

Title: Evaluating the Quality of EIA Analyses Using a Survey of Independent Expert Reviewers – Research Design

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Background

EIA is presently in the process of developing a strategic plan for the five-year period 2004 – 2008. The plan is under development and is not available at the time of this writing. As such, the plan and this work should be understood as “work in progress,” i.e., an early attempt to seek advice from the Committee.

In the draft plan, the Agency is intent on:

- Becoming a performance-based organization,
- Using a systematic agency-wide process to review all on-going work activities, and
- Involving customers and stakeholders.

EIA has been conducting customer surveys and employing other methodologies to assess the quality, timeliness and other attributes of EIA products for a number of years. For example, EIA has surveyed incoming callers to the National Energy Information Center as a way to quantifiably evaluate the level of customer satisfaction on EIA’s products and information services.

However, a systematic quantitative assessment of attributes related to EIA analytical products has not been conducted.

This work-in-progress paper is about an effort to quantifiably assess the quality of EIA’s analytical tools and analyses.

Scope

Considering the limited resources available to assess the quality of EIA analytical products, it is important for EIA to work within existing institutional structures in order to attain any associated quality measurement goals. Possible sources of information and data are from the Independent Expert Reviewers (IERs) and outside technical experts who conduct Category I reviews on behalf of the Statistics and Methods Group. These persons are knowledgeable about EIA products in general. EIA draft products are sent to them for review, and they can be easily and readily contacted. However, the number of such external experts called upon to conduct reviews and provide advice to the Agency is

very limited. For example, in FY 2003 six products were independently reviewed through the IER Program by a total of 19 reviewers.

Independent Expert Reviewers are typically Nationally recognized subject-matter experts in specific energy-related fields. They are frequently but not always academics. EIA seeks and pays for their advice with competitively awarded, fixed-price contracts and single-source honoraria. Lists of subject-matter experts are maintained, as specific competitive lists are drawn from these lists and developed cooperatively between the program office and the Statistics and Methods Group. The IER contracts are managed within SMG. These contracts are more recently co-funded between the sponsoring office and SMG. The number of Independent Expert Reviewers and the EIA products reviewed is shown in Table 1.

Table 1: Reviews and EIA Products reviewed (Conducted in Fiscal Year 2003)

Number of Reviewers	Title of Materials Reviewed
4	EIA's Assumptions of the Costs of New Domestic Nuclear Power Plant Construction Based on Outside, Industry Data
3	EIA's Projections of Natural Gas Supply in the Oil and Gas Simulation Model
2	National Coal Production, Distribution and Price in the Coal Market Model
5	Draft Analysis of the McCain-Lieberman requested Analysis of Carbon Reduction
3	Analysis of Hale's Electricity Transmission Study
2	Regional Coal Production in the U.S. Southwest, with Focus on Supply, Transportation and Price

A summary of Category I reviews conducted by two EIA contractors follows in Table 2.

(Continued)

Table 2: EIA Products Reviewed Under the Category I Review Process (Conducted in Fiscal Year 2003)

FY 2003 Months and Number of Products Reviewed	Category I Materials Reviewed by Professors Robert Trost and Fred Joutz, George Washington University, Washington, D.C. Note: Does not include reviews done by SMG Staff.
October (0)	None
November (1)	Annual Energy Outlook including graphs
December (1)	Market Trends, Forecast Comparison sections and Assumptions Appendix of the Annual Energy Outlook
January (0)	None
February (0)	None
March (0)	None
April (1)	International Energy Outlook
May (0)	None
June (3)	Annual Energy Outlook 2003 Domestic Natural Gas Projections Analysis of McCain Lieberman Bill, S139 Coal Market Module Documentation
July (0)	None
August (2)	Price Responsiveness in the NEMS Building Sector Models (2003) Clear Skies/Carper Analysis: Service Report on Multi-Pollutant Legislation requested by the Senate
September (2)	Comparative Evaluation of Two Methods to Estimate Natural Gas production in Texas Annual Energy Outlook 2004 Tables

Note: Data from Inder Kundra, SMG, EIA.

Thus, in Fiscal Year 2003, ten products were reviewed by outside consultants in the Category I review process.

Objectives

The following are the research objectives of this study:

- To determine to what extent the EIA analysis and forecasting products are relevant and reliable.
- To determine to what extent the EIA analysis and forecasting products are consistent with changing industry structures.
- To determine the quality of EIA analytical and forecasting products
- To determine the timeliness and usefulness of EIA analytical and forecasting products.

We believe these objectives are compatible with EIA's emerging strategic plan.

Methodology

We propose to ask Independent Expert Reviewers to complete a short set of closed-ended questions. A 5-point Likert scale could be employed. It is important that the selected wording used in the survey be similar to that used in the strategic plan. This will provide a mechanism in which to quantitatively measure the various quality attributes of EIA analysis and forecasting products. The questions (in a Word format) may be found in Attachment 1

Considering the relatively small number of IERs available to be surveyed, a very small number of selected independent reviewers should be used for the purposes of pretesting the survey instrument. Our current thinking is that 2 or 3 independent reviewers should be used for the pretest. The remaining reviewers would then be available to serve as respondents for the regular testing. We think a survey that can be completed by a respondent in no more than 15 minutes would be appropriate. If this works well, we would include the questionnaire in subsequent IER contracts as a deliverable once the reviews were completed.

The reviewer responses are to be sent to a disinterested party so that there will be no connection between the respondents' evaluations and either the EIA program office whose materials are under review or the IER Program Manager.

A difficulty arises in that Independent Reviewers may not be familiar with the quality of the end product actually disseminated by EIA, or that there may be a substantial delay between the returned "review" and the publication of the analysis or use of the reviewed model. The individual Independent Expert Reviewer may (1) have very product-specific knowledge based on conducting the review, and also have (2) an excellent overview of the general quality of EIA products beyond those which s/he have been asked to review. This might mean that EIA should consider asking the reviewer to evaluate EIA products "in general" rather than the specific product sent them. Thus, the capability of IERs to respond to the survey requires careful consideration.

Use of Independent Expert Reviews

Typically IERs are conducted on:

- (1) analytical work plans and study assumptions,
- (2) draft study outlines,
- (3) early drafts,
- (4) final drafts
- (5) model descriptions for model characteristics (not the adequacy of the documentation), and
- (6) model assumptions.

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Sometimes reviewers are asked to do multiple reviews, which might include items (1) through item (4), above, as a study develops. A series of reviews such as this might take months and include multiple reports and one or more discussion meetings either in Washington or by telephone with EIA management and staff.

Other outside experts are used to augment the SMG staff in reviewing products. These reviewers participate in what EIA calls the Category I Review process. Note Table 2 above. Our current thinking is to include Dr. Robert Trost and Dr. Fred Joutz who augment the SMG reviewing staff in completing the survey.

Questions to the Committee:

1. Are EIA's proposed survey questions balanced and comprehensive given the goal?
2. Are the Independent Expert Reviewers likely to be the appropriate survey audience?
3. Is the pretest group of two or three reviewers, described earlier, sufficient?
4. Are there other questions we should be asking?

(See next page for Attachment)

Attachment

Recently you conducted an Independent Expert Review of the _____ under contract to the Energy Information Administration (EIA). We would appreciate you completing the 7-question survey and returning it to Mr. Tom Broene of EIA’s Statistics and Methods Group at either:

Fax: (202) 287-1705, or by
Email at tbroene@eia.doe.gov

We are intentionally processing your survey response separately from your connection with the materials you reviewed and the Independent Expert Review Program. We are doing this to keep your responses from influencing additional requests for your helpful advice. So, tell us what you think. No need to be nice here!

We believe answering these questions should take no more than 15 minutes. When coupled with others it will help us evaluate the quality of EIA’s analytical tools and products.

Thank you in advance for your support and your timely response.

1. How “relevant” was the information in the (*material you reviewed*) in meeting EIA’s customers’ needs?
 - a. *Relevance – “The relevance of the information reflects the degree to which it meets the real needs of clients.”*

Use the scale from 1 to 5 with 5 being very satisfied and 1 being very dissatisfied. (DK = Don’t Know)

<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6(DK)</i>
<input type="checkbox"/>					

2. How “reliable” was the information in the (*material you reviewed*) in meeting EIA’s customers’ needs?
 - a. *Reliability – “The reliability of the information reflects the degree to which it is seen as dependable by EIA’s clients .”*

Use the scale from 1 to 5 with 5 being very satisfied and 1 being very dissatisfied. (DK = Don’t Know)

<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6(DK)</i>
<input type="checkbox"/>					

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3. How “accurate” was the information in the *(materials you reviewed)* in meeting EIA’s customers’ needs?
- a. *Accuracy – “Accuracy of statistical information is the degree to which the information is complete and correctly describes the concept it was designed or issue it was designed to measure.”*

Use the scale from 1 to 5 with 5 being very satisfied and 1 being very dissatisfied. (DK = Don’t Know)

1 2 3 4 5 6(DK)

4. How satisfied were you with the “usefulness” of the information in the *(materials you reviewed)* in meeting EIA’s customers’ needs?
- a. *Usefulness – “Usefulness is the degree to which EIA’s clients find the material beneficial or serviceable.”*

Use the scale from 1 to 5 with 5 being very satisfied and 1 being very dissatisfied. (DK = Don’t Know)

1 2 3 4 5 6(DK)

5. How satisfied were you with the “timeliness” of the information in the *Impact of the Kyoto Protocol* in meeting EIA’s customers’ needs?
- a. *Timeliness – “Timeliness of information refers to the delay between the reference point (or the end of the reference period) to which the information pertains, and the date on which the information becomes available.”*

Use the scale from 1 to 5 with 5 being very satisfied and 1 being very dissatisfied. (DK = Don’t Know)

1 2 3 4 5 6(DK)

6. How “consistent” is the information in *(the materials you reviewed)* with changing industry structures?
- b. *Changing industry structure – “The extent to which EIA’s analytical products correspond to the various components of the domestic and international energy system.”*

Use the scale from 1 to 5 with 5 being very satisfied and 1 being very dissatisfied. (DK = Don’t Know)

1 2 3 4 5 6(DK)

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7. How “coherent” is the information in the (*materials you reviewed*)?
- a. “*Coherent*” – “*Coherence of statistical information reflects the degree to which it can be successfully brought together with other statistical information within a broad analytic framework.*”

Use the scale from 1 to 5 with 5 being very satisfied and 1 being very dissatisfied. (DK = Don't Know)

<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6(DK)</i>
<input type="checkbox"/>					

Thanks for your cooperation in completing and returning this survey in a timely manner.