

**Counting Green Jobs:
Developing the Green Technologies and Practices (GTP) Survey**

Sharon Stang and Carrie K. Jones

U.S. Bureau of Labor Statistics

2 Massachusetts Ave., NE Room 2135, Washington, DC 20212

The Bureau of Labor Statistics (BLS) received funding beginning in Fiscal Year 2010 to develop and implement the collection of new data on green jobs. The goal of the BLS green jobs initiative is to develop information on (1) the number of and trend over time in green jobs, (2) the industrial, occupational, and geographic distribution of the jobs, and (3) the wages of the workers in these jobs. In order to meet this goal BLS first had to develop a measurable definition of green jobs.¹

BLS explored several previous efforts to measure or count green jobs. The first of these was EuroStat's "The Environmental Goods and Services Sector: A Data Collection Handbook," 2009 edition. This effort was a Eurostat work group collaboration that collected and analyzed the experiences and work on measuring the environmental goods and services sector of several European countries and Canada. Looking at the concepts and terminologies used in the Eurostat handbook was very beneficial in the development and refinement of the BLS definition. Some of the concepts put forth by Eurostat were not ultimately used by BLS; these include counting nuclear power and noise abatement as green products. The green survey efforts by Statistics Canada were also very informative, especially for the development of the BLS Green Goods and Services survey. BLS also examined several State green jobs surveys and reports; these include The Greening of Oregon's Workforce, Washington State Green Jobs Report, Minnesota's Gauging the "Green" Workforce Needs of Minnesota Businesses, and the California Green Economy Survey. Most of the state green surveys focused on counting jobs in businesses that produce green products or provide green services. Some also included questions about green practices and the use of green technologies however the primary focus was on green good and services. Using these previous efforts as a starting point, BLS included green goods and services, as well as green technologies and processes in its definition, before developing a definitive plan for measuring green jobs.

The BLS Definition and Survey Approach

Green jobs are either jobs in businesses that produce goods or provide services that benefit the environment or conserve natural resources, or jobs in which workers' duties involve making their establishment's production processes more environmentally friendly or use fewer natural resources.

Based on this definition, BLS is using two approaches and two new surveys to measure green jobs. The *output approach*, addressing the first part of the green jobs definition, identifies establishments that produce green goods or services and counts the associated jobs involved, often what is thought of, in general, as the green economy. The BLS Green Goods and Services (GGS) Survey will measure green jobs associated with the output portion of the BLS definition. The *process approach*, addressing the second part of the green jobs definition, identifies establishments that use environmentally friendly production processes and practices, regardless of the good or service produced by the establishment, and counts the associated jobs. The Green Technologies and

¹ See the BLS web page for the green jobs definition. (<http://www.bls.gov/green/>)

Practices (GTP) Survey, the focus of this paper, will measure green jobs associated with the process portion of the BLS definition.

The GTP Survey is designed to identify establishments that use green technologies or practices, identify employees who spend more than half of their time using green technologies or practices in their jobs, and collect occupation and wage information for those employees. The GTP Survey is relevant to any industry. The Green Goods and Services (GGS) and GTP surveys are expected to largely identify and count different green jobs; however, there may be some overlap in the collection of data from establishments that essentially do both – produce a green product or service, and do it in a green manner.

The GTP survey first asks employers about their application of green technologies and practices, and then asks about occupation and wage information for the employees who spend more than half of their time using green technologies or practices. As a practical data collection matter, the survey was designed to essentially screen out employers who do not use green production processes to reduce respondent burden and increase response rates. It was estimated early on that only a small portion of all US businesses have employees that spend more than half of their time using green technologies and practices. Various state green surveys conducted over the past few years using definitions that more closely resemble the BLS GGS definition of green employment resulted in an average green employment estimate of 1.6% of total private sector employment². The job duties of employees involved in making an establishment's production processes more environmentally friendly or use fewer natural resources include:

- Conducting research and developing processes to conserve energy or natural resources or to reduce pollution
- Planning, implementing, and monitoring of these processes
- Maintaining or installing equipment or infrastructure associated with the processes
- Measuring and/or controlling outputs of the process, and
- Training employees of the establishment in these processes

In order to collect information on green technologies and practices at establishments, the BLS further defined specific green technologies and practices that benefit the environment or reduce the consumption of natural resources. These include:

- Generating electricity, heat, or fuel from renewable sources primarily for use within the establishment
- Using technologies or practices to improve energy efficiency within the establishment
- Using technologies or practices in business operations to reduce greenhouse gas emissions through methods other than renewable energy generation and energy efficiency
- Using technologies or practices to either reduce the creation or release of pollutants or toxic compounds as a result of operations, or to remove pollutants or hazardous waste from the environment
- Using technologies or practices to reduce or eliminate the creation of waste materials as a result of operations

² <http://www.labormarketinfo.edd.ca.gov/contentpub/GreenDigest/Green-Job-Surveys.pdf>

- Using technologies or practices in operations to conserve natural resources. This does not include using recycled inputs in production processes. Recycled inputs benefit the environment at the point they are recycled and are included in the output survey as recycling is considered a green service, and the recycled output is a green product.

Developmental research for the GTP Survey was divided into three phases. In Phase I, cognitive and feasibility interviews were conducted to assess both BLS's and respondents' understanding and awareness of green terminology. In Phase II, research focused on form and document design and was divided into four consecutive panels that were conducted to field test the form and refine the questions and examples on the paper survey form, as well as additional documents including the solicitation letter, fax form, adobe fillable form, and web collection instructions. Each panel's data were reviewed and a response analysis survey (RAS) was conducted on a small sample of respondents and non-respondents. In Phase III, an interactive web form was developed to test the impact on response rates and data quality. A RAS of web respondents and non-respondents was also conducted in Phase 3.

Phase I - Cognitive Interviews

Research for the BLS GTP Survey began with a series of 17 cognitive interviews conducted with businesses suspected of having green processes. These businesses were selected based on news reports highlighting their green processes, or because web research uncovered green activities associated with the companies. The purpose of the interviews was two-fold: to determine whether businesses understood the terminology we were using when defining green technologies and practices, and to further our understanding of how green processes were implemented in businesses. Seventeen cognitive interviews were conducted both in-person and over the telephone and several themes emerged from these interviews.

- Green is a vague term. It is used frequently and often interchangeably with sustainability in general conversations regarding environmentalism and the green economy. Individuals that embrace a broader sustainability concept see shortcomings in just being green. Without having a comprehensive and common definition of the term accepted by all, its use and interpretation are left up to the consumer. Given the multiple interpretations of green, BLS looked to describe and define the green technology and practice activities.
- Green-washing is a term most often used by individuals who see being green as a single and somewhat limited component of a more comprehensive sustainability concept. Green-washing refers to the advertising and marketing of products and/or services as green that really aren't by a minimum definition. In some cases well-known companies commit green-washing by repackaging their existing products using vague or misleading terms to highlight the product's green attributes when in reality nothing about the product has changed and any positive impact on the environment is near negligible. This trend again made it imperative for BLS to accurately describe specific green practices.
- Businesses that believe they are green by their own definition want to report how green they are. In the absence of a reportable activity that meets one of the definitions laid out in the GTP survey, some businesses will force-fit an activity they believe is green into a category of activities where it does not belong. This was most evident in businesses that produce a green product or provide a green service. Differentiating between the products a business makes, and the processes

it uses to make those products is difficult for respondents and poses some difficulties in survey design.

- Being green is generally viewed as socially desirable and a marketable quality (green washing) for a segment of businesses that use green as a means of either advertising their business, or differentiating what it is they do by how they do it.
- Some respondents found it difficult to determine which category of green activity their processes should be included in, resulting in one respondent telling us “you’re asking the right people the wrong questions.” Again, there was some difficulty differentiating between green products and green processes. In response to this BLS decided to allow write-in options for describing green activities.
- Respondents overwhelmingly stated their preference for responding to a survey of this type was via a web-based instrument. This obviously had implications for survey design and has resulted in GTP becoming the first BLS survey to be simultaneously designed for both web and mail collection.

Phase I - Feasibility Interviews

The first phase of the GTP research, conducted for the BLS by a private survey research firm, involved 201 telephone feasibility interviews, again with a select sample of businesses suspected of having green processes. The purpose of the feasibility interviews was to assess the general data collection environment and to determine specifically (1) who were the best respondents within a company to contact for this type of data, (2) whether businesses that have green technologies and practices could answer the survey questions as posed, (3) whether and why a respondent would answer a survey about green jobs, (4) would a respondent that is knowledgeable about the business’s green activities also be able to answer questions about the occupations and wages of green employees, (5) would businesses supply the data requested on occupations and wages if it was available, and (6) what would be the preferred method of reporting these data? Overall, the feasibility research provided information used to design both web and paper survey instruments, and collection procedures.

- Implement a web-based collection component for the GTP survey. Seventy two percent of respondents indicated in the telephone interviews that they would be more likely to respond to a green survey of this type if they had the opportunity to report their data via the Internet.
- Provide clear examples of green technology and process categories when asking respondents to think about their own production processes, since many activities can apply to more than one category. An example might be a process that not only improves an establishment’s energy efficiency but also reduces greenhouse gas emissions. Where should the company classify that activity? There can also be instances where the implementation of an activity meets the standards of one category while violating another, e.g. composting reduces waste while also generating greenhouse gases.
- Identify the knowledgeable respondents within a company, and determine if the availability of occupation and wage data varies by the size of establishments. It’s more likely that there will be multiple respondents, one answering questions on green activities, and one providing occupation and wage information for green jobs when an establishment is larger. Handling multiple respondents for a single survey within the existing BLS web collection interface known as “the Gatekeeper” presents another set of challenges when designing a web collection instrument.

Phase II - Forms Design Testing

Phase II of the research was divided into four separate panels. This phase of the GTP research involved designing and testing a traditional paper survey collection instrument. One of the challenging design issues of the paper form was reducing the overall length from its original eight pages to six. The Panel 1 survey form included a 3-column, 8-row table displayed in landscape format over three pages to collect green technology and practice information. Ultimately, a 5-column 8-row table, displayed on two facing pages, was developed to obtain the same information.³ Although grids can efficiently display survey questions, and are appropriate in some contexts, they may also challenge some respondents, appear complex, and lead to increased item non-response. The original three-page table only provided Yes and No answers, while the redesigned table eventually included a does-not-apply option for each green activity. Directional arrows were also inserted into the table to reduce the item non-response on secondary questions. When it came to developing the on-line collection instrument in Phase 3 (Internet form), we discarded the table format in favor of an interactive approach that would assist the respondent in answering only the relevant questions.

The four Phase II test panels and the Phase III web panel were each fielded in a six-week collection period. After Panel 1 was completed and procedures reviewed, the start of the non-response prompting for the remaining panels was moved forward to week 3 from week 4.

Survey Procedures

Week 1	Survey forms mailed
Week 2	Re-mailing activities for postal returns and additional telephone number research
Week 3	<ul style="list-style-type: none"> • Non-response prompt postcards mailed • Respondent response analysis surveys (RAS) began • Non-response prompting (nrp) telephone calls began* (for panels 2-5)
Week 4	Non-response prompting (nrp) telephone calls continue
Week 5	Non-respondent response analysis surveys began
Week 6	Data collection efforts concluded

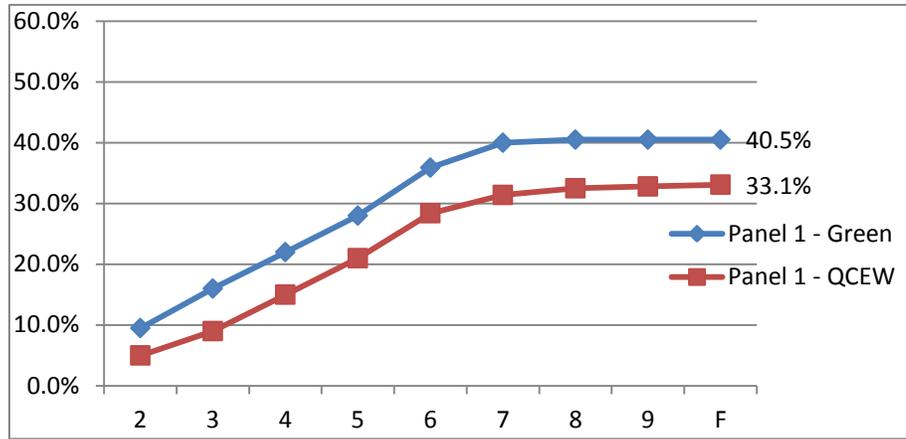
Phase II – Panel 1

The first panel of 715 establishments was mailed the initial 8-page survey form with a cover letter and a return envelope on January 3, 2011. These 715 establishments were stratified into two separate subsamples, one half was systematically selected within strata from the BLS universe of establishments compiled from the Quarterly Census of Employment and Wages (QCEW), and one half was selected from a database of self-reported green businesses obtained from a private sector source. Previous surveys of green economic activities indicated that the incidence of green activities and green employment might be very low. A small systematic sample from the universe had the potential to not contain any

³ <http://www.census.gov/srd/papers/pdf/sm96-10.pdf>

establishments with green activities and green employment. A green subsample was used to ensure that we received feedback from units that have green data to report. Both subsamples received identical treatment and were tracked separately.

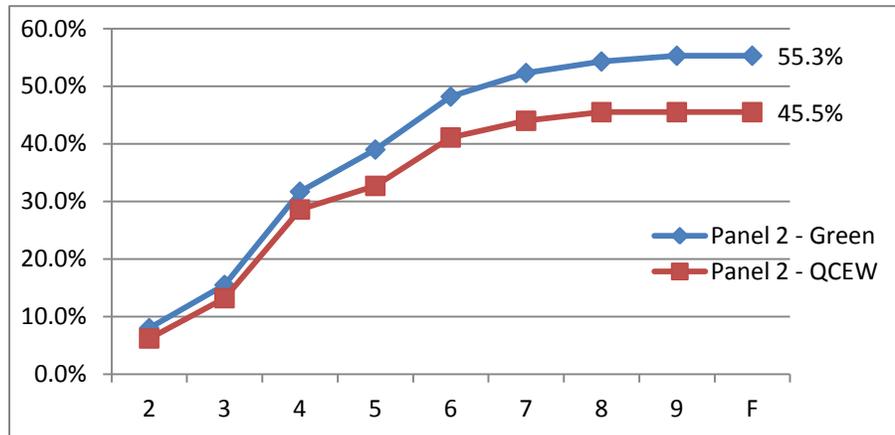
Weekly Response Rate for Panel 1 - Green Business and QCEW Sample



Phase II - Panel 2

The second panel, a smaller sample of 430 establishments, was mailed the initial survey form with a cover letter and a return envelope on February 14, 2011. These 430 establishments were again stratified into two separate subsamples similar to Panel 1. Both subsamples received identical treatment and were tracked separately.

Weekly Response Rate for Panel 2 - Green Business and QCEW Sample



Response Analysis Survey (RAS) telephone interviews were conducted on a small sample of respondents and non-respondents in Panels 1 and 2 to assess respondents’ reactions to and understanding of the survey questions, determine the non-respondent’s reasons for non-response, and assess the non-response bias that might be present within the sample. The respondent RAS interviews and non-respondent interviews were split between the targeted (green) and non-targeted (randomly selected) establishments.

Based on the RAS interviews and an analysis of the survey responses received in the mail for Panel 1, several changes were made to the survey form for the second

panel test. The most significant changes were to (1) reduce the number of pages from 8 to 6 by compressing the green technologies grid onto two pages instead of three, and reworking the instructions for reporting occupations and wages, (2) redesign the solicitation letter since almost no one remembered reading it, and (3) stamp the survey envelope on the front in red with: „U.S. Government - Official Business’.

The overall results of the RAS for panels 1 and 2 indicate that changes made to the survey form for the second panel helped to (1) reduce the perceived difficulty of the survey, (2) facilitate the reporting of occupation and wage data, and (3) clarify the concept of the reporting unit (establishment) for the survey, while the non-respondent interviews showed relevance issues for non-respondents.

Key RAS Results for Panels 1 and 2

	Reported Time to Complete			Easy to complete	Diff. Reporting Occupations	Diff. Reporting for Location
	Small	Medium	Overall			
Panel 1	9 min	16 min	12 min	80%	53%	8%
Panel 2	13 min	26 min	21 min	96%	13%	0%

Key Non-Respondent Interview Results for Panels 1 and 2

	Reasons for non-response			More likely to respond to an internet survey	How much time would you devote to green survey
	Too Long	Not relevant	Purpose Unclear		
Panel 1	35%	8%	0%	61%	8 ½ mins.
Panel 2	48%	12%	8%	36%	5 mins.

The results of the survey form changes made to Panel 2 are interesting to interpret. 80 percent of RAS respondents in Panel 1 felt that the 8-page form was easy to complete and said they spent on average a little over 12 minutes completing it. 96 percent of RAS respondents in Panel 2 felt that the 6-page form was easy to complete and said they spent on average about 21 minutes completing it. While the perceived burden went down, the actual time respondents reported taking to complete the survey increased. The survey is designed to minimize respondent burden by first determining whether green activities exist at the establishment. If they do, then respondents are asked if there are any employees at the establishments that spent more than half of their time engaged in the green activities, and if there are, only then they are asked to report the occupations and wages for those employees. Presumably, the increase in the amount of time spent answering the survey should be directly related to the existence of green activities and green employees at the establishment. An analysis of the RAS sample units shows a modest increase in the number of establishments reporting green employment (one unit), but a 27% increase in the number of green employees reported (75-59/59). While the sample sizes are small, this might indicate that the additional reported burden is more closely associated with reporting the occupations and wages of green employees than anything else.

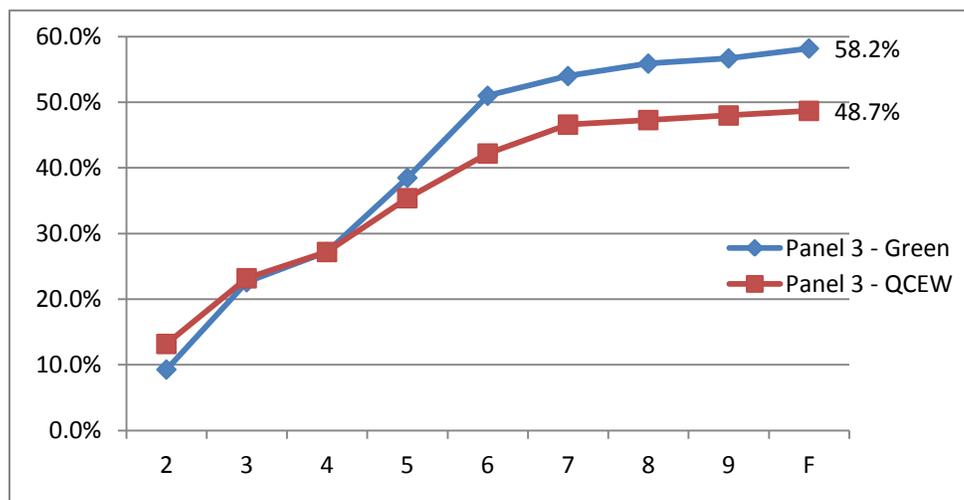
Reported Burden Average by type of data reported

Panel	RAS Response Burden	RAS Responses	RAS Responses with Green Employment	% RAS Responses with Green Employment
Panel 1	12	27	7 units 59 employees	26%
Panel 2	21	26	8 units 75 employees	30%

Phase II - Panel 3

Based on an analysis of the mail responses and RAS interviews for Panels 1 and 2, several additional changes were made to the survey form for the third panel test. The most significant changes were to (1) provide a „does not apply’ answer option for the green technologies questions in the grid, and (2) add directional arrows visually showing respondents what question to answer next. Changes were also implemented in the procedures for the survey including (1) processing the sample unit addresses against the USPS National Change of Address (NCOA) file and updating all changed addresses before the initial mailing, and (2) developing a shortened 3-page faxable form that can be faxed or e-mailed to respondents. The respondent’s RAS interview was also modified to allow for additional open-ended answers to many questions. Interviewers were asked to probe for additional information and provide respondents with the opportunity to articulate their attitudes towards the survey and provide a more in-depth interpretation of the questions and their purpose.

The third panel of 568 establishments was mailed the initial survey form with a cover letter and a return envelope on March 28, 2011. These 568 establishments were again stratified into two separate subsamples similar to Panels 1 and 2. Both subsamples received identical treatment and were tracked separately.

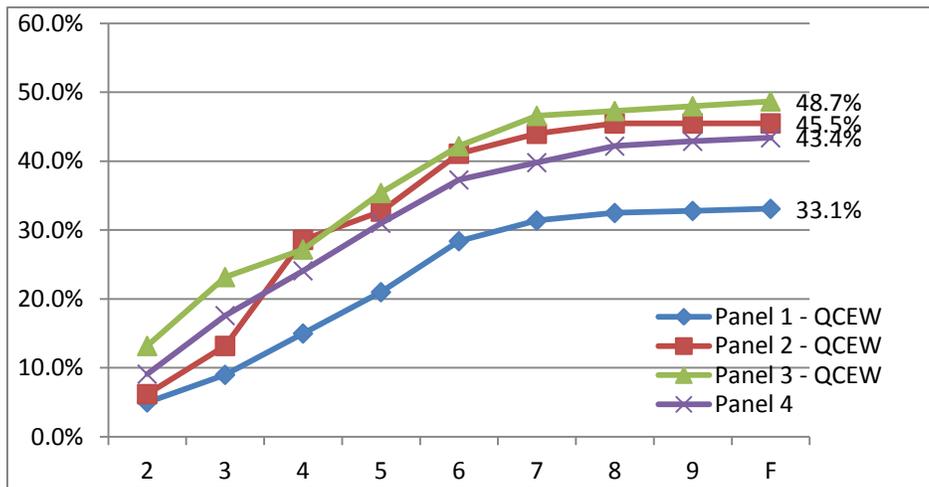
Weekly Response Rate for Panel 3 - Green Business and QCEW Sample

Phase II – Panel 4

Few changes were made to the survey form for the fourth and final test. Minor wording changes were implemented in a few of the questions, most specifically in the instructions following question 4 at the bottom of page 3 as the item non-response rate was still higher than expected for question 5 in the third panel.

The fourth panel of 677 establishments was mailed the initial survey form with a cover letter and a return envelope on May 9, 2011. Unlike the prior three panels, all 677 establishments were systematically selected from the BLS universe of establishments compiled from the QCEW. Response rates for Panel 4 were expected to more closely follow the response rates achieved for the QCEW portions of the prior three panels.

Weekly Response Rates for QCEW Samples in each Panel, 1-3 and Panel 4



Response Analysis Survey (RAS) telephone interviews were again conducted on a small sample of respondents (26) and non-respondents (25). The RAS units for Panels 3 and 4 were selected based on whether the respondent appeared to have difficulty filling out the form, or provided inconsistent answers with respect to the instructions. The overall results of the RAS indicate that it takes longer to fill out a form when respondents have difficulty completing or interpreting questions. In some cases difficulty completing the questions may result from a lack of access to the information being requested, which can require more than one respondent to complete the survey and, consequently, result in longer reported completion times.

Key RAS Results for Panels 3 and 4

	Reported Time to Complete			Easy to complete	One respondent filled out form
	Small	Medium	Overall		
Panel 3	17 min	29 min	27 min	77%	84%
Panel 4	20 min	34 min	24 min	81%	<i>Did not ask</i>

Key Non-Respondent Interview Results for Panels 3 and 4

	Top reasons for non-response				More likely to respond to an internet survey
	Too Long	Not relevant	Company Policy	Anti-Gov't.	
Panel 3	40%	20%	20%	*	36%
Panel 4	32%	8%	68%	12%	24%

Phase III - Web Collection Testing – Panel 5

The third and final phase of the GTP research involved designing and testing a web-based collection instrument. Phases I and II of the research clearly indicated the need for an internet reporting instrument, at least partially driven by the nature of the survey itself. The nature of a green survey encourages the design of green methods of data collection – printing on recycled paper, and allowing for electronic forms of data reporting. All 677 establishments in Panel 5 were systematically selected from the BLS universe of establishments. Two procedures were tested for directing respondents to the web-based collection instrument:

- 338 units were mailed the web collection instructions in the solicitation package with the solicitation letter, survey form, and return envelope on June 21, 2011.
- 339 units were provided with the website address to access the instructions for web reporting online on June 21, 2011.

The purpose of this split-panel test was to determine whether including the additional web-reporting instructions would intimidate respondents and add to their perceived difficulty of reporting, thereby reducing the initial mail response rates. Does web reporting appeal to non-respondents and increase response rates, or does it provide just another avenue for respondents to report data that would otherwise have been reported through existing methods? Also, do respondents respond faster via web or does the lack of attention from survey administrators lead to procrastination and/or non-response?

From the split-panel's results it appears that the inclusion of internet instructions did not intimidate respondents. It also appears that providing web collection did not improve response rates but might have simply provided respondents with yet another way to report their data. Internet data collection has distinct advantages over other modes of collection as it reduces survey processing costs and is more timely but the lower overall response is disappointing.

Final Response Rates for Panel 5, by letter type and collection mode

Panel	Letter Type	Resp. Rate	Mail	Internet	Fax	Adobe	OOB/OOS	Total
5	V1	34.8%	100	11	2	4	3	339
	V2	35.7%	99	13	6	1	5	338

Response Analysis Survey (RAS) telephone interviews were conducted on a small sample of respondents (26) and non-respondents (25). RAS respondent units for Panel 5 were evenly split between the version 1 and version 2 survey letters. They were also selected based on whether respondents reported using the web instrument (18), an e-mail fillable form (1) or a paper mail form (7).

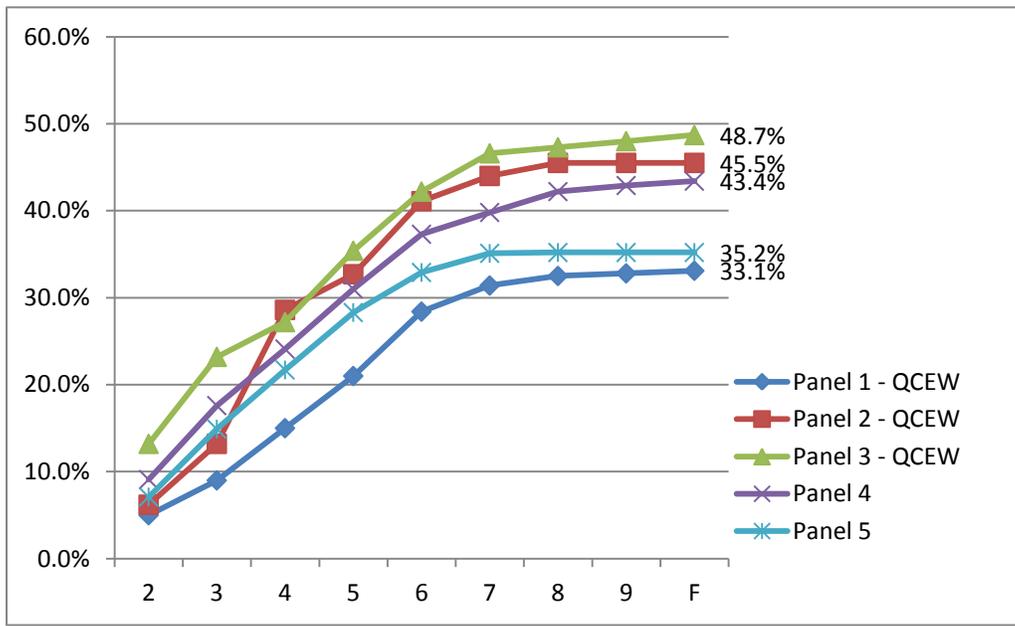
Key RAS Results for Panel 5

	Reported Time to Complete			Completed in one sitting	Online system felt secure
	< 30 Mins.	More than 30 mins.	Cannot Remember		
Panel 5	56%	39%	5%	89%	100%

Key Non-Respondent Interview Results for Panel 5

	Top reasons for non-response			
	Too Long	Not relevant	Company Policy	Only if Mandatory
Panel 5	24%	36%	36%	44%

Weekly Response Rates for QCEW Samples in each Panel, 1-5



Development of the Web Form for GTP

Most of the web-based collection instrument does not resemble the data collection form for the GTP Survey for several reasons. There are some basic design constraints (look and feel) that are imposed by the BLS Internet Data Collection Facility (IDCF). Certain aspects surrounding security constraints and the graphical user interface (GUI) - colors and headers, menus and buttons, etc. are standard across all electronically-collected surveys at BLS. Where we did have a choice to make was whether we intentionally wanted to mirror the paper collection instrument, as much of the research suggests is the optimum way to implement electronic collection, or whether we wanted to design this survey for the web. We chose to design for the web and not constrain ourselves with the look and feel of the paper survey.

Designing for the web and its capabilities allowed us to impose a structured skip pattern in the questions. The green activities questions on the paper form use arrows to show the respondent where to go if they answer a question in a certain way. Web collection allows the system to display only the questions that are relevant based on the

answers already supplied and should reduce both item error rates and item non-response in several of the dependent questions.

For recognition purposes, the paper survey form lists examples of green technologies and practices for each of the six types of green activities that are asked about. The form does not provide a definition of terms or examples but respondents are directed to the respondent's website in the mail-out materials that does have a glossary of terms they can access if they have questions or are uncertain about a specific technology or activity.

Item	Type of green technology or practice	Examples	Did your location ...?	Did any of your employees ...?
Energy from Renewable Sources and Energy Efficiency				
1	Generate electricity, heat, or fuel from renewable sources primarily for use within your establishment?	<ul style="list-style-type: none"> • Wind • Geothermal • Ocean • Landfill gas • Biomass • Solar • Hydropower • Municipal solid waste 	<input type="checkbox"/> Yes, If Yes <input type="checkbox"/> No <input type="checkbox"/> Does not apply	<input type="checkbox"/> Yes <input type="checkbox"/> No
2	Use technologies or practices to improve energy efficiency within your establishment?	<ul style="list-style-type: none"> • Energy Star rated appliances • Occupying a LEED certified building • Energy efficient lighting • Programmable thermostats • Cogeneration (combined heat and power) • Energy efficient manufacturing equipment 	<input type="checkbox"/> Yes, If Yes <input type="checkbox"/> No <input type="checkbox"/> Does not apply	<input type="checkbox"/> Yes <input type="checkbox"/> No

The web collection instrument was designed to display the definition of a specific term when the user hovers over the term with the mouse cursor automatically revealing a detailed explanation of the example. The examples listed for each activity are the same as those printed on the paper form.

Green Technologies and Practices Survey

Did your establishment use technologies or practices to reduce or eliminate the creation of waste materials in your operations during the pay period including March 12, 2011?

Practices include:

- Collecting and reusing or recycling waste
- Managing wastewater
- Composting solid waste
- Remanufacturing

Yes
 No
 Does Not Apply

Did any of your employees...? Yes No

Please include employees...? Yes No

Remanufacturing is the process of disassembly and recovery at the module level and, eventually, at the component level. It requires the repair or replacement of worn-out or obsolete components and modules, parts subject to degradation affecting the performance or the expected life of the whole are replaced. Remanufacturing differs from other recovery processes in its completeness. A remanufactured machine should match the same customer expectation as new machines.

pay period including March 12, 2011: researching, developing, maintaining or using technologies or practices to reduce or eliminate the creation of waste materials produced during operations?

not include employees, consultants, or employees of other business establishments.

Save & Continue

Some of the advantages of internet data collection for the GTP Survey are the same as the advantages for any other business establishment survey, and some are different. For all surveys (1) internet collection can speed up data collection efforts since we're not relying on Business Reply Mail (BRM) and all that it entails to receive completed surveys, (2) data entry is a task completed by the respondent rather than the collection staff and can lead to lower survey processing costs, and (3) electronic collection allows for some measure of editing during collection which prevents errors, allows respondents to review their data before submitting it, and provides them with a copy of their responses for their records, (4) design features like programming in skip patterns based on user responses are more efficient and responsive, and (5) activity examples and assistance features are more extensive and readily available to the respondent.

Conclusion

BLS will launch the full-scale GTP survey in August 2011. The sample includes approximately 35,000 establishments selected from all industries and located in all 50 States plus the District of Columbia. Both a random selection of establishments and a small supplement of expected green businesses are included in the sample. Mail, e-mail

(Adobe fillable form), and internet will be offered as initial modes of reporting in the first mail out. While the response rate for Panel 5 (35.2%) was significantly lower than that of panel 4 (43.4%), and for the randomly selected portions of Panels 2 and 3, BLS feels that the data request's timing had more of an impact on the response rate than the mode of collection.

Summertime data collection made it difficult to actually speak with respondents at the establishments during non-response prompting. Many respondents were on vacation and interviewers were unable to speak directly with them to explain the relevance of the survey and to emphasize the importance of obtaining a response from all establishments. Follow-up contact⁴ is a critical component of data collection in achieving a high response rate, and this effort did not yield the results it did in prior panels. It's also worth mentioning that Panel 5 was fielded amidst the contentious political debate concerning raising the U.S. debt ceiling in the summer of 2011. A general dissatisfaction with government may have affected the survey's response rate.⁵ However, another possible explanation for the lower response is that offering an Internet option with a mail-return option may actually depress overall response (Griffin et al., 2001).⁶ Materials for the Green Technologies and Practices Survey can be accessed from the BLS GTP Respondents website⁷. Data collection for the survey should conclude in early 2012, with GTP data available later in the summer.

⁴ Dillman, D.A. (2000). *Mail and Internet Surveys: The Tailored Design Method*. New York : John Wiley & Sons.

⁵ <http://people-press.org/2011/08/01/public-sees-budget-negotiations-as-%E2%80%9Cridiculous%E2%80%9D-%E2%80%9Cdisgusting%E2%80%9D-%E2%80%9Cstupid/>

⁶

http://scholar.google.com/scholar?q=Deborah+griffin+survey+response&hl=en&as_sdt=0&as_vis=1&oi=scholar

⁷ www.bls.gov/respondents/gtp