DEPARTMENT OF ENERGY

ENERGY INFORMATION ADMINISTRATION

USE AND DEVELOPMENT OF PERFORMANCE MEASURES

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1.   Context

The Energy Information Administration (EIA) is an independent statistical agency within the Department of Energy. EIA's mission is to be a leader in providing high quality, policy-independent energy information to meet the requirements of governments, industry, and the public in a manner that promotes sound decision making, efficient markets, and public understanding. In 1995 EIA had a budget of $84.7 million with 483 FTE's. In 1996 the budget was $72.3 million and 444 FTE.

Even prior to 1994, EIA was customer/respondent focused. User conferences were held to describe EIA initiatives and solicit user input. One example was a workshop on Petroleum Supply Information held in 1983. Another example is the National Energy Modeling System Conferences which have been held annually since 1993. EIA has also used focus groups of respondents and data users to provide input to survey design and development.

The environment in EIA in the Fall of 1993 and the Spring of 1994 was one of change and empowerment. The Secretary of Energy encouraged the Department to adopt quality principles, while EIA's Administrator led the quality movement in EIA. The Secretary has supported all aspects of the quality movement, and has been particularly interested in performance measurement. She encouraged her senior staff to design, adopt and use performance measures. This support legitimized and gave credibility to EIA's performance measurement activity.

The Administrator of EIA has also been a proponent of performance measurement for many years. He provided an atmosphere of empowerment and support without interference. One member of the Performance Measurement Implementation Team noted that the mixture of high level and lower level staff on the Team gave the Team a sense of importance that also contributed to the feeling of empowerment.

The context of EIA's move toward the adoption of performance measurement is summarized by noting some of the earlier activities, many of which occurred simultaneously.

Departmental Activities
- Customer Focus Advocates -- Seven members of EIA staff became Customer Focus Advocates as part of the Departmental program and received 80 hours of training in the Spring of 1994.

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- Departmental Customer Survey -- one EIA Customer Focus Advocate participated on the Departmental Team providing statistical advice and insuring that EIA's customer survey activities tied into those of the Department.

EIA Activities

- Strategic Plan -- EIA's first Strategic Plan was developed by EIA senior managers in April 1994. Exhibit 1 of Attachment A shows the Mission and Goals from the 1995-1996 Strategic Plan, which are the same as those developed in 1994. The first strategic plan included all components required under GPRA. EIA believes that the Mission and long-term Goals developed in 1994 are quite good, and that the objectives and how they were to be achieved were fair. With two years of experience, EIA believes that they are now also doing a good job on the latter.

- Quality Council -- EIA's Quality Council was formed in June 1994. The Quality Council consists of the Administrator, Deputy Administrator, Office Directors, a union representative, one Customer Focus Advocate, the EIA Quality Coordinator, and two staff representatives.

- Organizational Assessment Survey -- the first survey of EIA employees was conducted in August 1994.

- Secretarial Briefing -- In August, 1994, the EIA Strategic Planners briefed the Secretary of Energy about EIA's Strategic Plan. Her response to the description of each goal was "... and how are you going to measure that?"

Performance Measurement Activities

- Pilot -- EIA became a pilot under Government Performance and Results Act (GPRA). The 1994 performance plan was submitted on March 23, 1994.

- Performance Measurement Committee -- an ad hoc group interested in measuring the performance of the EIA started meeting in December 1993. Initial efforts focused on customer satisfaction.

  - Conducted EIA wide survey to identify the number and type of customer contacts in January 1994.

  - Conducted pilot and pretests of customer satisfaction surveys of telephone

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customers of the National Energy Information Center in March and July 1994.

In early 1994, two members of the Performance Measurement Committee joined a monthly study group on Organizational Performance Measurement sponsored by the Virginia Chapter of the American Society for Quality Control. This study group used the book by Sink and Tuttle[1] as its primary reference. At the July meeting of the study group, two representatives of the U.S. Coast Guard gave a briefing on their experience in implementing the Sink and Tuttle model.

As a result, the two EIA member of the study group prepared a proposal for EIA to use the Sink and Tuttle model to develop and implement a system for performance measures. The proposal was presented first to the Performance Measurement Committee, and subsequently to EIA's Quality Council. The Committee, and later the Quality Council, both approved the proposal. The Performance Measurement Committee ended and two separate but coordinated efforts began: the Performance Measurement Development Team to start the new project, and the Customer Survey Team to continue the customer survey activity.

2.   Development of Indicators

2.1.   Developing Performance Measurements

The Performance Measurement Development Team was a 14 member team of volunteers, generally mid-level staff, representing most of EIA's Offices. Volunteers were recruited through postings on the EIA bulletin board. The team started work in September 1994.

The first task of the Development Team was to familiarize themselves with the concepts and terminology associated with performance measurement, as presented in Sink and Tuttle. The Team leader, one of the two members of the ASQC study group, led the Team through the learning process.

According to Sink and Tuttle, the first step in creating a system of organizational performance measures is to develop a Strategic Plan. In their model, Strategic Planning includes the development of an organizational assessment, or input/output chart for the organization. As

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[1]

    D. Scott Sink and Thomas C. Tuttle. *Planning and Measurement in Your Organization of the Future.* Industrial Engineering and Management Press, Institute of Industrial Engineers, Norcross, Georgia. 1989.

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noted above, EIA had a Strategic Plan prior to the performance measurement effort, but not an input/output chart. An input/output analysis describes the processes of the organization, its inputs and suppliers, outputs, customers, and outcomes. The Team started by developing an input/output chart for EIA (See Exhibit 2 in Attachment A)). The understanding and creation of the input/output chart took approximately two months of one and one half hour, weekly sessions.

Creating the input/output chart enabled the Development Team to come to a common understanding and agreement of the role of EIA. After the chart was developed, it was circulated to EIA staff for comments, described at open meetings for EIA staff, revised based on suggestions received, and adopted. It was later approved by the Quality Council. This chart served as the framework for the development of the performance measures.

The Development Team then went on to identify specific Performance Measurement categories through a series of brainstorming sessions which focused on EIA's Strategic Plan and goals. For example, Team members would use a goal such as, "EIA will provide its customers fast and easy access to public energy information" to ask the question, "What measures will show that we have achieved this goal?". Based on this method, the Development Team generated a list of potential measures. Once all of the suggestions were noted and discussed, a vote was taken to identify the highest priority measures.   These were then moved to a master list. This process was carried out for each goal in the Strategic Plan. The top measures from each brainstorming session were merged, unduplicated and discussed.   The Team compared this list to the input/output chart to ensure that all dimensions had been covered. The result was a list of 14 performance measurement categories. These 14 measurement categories are displayed in Table 1, along with the strategic goals they support and where they fit in the input/output chart.

The fourteen performance measurement categories were presented to and accepted by the Quality Council in March 1995. The Team also recommended the "Five for 1995", the 5 most significant measurement categories to focus on during the year. At this point, the Development Team's work was done and Performance Measurement Implementation Team was formed.

2.2.   Challenges

One of the challenges associated with the development of performance measures was maintaining open channels of communication with other EIA staff to keep them informed and to gain stakeholder buy-in. While the Team made good efforts to do this, many EIA staff were not yet interested in performance measurement. Sink and Tuttle state that the development of performance measures is often accompanied by skepticism, fear of gaming, and fear of additional unnecessary work. Solutions to this particular challenge include the passage of time and open communications.

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2.3.   Implementation of Measures

From March, 1995 to April, 1996, the Performance Measurement Implementation Team collected information to support the 14 performance measurement categories. In addition, they revised measures as needed and identified other EIA team efforts that contributed to performance measurement. Table 1 shows the relationship between the original 14 measurement categories and their status as of May 1996.[2] The "Five for 1995" included: customer satisfaction, employee attitudes, timeliness and accuracy, innovations and productivity. Since productivity is the ratio of inputs (resources used) to outputs (counts of products or customers), there are six significant measurement categories.

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[2]

      Goals referenced in the following Table refer to the Strategic Plan, Attachment A, Exhibit 1.

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Table 1. **How Original Measurement Categories relate to Current Measures and Strategic Goals Supported**

*A priority in 1995.

	Measurement Categories identified by Development Team, March '95	Status of Current Measures, April 1996
1	**Subprocess:** Training, Goal 1	Information taken from Departmental Training Information System. More work needed.
2	**Subprocess:** Requests for Service, Goal 4, 5	Information on requests for service that involve transfer of money
3	**Subprocess:** Data Collection, Goal 2, 3, 4, 5	A core process. Not needed as a separate item.
4	***Input:** Resources Used (FTE & $), Goal 4	Information to be provided by Activity Based Costing.
5	**Process:** Teambuilding, Goal 1	No information as yet.
6	***Process:** Innovations, Goal 1, 2, 3, 4, 5	Celebration and recognition of innovations; not a "measure", per se, but useful to encourage innovative thinking.
7	***Process:** Employee attitudes, Goal 1, 2, 3, 4	Organizational Assessment Survey, 1994 and 1995.
8	***Output:** Counts of products & Counts of customers, Goals 2, 3, 4, 5	Tables showing counts of printed products and numbers of customers by process; counts of customers by electronic products (unique users, files downloaded).
9	**Output:** Revised product slate, Goal 2, 3, 4, 5	Not needed as a separate category. Identified by tracking "counts of products" over time.

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10	***Output:** Timeliness and Accuracy, Goal 2, 3	Timeliness data available for 80 percent of publications; Accuracy data available for 60 percent of surveys.
11	***Outcome:** Customer satisfaction, Goal 2, 3, 4, 5	Customer Surveys of telephone customers conducted in '95 and '96.
12	**Outcome:** Citations in the media, Goal 4, 5	Counts from searches for articles or references in National and international newspapers and wire services, and selected journals and newsletters, as reported in Nexus, Dow Jones, and NewsNet online services.
13	**Outcome:** Customer suggestions, Goal 2, 3, 4, 5	Too burdensome to collect manually. Collection postponed until the Customer Data Base is up and running.
14	**Outcome:** Customer compliments and complaints, Goal 2, 3, 4, 5	Dropped as a measure. Feared it would stimulate undesired behavior (asking customers for compliments).

In the Fall of 1995, the Team held a meeting with EIA Branch Chiefs to discuss proposed measures. The measures discussed included: timeliness and accuracy, innovations, customer compliments and complaints and customer suggestions. The Branch Chiefs agreed that customer compliments and complaints should be dropped as a measure, and that EIA should wait to collect customer suggestions until the customer data base could be used, because collecting customer suggestions manually would be too burdensome. They were also concerned that collecting actual measures of the savings due to innovations would be too burdensome. They agreed with the proposed definitions of timeliness and accuracy for the data collection operations, but not for forecasting. The forecasters did not believe that either the percent difference between the forecast value and the actual value or a comparison to other forecasts produced at the same point in time was a sufficiently complete picture of forecast accuracy.

2.3.1   Customer Satisfaction

EIA believes that "customer satisfaction surveys provide one of the only means to make sure we

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provide accurate, relevant, comprehensive information according to our customers' perceptions." Even before the performance measurement effort began, EIA realized the significance of the customer to its core processes and established customer satisfaction as a performance indicator.

In January 1995, the Customer Survey Committee launched the first EIA wide customer satisfaction survey of its telephone customers. The questionnaire (Exhibit 3 in Attachment A) and procedures were developed as part of the pretest and pilot surveys conducted in the National Energy Information Center (NEIC) in the Spring and Summer of 1994. These pilots surveys were tied into the Department-wide customer survey. The NEIC serves as the primary dissemination point of EIA products, and provides a telephone information service, with from one to four staff dedicated to fielding telephone inquiries. In addition, however, customers may telephone staff in the program offices (PO), who serve their customers in addition to performing their regular duties. The survey in January 1995 was the first to target all telephone customers.

The target of this survey were customers who called EIA for energy information on Tuesday, Wednesday, or Thursday of the third week in January. After filling the request for information, staff asked each customer if he/she would be willing to participate in a 15 minute survey. If the customer agreed, a staff person from a different EIA office called them back later in the day or on the following day to administer the survey. Approximately 80 percent of the customers agreed to participate and were surveyed. EIA staff repeated the same procedure during the last week of February in 1996. About 280 customers were interviewed in 1995; and about 260 in 1996. The measure used is the percent satisfied or very satisfied. (The percent of customers reporting 4 or 5 on a five point Likert scale.)

Note that EIA's customer surveys are a census of telephone customers during a specified 3 day period. As a result, there is no sampling error and there is a chance that these customers are not generally representative of all customers. However, the consistency of results from year to year indicates that there is actually little bias.

The information from the two customer surveys shows extremely high levels of satisfaction with the customer service provided by EIA staff (Exhibit 4 in Attachment A). These results reassured staff of the quality of their work and its importance to the customer. The survey also shows high levels of satisfaction with the relevance, comprehensiveness, and accuracy of EIA's information products, but lower levels of satisfaction with timeliness (Exhibit 5 in Attachment A). This result caused EIA to target timeliness as an area needing improvement.

With the data from the second year of the survey, EIA noticed a trend toward the increased use of electronic products. These are less expensive to produce and EIA will be able to use this change in customer sophistication to become more cost effective in the future.

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The customer survey activity, as well as the performance measurement development and implementation activity, has been done by staff from across EIA on a volunteer basis. Enthusiasm and a feeling of empowerment to do the right thing for EIA continues to drive the volunteer effort.

2.3.2   Employee Attitudes

EIA's Quality Council initiated the Organizational Assessment Surveys to measure employee satisfaction. In 1994 and 1995, EIA conducted two voluntary, organizational assessments which asked employees to respond to 134 questions concerning the cultural climate. The goals of the surveys were to "assess the organizational environment through employee perceptions, to identify strengths and challenges, and to provide a focus for management action." The use of internal surveys provided staff with an opportunity to comment on their surroundings and quality of worklife.

The survey was conducted for EIA by Coopers and Lybrand who have been administering the same survey to organizations for a number of years. As a result, they maintain a data base which provides instant baseline (the average response from their data base) and an instant benchmark (based on the top one percent of companies from their data base). The survey uses a 7 point Likert scale for all questions.

Studies have shown that customer satisfaction is correlated with both employee job satisfaction and with employees' perception of their ability to serve the customer. As a result, responses to the following two questions were selected by EIA as performance indicators. Employees were asked to rate their satisfaction with:

- My job as a whole.
- Meeting customer needs; the importance of my job performance in meeting customer needs.

Possible answers were: extremely dissatisfied (1), moderately dissatisfied (2), slightly dissatisfied (3), neither satisfied nor dissatisfied (4), slightly satisfied (5), moderately satisfied (6), and extremely satisfied (7).

Four other questions were selected as performance indicators because employees' responses in 1994 led the Quality Council to select these areas as targets for improvement:

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Communications

- My organization provides all the necessary information for me to do my job effectively.
- There is outstanding cooperation between work groups of my organization.

For these, employees were asked to indicate their level of agreement with the statement by picking from the following list: Not at all (1), a slight amount (2), a moderate amount (3), a fairly large amount (4), a large amount (5), a very large amount (6), and an extremely large amount (7).

Job significance

- To what extent is your job significant in that it affects others in some important way?

Quality rewards and recognition

- To what extent are your contributions to quality improvements recognized and rewarded?

Employees were asked to indicate the extent by picking from the following list: not at all (1), to a very little extent (2), to a little extent (3); to a moderate extent (4); to a fairly large extent (5), to a great extent (6), and to a very great extent (7).

Coopers and Lybrand reports an index which is the average over all respondents in the data base. Along with EIA scores in 1994 and 1995, they also report the index for the average of all companies in the data base (the baseline) and the average for the top 1 percent companies (the benchmark.) The survey results are shown in Exhibit 6 of Attachment A.

2.3.3. Timeliness and Accuracy

The EIA Customer Surveys identified a need to focus on timeliness. A focus on timeliness alone can have disastrous affects on data accuracy. As a result, EIA decided to collect information on both timeliness, as measured by the number of days from the close of the reference period to the released for printing date, and accuracy, as measured by the percent difference between the

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originally published value and its final value (revision error). For each survey, survey managers were asked to identify their five most important data items. Revision error would be tracked for these five items. By Spring 1996, The Team has collected information on the timeliness of the publication of survey results for about 80 percent of its surveys, and measures of revision error for about 60 percent of its surveys. Work will continue to complete this information, and to include information on electronic products.

For timeliness the Team proposes to use as a summary measure the median number of days to release taken over all survey/publications with the same frequency. The median will be presented along with the maximum and minimum. The team has not yet decided on the most appropriate aggregate measure for revision error.

2.3.4 Innovations

The Team considered collecting information which would support computation of a measure of the gains due to innovation. This was envisioned as part of an award or recognition process, for which staff would submit evidence that a proposed project was an innovation by documenting the value added: money saved, time saved, quality improved, etc. In the fall of 1995, the Team held a meeting with EIA branch chiefs, to discuss proposed measures. The branch chiefs were most concerned about the burden associated with the proposed innovations measure. They also believed that the impact of innovations would ultimately show up in other measures.

As a result, the Team decided that for now EIA will simply celebrate innovations. While this is not a legitimate "measure", it will encourage innovative thinking.

2.3.5 Resources Used

In mid-1995, EIA observed that its accounting system did not provide the necessary information concerning Resources Used (dollars and Full Time Equivalent staff (FTE)) separately for EIA's core business processes. As a result, the Quality Council initiated a separate effort to perform Activity Based Costing (ABC). In this effort, a contractor led an EIA-wide team, which included five members of the Performance Measurement Implementation Team, in an effort to define the subprocesses and activities which contribute to EIA's core business processes. This was followed by a survey of staff and contractors to identify the approximate amount of time spent on each activity. The Implementation Team plans to use both the measures and the definitions developed by the ABC Team. EIA believes that the need to update and revise accounting systems will be a common challenge for agencies as the Government moves toward performance based management.

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2.3.6 Counts of Products and Customers

EIA has good information for its published products on the number of (nonpaid) subscriptions maintained by EIA and the number of paid subscriptions maintained by the Government Printing Office. For electronic products we have good information on the number of down-loads and the number of unique users during a given time period. We also have counts of printed products and numbers of customers according to our core business processes. What we are missing is the link between our printed publications and our electronic products. This is being addressed by EIA's Information Products and Services Committee which is struggling to define a "product". Exhibit 7 in Attachment A shows the number of customers for several distribution methods over time.

2.3.7 Other Measurement Initiatives

The information to support the outcome measure "citations in the media" (Exhibit 8 in Attachment A) is collected from automated online searches for EIA articles or references in national and international newspapers and wire services, and selected journals and newsletters, as reported in Nexus, Dow Jones, and NewsNet online services. Results of these searches are reviewed manually to remove duplicates.   It is important for an information agency to present data in the most informative and interesting way, to make sure it reaches the widest possible audience and is easily understood. Citations in the media is a good measure of that outcome.

In early 1995, a separate group of EIA staff began an effort to create a customer data base, which they coordinated with both the Customer Survey Team and the Implementation Team. The data base was delivered in early March 1996 and is currently being tested. The customer data base is intended to be used when any EIA staff person receives a phone call from a customer. It will contain identifying information for each customer: name, address, telephone number, fax number, internet address. It will include information about the EIA publications he/she subscribes to, and will contain information about the number and type of calls made to EIA staff. The data base will include a suggestion box to facilitate collection of customer suggestions. Because it will ultimately be a relatively complete listing of EIA customers, it will provide a frame for sampling. The Customer Data Base is a system of records under the Privacy Act. Customer information is considered confidential. Ultimately, this data base will enable EIA to do a better job in understanding EIA's customers and their needs.

In the late summer of 1995, EIA also undertook a Business Reengineering initiative for the processes Data Collection Operations, Data Integration, and Dissemination. This effort was separate from the Performance Measurement Implementation Team activities. However, Team members were invited to participate as subject matter experts when the Business Reengineering group considered performance measurement.

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3.0.   Indicators of Outcome/Results

The outcome indicators specified by the Performance Measurement Development Team included: customer satisfaction, citations in the media, customer suggestions, and customer compliments and complaints. The Performance Measurement Implementation Team has dropped customer compliments and complaints. The team thought that it would stimulate unwanted behavior: staff asking customers for compliments. They also decided to postpone the collection of customer suggestions until the Customer Data Base can be used. Information on customer satisfaction and citations in the media has been collected since 1994.

The Development Team classified "number of customers" as an output measure, and it is listed that way, along with counts of products, in Table 1. However, number of customers is also an outcome measure.

3.1   Relationship to Output and Input Measures

The EIA wide customer satisfaction survey targets the customer service provided by EIA staff in responding to telephone inquiries (one output of the "dissemination" business process). It also collects an overall evaluation (timeliness, accuracy, relevance, comprehensiveness, and availability) of our information products (also outputs of the "dissemination process"). Two of these customer evaluations can be compared to the output quality measures: timeliness and accuracy.

Citations in the media is an outcome measure which also reflects all of EIA's information products. As noted earlier, EIA does not yet have information on resources used (inputs) by core business process or product. EIA recognizes the need for such information.

The outcome measure "number of customers" from subscription lists (EIA's as well as the Government Printing Office) is available separately for each printed product. Number of downloads, and number of unique daily users are available separately for electronic products.

3.2   Relationship to Strategic Goals

These outcome measures are related to strategic goals 2, 3, 4 and 5, which are described in Exhibit 1 of Attachment 1.

3.3   "Right measures measuring the right things"

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The Performance Measurement Team believes that it is measuring "the right things," but may not have identified all of the "right things" to measure. EIA has identified measures that are both useful and reasonable, but in the future will most likely be able to improve them. For example, EIA measured timeliness as the number of days between the last day of the "reference period" covered by the survey and the "released for printing date" on the inside front cover of the publication because these dates were clear, unambiguous and readily available. The most appropriate "release" date from the customer's perspective is the date the customer receives the product. To improve our current information, EIA will try to use available information to identify the date a publication is mailed to the customer. This will be closer to the most appropriate date from the customer's point of view, but will be less burdensome to collect.

4.   The Use and Impact of Information on Outcomes/Results

As noted above, EIA's most informative outcome measures are the results of the Customer Surveys. They point to timeliness as an issue. The Performance Measurement Implementation Team has just completed collecting information on the timeliness and accuracy of EIA publications. The combination of this information with customer survey results will allow us to (1) monitor the timeliness of our products to assess impact of initiatives; (2) monitor accuracy to assure improvements in timeliness do not come at the expense of accuracy; and (3) to see if our actions satisfy the customer.

The Organizational Assessment Survey also provides information on the outcomes/results of efforts by the Quality Council to support EIA's first strategic goal to work together to achieve the full potential of a diverse workforce through team work and employee development.

4.1.   Communication of Results

EIA currently disseminates performance information to both internal staff and external organizations. The following list provides examples of EIA performance measurement information communications:

- CC mail/bulletin board
- ***EIA Today***, a monthly newsletter
- Brown bag seminars
- Displays in the hall outside the Administrator's Office
- Hard copy of survey results distributed to staff by upper management
- Speeches given to other government agencies

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- Presentations at office level staff meetings

Exhibit 10 of Attachment A is an example of two articles which appeared in **_EIA Today_**.
Exhibit 11 of Attachment A is an example of a notice that appeared on the Performance Measures
bulletin board.

The Implementation Team completed its 1995 Performance Measures Notebook, which includes
information on: customer satisfaction, employee attitudes, timeliness and accuracy for data
collection operations, innovations, resources used, output indicators, citations in the media,
training, and service to the Department. A draft of the Notebook was first circulated within EIA
for staff and managers to review. The Notebook was updated and presented to the EIA Quality
Council on May 10, 1996. Next steps include a graphical display to be posted outside the
Administrator's office.

4.2.   Use and Impact of Outcome Information

4.2.1   Customer Survey Information

In response to the relatively low score on timeliness from the 1995 customer survey, EIA worked
to provide data in a more timely fashion. The initiatives to improve timeliness were taken by
office directors, line managers and their staff, and by teams of interested staff. The 1996
customer survey shows that the customer has not yet noticed the improvement. Survey
interviewers reported that in 1996 many of our telephone customers were not aware of the fact
that our data are now available on the internet. As a result, they had not noticed the most obvious
changes in our timeliness. Timeliness initiatives in 1995 include:

- EIA provided a web-site and data on CD-ROM. The 1996 survey of our telephone
  customers shows a 22 percent increase in the use of EIA's electronic products in one year.

- The EIA Quick Guide was prepared and distributed. The Quick Guide is a laminated card,
  which contains information such as EIA web sites, the EPUB bulletin board number, and
  the e-mail address for EIA's National Energy Information Center. (Exhibit 9 in
  Attachment A.)

- EIA worked to provide "unofficial" or preliminary results at an earlier date. Examples are:

  1)   EIA's triennial surveys are among our least timely because of their complex sample

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designs. Prior to 1994, information on housing characteristics from the Residential Energy Consumption Survey were not available until printed in a publication that included analysis of results, about 500 days after the close of the reference period. Now selected tables are released electronically before they are published in hardcopy form. In 1995 this release occurred 340 days after the close of the reference period: 160 days before the data were published.

2)   A forecasting methodology has been developed to provide more timely estimates for petroleum prices. Petroleum price data are collected from a sample survey and published about 75 days after the close of the reference month. A time series transfer function model has been developed to forecast prices. The forecasts are accurate to within about 5 percent of the values from the survey. The new estimates will be available about 30 days after the close of the reference month. This procedure has been developed and tested. Implementation will depend on budget constraints.

3)   Another improvement in timeliness resulted from administrative changes. In the past, routine data publications could not be released without office director approval. Now, branch chiefs can approve weekly and monthly data publications; and division directors approve the rest.

4.2.2   Employee Attitude Survey

The baseline Organizational Assessment survey, performed in 1994, revealed several challenges for EIA. The results showed that EIA needed to improve on the issue of job significance, communication, and rewards and recognition for quality work. For example, staff working on quality efforts in their "spare time" felt they were not receiving adequate recognition. As one output of this survey, the EIA Quality Council formed three committees to help address staff concerns. The 1995 survey shows that EIA has significantly improved in two of the three areas (Exhibit 3). Job significance is still a challenge, and this will be addressed by the Quality Council in 1996.

5.   Costs

The Performance Measurement Development Team spent six months developing performance indicators. The Development Team consisted of 14 members ranging in staff level from GS-9 to SES and had at least one representative from each major office. The Team leader spent approximately one-quarter time devoted to this effort.

The Implementation Team consisted of 16 members who have worked over the last year to

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specify and collect the quantitative measures. Team members noted that identifying a set of needed measures was less time consuming than defining indicators and implementing them. While the Team has not quantified the total number of staff hours spent in implementation, one member noted that she spent approximately three hours a week in developing timeliness and accuracy measures over a six week period.

Team members have collected data, analyzed results, developed data bases, and prepared graphical presentations. Occasionally other EIA staff or contractors have provided input. No staff were permanently assigned to this effort. EIA balanced these low costs against slower development and implementation for a system of performance measures. The EIA customer survey team, a parallel effort, is also entirely done by volunteers from EIA staff.

Other activities which were done for other purposes have contributed directly to the performance measurement effort. They, and their costs, are shown below. While the Performance Measurement Team has taken advantage of these efforts, the costs are not completely attributable to the performance measurement process.

Customer data base (total)	$75,000
Employee attitude survey (per survey)	$36,000
Activity Based Costing (total)	$160,000
Strategic Planning (1995)	$21,000
Strategic Planning (1996)	-0-

5.1. Political Costs

Our experience in this area is limited. However, EIA believes that the collection and use of performance measures will have no political costs. We believe that it will be to our advantage to have data documenting our outcomes/results.

5.2. Bureaucratic Costs

Within EIA, as with any organization beginning a measurement system, there is mixed enthusiasm for performance measures and their use. Early indications are that the National Treasury Employee's Union and management, as a whole, both support the effort. However, there are pockets of skepticism toward performance measurement and other aspects of the quality movement. As a result, some staff fear that they will be asked to "game" the system to make programs "look good" or that they will be asked to spend valuable time recording information

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which will not be used.

6.   Lessons Learned

EIA recognizes the potential benefits and challenges of developing performance measures. This section discusses EIA's lessons learned and its future plans for the initiative. These "lessons learned" may help other Federal Agencies complete the process of developing and using performance measures.

- **Do It Yourself --** EIA believes that developing and implementing performance measures is best done on a volunteer basis. While the cost is in the length of time to implementation, the benefit is broad buy-in by stakeholders.

- **Staffing** -- Developing performance measures often goes hand-in-hand with other improvement initiatives. In addition to the performance measures effort, EIA staff are involved with Business Process Reengineering, Activity Based Costing, and extensive survey efforts. These efforts have created a burden on EIA staff as they try to focus on these initiatives while completing their normal workload.

- **Staff/Management Relationship** -- A team consisting of both staff and managers developed the performance measures. The benefit is that once these measures are implemented, these staff and others feel a greater sense of ownership for the measures. If management alone develops measures, staff are more likely to resist them and feel threatened by them. However, if other Federal agencies choose this approach, they should couple it with public commitment to the initiative by upper management. Staff can effectively develop the measures, but they cannot implement the measures without management support.

- **Communication** -- Communication is the key to successful implementation of performance measurement. Staff must be kept informed of all phases of performance measurement activity, and must be invited to participate in an open process (see Exhibits 10 and 11 of Attachment A.).

- **Self-Directed Teams** -- EIA realized that performance measures needed to be developed by a cross-functional team. EIA has been able to motivate and unite its performance measurement team towards a common goal. Other Federal agencies might want to evaluate the need for team building exercises or expert training and facilitation to quickly accomplish team cohesiveness.

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- **Graphical Presentations** -- EIA has observed that graphical presentations of the performance measures generates interest and enthusiasm. Graphical depictions are a powerful communication tool.

- **Measures for Measures** -- EIA has gone through several iterations of performance measures. EIA has a valuable set of measures but it recognizes that these measures will improve further over time. EIA is now focusing on ensuring that measures are generally understandable, can be implemented, and encourage the desired end results.

- **Structured Methodology** -- The performance measure development process was more acceptable to staff because it used a structured methodology (Sink and Tuttle). EIA recommends that other Federal agencies use a structured methodology.

- **Implementation** -- EIA has started collecting data on many measures. Some measures are easy to obtain from existing records. Other require special efforts to collect and assemble. In EIA, timeliness and accuracy data were collected separately for each survey/publication. Although data were available, they were kept in different formats by different people across the organization. Assembling the information in a central agency-wide data base was a time consuming effort. Federal agencies may need to dedicate resources to implementation, data analysis, and data maintenance. Agencies may also need to consider systems to support their performance measurement implementation needs.

7. Next Steps

The performance indicators have made a significant contribution to making the EIA staff more results oriented. EIA is still finalizing the performance indicators, collecting data and deciding how to use the information. Next steps include:

- Coordinating with the Activity Based Costing (ABC) team and analyzing results they obtained to determine how to record information on time and personnel costs for EIA's business processes. In the Spring of 1996, EIA's ABC team is just preparing the results of their survey of EIA and contractor staff. The survey will identify the FTE and contract dollars EIA spent in FY95 separately for each of our core business processes and will also identify resource intensive subprocesses and activities. EIA needs an accounting system that will collect this same information in the future, hopefully in the least burdensome way possible.

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- Defining our products and their relationships. While publications are well defined products, electronic releases may be selected tables from those publications, or they may be entirely different presentations of the same data.

Establishing a team of analysts and forecasters to develop measures of quality for these important business processes. The definitions of quality (timeliness and accuracy) and the measurement definitions developed by the Performance Measurement Implementation Team had broad buy-in from the staff involved in data collection and survey operations, and dissemination and integration. These relatively simple definitions can be extended to forecasting, but not to analysis. However, the forecasters did not agree that the measures were appropriate for their work, and the Team did not try to develop quality measures for analysis. These groups must be involved in the development of quality measures which they believe accurately reflects their work.

Developing measures of timeliness and accuracy for EIA's electronic products. The Team spent a considerable amount of time from the Fall of 95 to the Spring of 96 compiling information on timeliness and accuracy of publications. There is a relationship between the timeliness and accuracy of printed products and the timeliness and accuracy of our electronic products; however the relationship varies by office and program. This is not a difficult task, although it may be time consuming.

Expanding customer survey results to obtain more information on: 1) recognizing satisfaction with and needed enhancements for electronic products; 2) identifying specific products needing improvement in timeliness, and identifying how to best satisfy that need; and 3) working with customers to refine EIA's product slate.

EIA established a home-page on the internet during FY95, and also came out with its` products on CD-ROM. These electronic products were developed quickly, and with limited input from the customer. Although customers can provide comments via the home-page, we need a more systematic approach to evaluating the characteristics of our electronic products. The Customer Survey Team is considering how to survey our electronic customers.

EIA's customer satisfaction surveys have concentrated on our telephone customers, and separately identified those who have used our printed products and electronic products for additional questions. These were are EIA-wide surveys. As a result, we did not get a clear indication of exactly which products the customers think need to be more timely, and what mechanism would satisfy that need.

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Coordinating recommendations by the business reengineering team for including performance measurement modules in any system supporting the reengineered processes. EIA's business reengineering team developed a reengineered vision of EIA's data collection operations, dissemination and integration activities. Their proposals include the development of new software systems which would include the automatic collection of performance measures. If these recommendations are adopted, the Performance Measurement Team should be involved in the implementation.

Developing a performance measurement data base. Currently the timeliness and accuracy data (our most extensive data set) exists as four separate spreadsheets. We need to develop and implement a system for collecting and maintaining all performance measurement information in a common data base. We also need to develop routine reports and graphics. In addition we need to find ways of regularly updating the performance measurement information in the least burdensome way.

If performance measurement is to be institutionalized, collection and use of performance measurement results must become routine. Data must be collected automatically in the least burdensome way. The development of a performance measurement data base and procedures for updating it will go a long way toward satisfying the first requirement. Using the measures will be the responsibility of both managers and staff. The performance measurement team will need to help managers and staff by displaying information in useful ways, making it readily available, and adapting to new requirements.

EIA recognizes the difficulties and eventual rewards of developing a successful performance measurement system and views this effort as "a process of continuous improvement". EIA continues to strive towards meeting the mission, goals, and vision stated in its Strategic Plan.

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