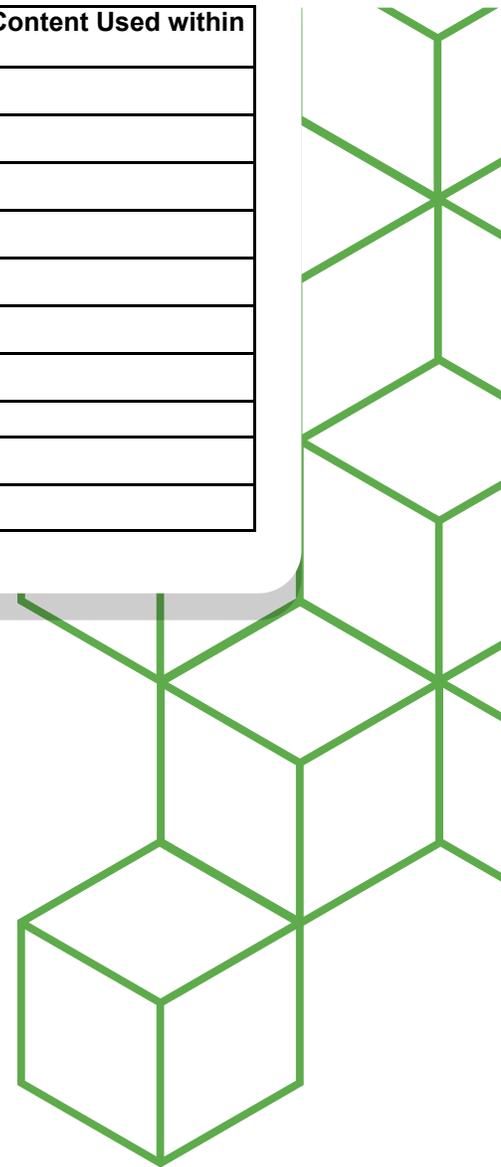
Q4. Where do you sell your products containing recycled materials?

Please select all that apply.

- To customers within *Geography X*
 To customers outside *Geography X* but within *State Y*
 To customers in countries outside *State Y* but within the *United States*
 To customers in countries outside the *United States*

Q5. How many people do you employ in *Geography X*?

- ___ Full-time employees
 ___ Part-time employees



APPENDIX C

PRIOR STUDIES

- ◇ [The Current and Potential Economic Impacts of Austin Recycling- and Reuse-Related Activity.](#)
- ◇ [NERC: Recycling Economic Information Study Update: Delaware, Maine, Massachusetts, New York and Pennsylvania \(2000\)](#)
- ◇ [NERC: Recycling Economic Information Study Update: Delaware, Maine, Massachusetts, New York, and Pennsylvania \(2009\)](#)
- ◇ [Economic Study of Recycling in Colorado](#)
- ◇ [Economic Impact of Circular Economy Opportunities in Phoenix Phase 1](#)
- ◇ [Economic Impact of Circular Economy Opportunities in Phoenix Phase 2](#)
- ◇ [Reuse, Repair & Recycle: Economic Impact Estimates in Hamilton County, 2018](#)