

Survey Quality Assessments at EIA

The EIA Strategic Plan identifies several levels of measures, which together, define the quality of EIA products and services. At the top level, measures address mission outcomes, and are directly measured by the users and customers of EIA information products. At the second level, measures address EIA outputs, which are measured by product attributes, such as relevance, reliability, and consistency with industry structures, timeliness, and quality. At the third level, measures address process quality, particularly accuracy of the basic data.

This topic was discussed at several recent meetings of the ASA Committee on Energy Statistics. The Committee agreed that a survey quality initiative would be useful to EIA program and survey managers, and their recommendations included:

- Developing an assessment tool by and for survey managers to establish targets;
- Recognizing differences among surveys due to context, frequency, scope, budget, and purpose;
- Developing feedback mechanism for diagnosing and treating problems with survey systems;
- Providing survey documentation which is available and up-to-date; and
- Emphasizing the importance of conducting independent survey assessments.
- Need a procedure for sharing lessons learned.
- Need to be sure that we are asking the right questions.

We formed a team in 2003 with representatives from the survey offices, and received guidance from a consulting firm with experience in this area. We developed a description of our goals and a one-page form for collecting data.

Assessing survey process quality requires a good survey quality assessment instrument, and a procedure for using the instrument. A good instrument will have the following elements:

1. It will *measure the right things*.
2. It will *ask the right questions*.
3. It will help guide survey personnel to determine if changes are needed and if so, where they are needed.

The right questions will lead to the right quality measures. The following is a proposal for questions and measures that may be appropriate for assessing the quality of an EIA survey process. For this procedure, one should consider what measures are currently available, how these were selected, and how they are being used. You might also consider what new measures you would find useful if resources were available to provide the measures.

Implementation Plan and Schedule

We are asking survey staff to review the following questions in preparation for a discussion on these topics with SMG staff, to be conducted by the end of September. SMG will write-up a summary of the discussion, share the write-up with survey staff, and agreed-upon portions will be posted to taz.

We are asking survey staff to complete the quality measures matrix on the last page, which may be completed before or after the discussion with SMG staff. The matrix requires some recent data and the selecting of a target for improvement for each survey. SMG will post the matrix on taz.

Survey Quality Assessment Instrument

1. Frames and respondent lists. How current, representative and accurate is your frame? (coverage error).

To what extent does the frame cover the target population of the survey? What is missing from the frame and can you quantify the impact of the missing part? (For example, if you only survey companies above some size threshold.)

Quality measures

- a) Coverage rates (where measurable)
- b) Frame/respondent list volatility (births and deaths, changes of ownership, both as counts and weighted—because impact of such changes in big companies is potentially greater.) What is the impact of those changes on data quality. Can you quantify what is/would be lost with less frequent frame updates?
- c) Describe your steps taken to review and update frame/respondent lists.
- d) Do you have a coordinated frame list for all surveys in your division? Is it regularly updated with information from surveys based on that list?

2. For sample surveys only. Sampling Error. What is the magnitude of the sampling errors?

Quality measures

- a) What was the target CV or sampling error used in survey design?
- b) What is the achieved CV, sampling error, or relative standard error for key survey variables?
- c) How do you use the measures of CV, sampling error or relative standard error as part of your quality control activities?

3. Nonresponse error. What is our response rate and imputation rate?

Quality measures

- a) Survey response rate (counts)
- b) Survey response rate for key variables (volumetric)
- c) Percent imputed for key variables

4. Measurement error. Can respondents provide the data you ask for?

- a) Has EIA conducted usability testing of the survey with respondents? Describe the procedure and give number of individuals tested and dates. Do you have measures on reporting error and its effect?
- b) What approaches do you use to ensure data requested on the survey form can and is being provided correctly by the respondents?
- c) Are there questions on the survey that respondents seem to have particular difficulties in filling out (resulting in many failed edits, or call backs?) What plans do you have to fix these problems?
- d) When did you last consult with respondents concerning their ability to provide the information requested?
- e) Are we asking the right questions, for now and the next few years?

5. Processing error. Is our editing procedure maintaining a good cost-benefit balance? Do our respondent contact records (RCR's) show that our callbacks are useful?

Quality measures –

- a) False positives (the number of time data fail edits, but turn out to be correct.)
- b) Percentage of forms failing at least one edit.
- c) Percentage of forms requiring a follow-up phone call or email in response to failed edits.
- d) What is the net impact of editing on one or more data items? Can we estimate what the impact would be with more or less time spent editing?
- e) In general, how much work is done manually for this survey? Could it be automated?

6. Comparability. Do the survey results agree with other surveys that try to measure the same or similar things?

- a) Describe comparisons to external data, and what was learned about data quality.

7. Feedback. What have we learned from our customers and users?

- a) What themes are in the feedback?

- b) Have specific complaints been raised? What response should EIA take?
8. Use of data collected from other sources, either compiled and provided by a third party such as States or purchased from private vendors. Answer these questions if you use data from external sources.
- a) Describe any quality control activities you use to make sure the data are of sufficiently high quality.
 - b) Describe any manipulations of the data used in the preparation of the official “EIA” estimate.
 - c) Are these descriptions available to users of the data?
9. Do we measure the trade-off between timely data and revisions?

Quality measures

- a) Difference between planned date of publication and actual date, for both first release of data and the final data.
- b) Revision between first release of data and final data.
- c) Please explain any large delays or revisions?

10. Do we have good measures for how our resources are used?

Quality measures

- a) If more resources were available, what area would you improve and what impact would this have?
- b) If no additional resources were available, what re-allocation of current resources within the survey area would have a positive impact on the data that you can quantify?
- c) Can you measure individual productivity on a weekly or daily basis?
- d) Can you estimate costs by survey?

11. Are documentation and metadata accessible to users of the data?

- a) What information is available from this survey on EIA’s website?
 - i. Purpose of survey.
 - ii. Sources of information.
 - iii. How to interpret numerical values.
 - iv. Data quality measures.

12. Are some of the data items collected considered confidential? If so describe the steps taken to protect the data.

- a) Describe steps taken to make sure unauthorized individuals do not have access to individually identifiable data.

- b) Describe steps taken to protect confidential data in tables or public use microdata products.

13. Do we have good procedures for sharing information?

- a) How many new staff (federal or contractor) did you have in the past year?
How much training did they receive?
- b) Do you share with staff examples of the importance of the data?

14. In general, how easy is it to see and use the quality measures for your survey? Are the measures:

- unavailable,
- stored somewhere, but would require manual work to get into a report,
- information available and automated.

Are improvements needed in the quality or process measures?

Do you need additional resources for this work?

What successes would you like to share with the rest of EIA?

Based upon all of the above, what areas of this survey need work?

What is a reasonable goal for improvement?

How will you measure it?

(Note: the target goal selected should be meaningful and reasonable; not trivial and probably not a stretch goal. EIA will report to OMB the overall agency percent of goals met each year.)

Attachment: Quality Measures Matrix

Survey: EIA -	Availability of measure A=automated M=manual U=unavailable	Latest value ¹	Needs Improvement Y or N	Target ² (select one)
Coverage rates				
Frame activity: Net change in size, Number of events (e.g. number of Births + deaths + mergers)				
Mode of receipt: percent IDC				
Percent by secure file transfer				
Percent mail, fax, phone, other				
Survey response rate (unit)				
Survey response rate (by volume)				
Percent of forms failing at least one edit				
Percent of forms falsely flagged (false positive)				
Percent imputed for key variable (for nonresponse or failed edits.)				
Relative standard error for key variable (if applicable)				
Revision of published key aggregate variable (percent change from first published to final release)				
Difference between release date of data and end of the reference period				
Percent of times planned publication schedule met (N/A if no schedule)				
Comparisons to other data (percent difference)				
Is documentation on data sources and interpretation available to users? Y or N				
Other:				
Other:				

¹ Preferred reference period for latest value is annual year average, either FY or calendar year; specify if other. Emphasis this year is on obtaining available data, and not on gathering new data, so a recent quarterly average or monthly value may be used.

² Target should be as of September 2005.