Version 1.7

User Manual and Documentation Report

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Prepared for

U.S. Environmental Protection Agency
Office of Air Quality Planning and Standards
Research Triangle Park, NC 27711

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*RTI International is a trade name of Research Triangle Institute.

Acknowledgements

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WELCOME TO FAST

As part of its regulatory support role for Clean Air Act (CAA) programs, the Innovative Strategies and Economics Group (ISEG) within the Office of Air Quality Planning and Standards (OAQPS) analyzes the small entity and economic impacts of sector-specific and broad national emission reduction strategies. This document details the design and application of the FAST model, which supports ISEG staff in conducting such screening assessments required as part of developing air pollution control programs.

FAST can be used to perform screening-level analyses of small entity impacts as well as broad market impacts for consideration during the early stages of regulatory development. By using standardized data structures and pre-existing databases, the model reduces the time and effort typically associated with obtaining screening-level impact estimates. As shown in Figure 1-1, FAST offers the analyst the following two screening tools:

- *Small Entity Impacts Screening Tool (SEI-ST)*—This screening tool allows you to conduct assessments of small business impacts consistent with the Small Business Regulatory Enforcement and Fairness Act (SBREFA) of 1996 based on input of compliance cost estimates at the broad industry level or for individual small entities.
- Economic Impact Analysis Screening Tool (EIA-ST)—This screening tool allows you to conduct assessments of the market impacts (i.e., changes in price, output, and foreign trade) and associated social cost estimates based on input of compliance cost estimates at the broad industry or product level.

You can select the appropriate screening tool by clicking on the SEI-ST or EIA-ST button (see Figure 1-1).

1.1 How is the User Manual Organized?

This document contains the following two sections and an appendix:

- Section 2: Small Entity Impacts Screening Tool (SEI-ST)—this section provides details on how you can perform small entity screening analyses for firms, nonprofits, and government organizations that may be affected by emission reduction programs.

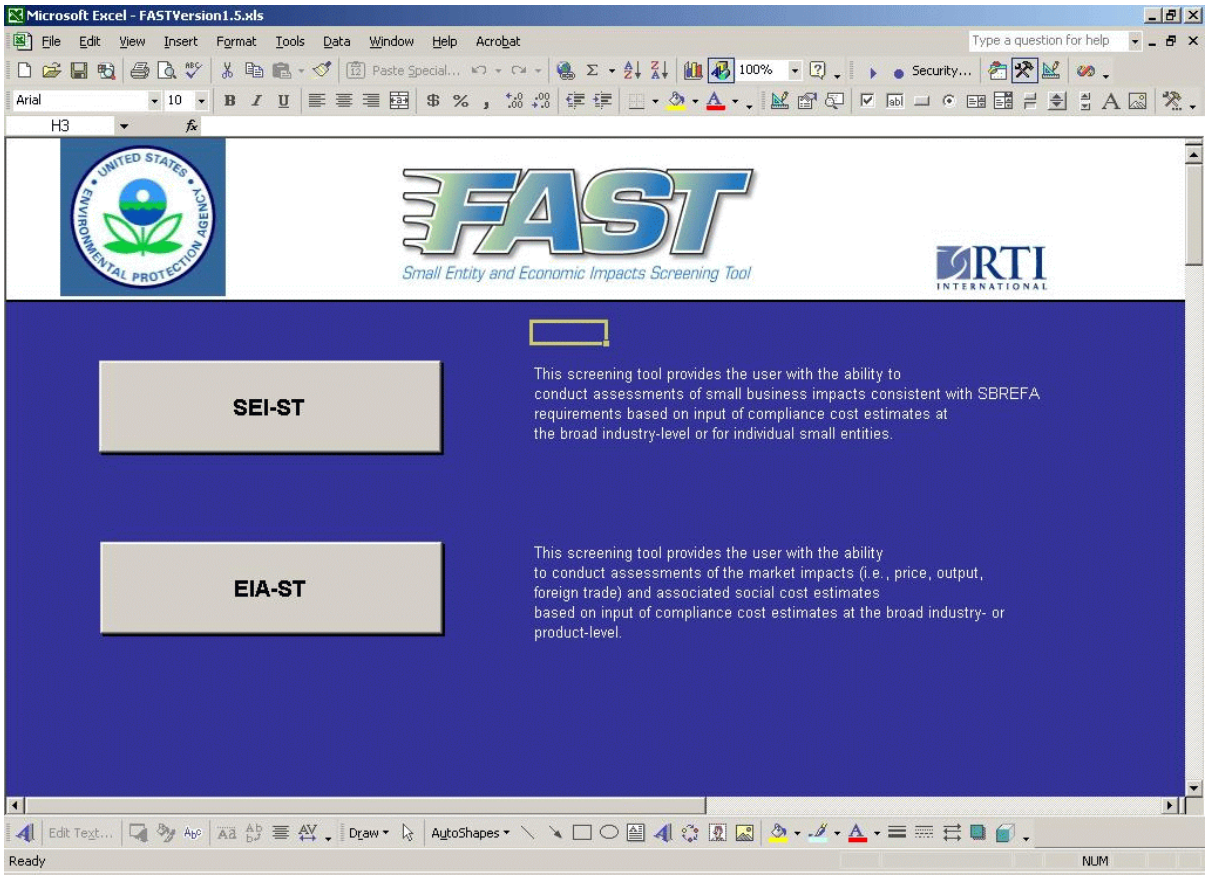

Figure 1-1. Welcome to FAST

- Section 3: Economic Impact Analysis Screening Tool (EIA-ST)–this section provides details on how you can estimate economic impacts associated with emission reduction programs.
- Appendix A: Description of Input Databases and Sources
- Appendix B: List of Industries with Pre-Existing Library of Company Data

1.2 What are the Computer Requirements?

This tool was developed with MS Excel spreadsheet software and uses Excel macros. Based on our testing and evaluation, the minimum system requirements for installation and operation of FAST include the following:

- Operating System: Microsoft® Windows 98 Second Edition or higher, Millennium Edition, Windows NT® 4.0 with Service Pack 6, Windows 2000 with

Service Pack 2, Windows XP Professional or Home Edition, Windows XP Tablet PC Edition

- RAM: 32MB (64MB recommended)
- Storage: 60MB of available hard-disk space
- Software: MS Excel 2000 or higher

1.3 How Do I Install FAST?

The FAST model is contained in a "self-extracting archive." The file will run automatically and extract FAST's program files and folders when the user double-clicks the file in Windows Explorer.[1] As currently developed, FAST must be extracted to the location of your hard drive (e.g., "C:") for certain save and import features to work. Once extracted, the following file structure will be created.

- C:\FAST\—This folder is the main program directory.
- C:\FAST\FASTVersion1.5.xls—This is the FAST model file.
- C:\FAST\FASTUserGuide.pdf—This is the FAST user guide.
- C:\FAST\LOGOS\—This folder contains the FAST logos.
- C:\FAST\COMPANYDATALIBRARY\—This folder contains pre-existing company data sets for FAST.
- C:\FAST\DATA SETS\—This folder contains raw data sets used to populate FAST.
- C:\RESULTTABLES\—This folder is the locations where FAST stores model results.

1.4 Who Do I Contact with Comments and Questions?

For comments and questions, please contact Tyler Fox at the Environmental Protection Agency's (EPA's) OAQPS.

Address: EPA/OAQPS C339-01, Research Triangle Park, NC 27711
E-mail: Fox.Tyler@epa.gov
Telephone: (919) 541-0503

[1]FAST is initially distributed via CD-ROM. The user can access the executable file "FASTV1.7.exe" on this CD.

1.5 Where Can I Find More Information?

The screening tools contained in FAST rely on the data sources and methodologies described in the U.S. EPA's *Guidelines for Preparing Economic Analyses* (EPA, 2000) and the *OAQPS Economic Analysis Resource Document* (EPA, 1999), which can be accessed using the following web addresses:

- http://yosemite1.epa.gov/ee/epa/eed.nsf/pages/Guidelines.html
- http://www.epa.gov/ttnecas1/analguid.html

The *OAQPS Resource Manual* provides ISEG with guidance on preparing economic analyses. Several examples of economic impact analyses (EIAs) conducted by our group can be accessed at the following web address:

- http://www.epa.gov/ttnecas1/econguid.html

These two links are part of ISEG's economics and cost analysis support web site that provides analysts and the public with other relevant documents.

- http://www.epa.gov/ttnecas1/.

SECTION 2

SMALL ENTITY IMPACT SCREENING TOOL (SEI-ST)

Several statutes specifically require impact analyses that are supplemental to the estimates of total benefits and costs of the regulation. For example, the Regulatory Flexibility Act (RFA) of 1980 requires that special consideration be given to small entities affected by federal regulations. In 1996, the RFA was amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA) to strengthen its analytical and procedural requirements. Under SBREFA, the Agency must perform a regulatory flexibility analysis for rules that will have a significant impact on a substantial number of small entities. A detailed discussion of requirements, methods, and impact criteria used by the Agency when conducting these analyses can be found in Section 6 of the *OAQPS Economic Analysis Resource Document* (EPA, 1999).

The screening analysis employed in FAST is a "sales test" or "revenue test" that computes the annualized compliance costs as a share of sales/revenue for each small entity.

Impact Measure = Cost-to-Sales Ratio = Total Annualized Compliance Costs (TACC) ÷ Total Small Entity Sales or Revenue

Upon selecting the SEI-ST from the FAST Welcome Screen (see Figure 2-1), you will be provided with an interface screen for the SEI analysis. The remainder of this section provides details on conducting a screening analysis using this tool.

2.1 Overview of the SEI-ST

As shown in Figure 2-2, upon selecting the SEI-ST from the FAST Welcome Screen, you are provided with two choices for screening analysis:

- *Representative Entity*—Sales information for individual companies may not be readily available to the analyst. In these cases, this screening option allows you to compute an impact for an *average entity*. It also offers a limited capability to provide average entity impacts by firm employment size categories.[1]

[1]These categories are defined by the number of employees within the firm and are limited to predefined categories developed by the Census Bureau.

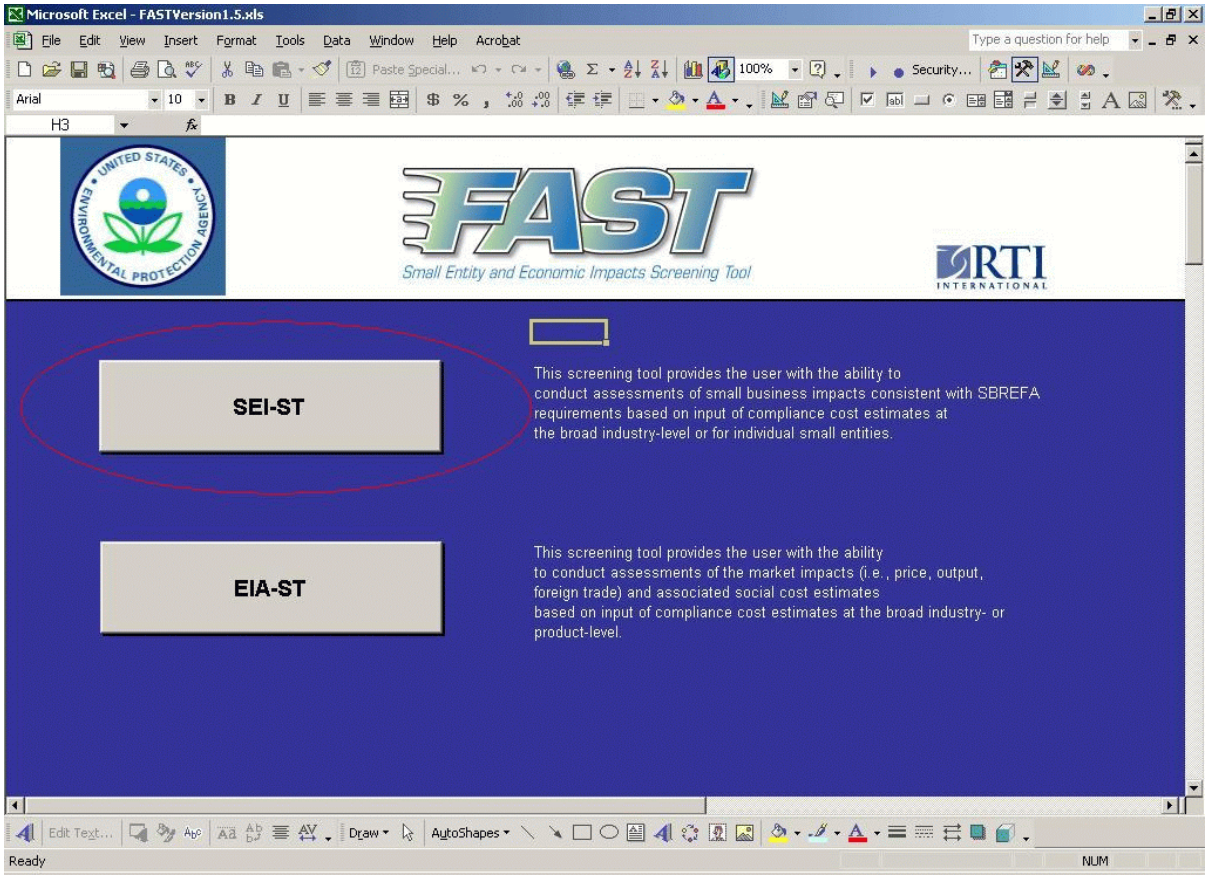

Figure 2-1. Welcome to FAST: SEI-ST

- Entity Specific—This screening option allows you to use pre-existing sales and employment data sets or choose to collect company sales employment data sets for the analysis. FAST uses these inputs to examine *entity-specific* impacts.

We provide step-by-step instructions on using FAST for these two screening options and illustrate its use in more detail below.

2.2 Conducting a Screening Analysis with Representative Entity Data

As noted earlier, you may have to rely on average entity data for the screening analysis if sales information on individual companies is not readily available. To conduct a screening analysis in this case, you follow five steps:

- Step 1—Select an Industry
- Step 2—Data Entry: Average Revenue Data

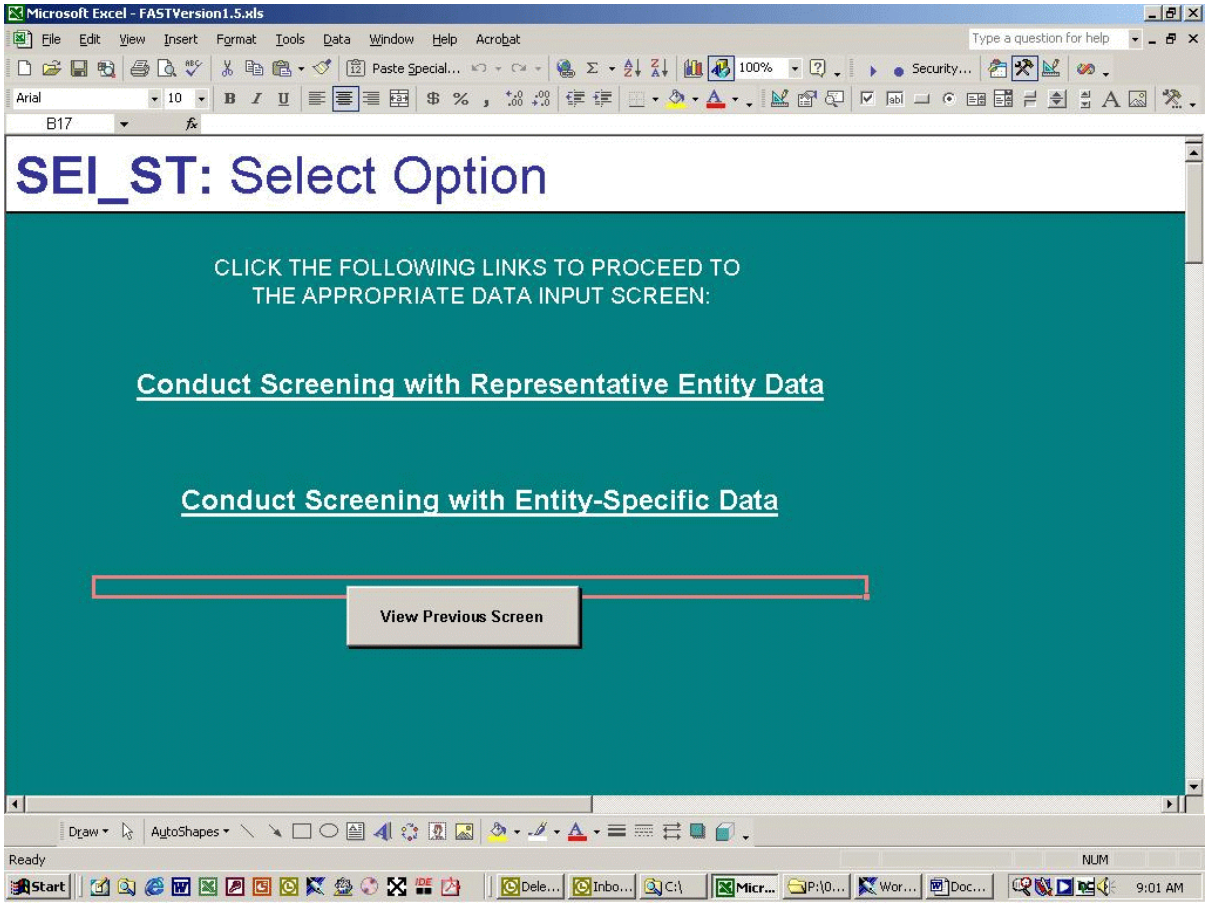

Figure 2-2. SEI-ST: Choose the Type of Screening Analysis Performed with FAST

- Step 3—Data Entry: Environmental Compliance Costs
- Step 4—View, Print, and Save Tabular Results
- Step 5—Options for Next Steps

Step 1—Select an Industry

As shown in Figure 2-3, you define the industry for analysis using the drop-down menu list. FAST includes the most recent industry data from the *Statistics of U.S. Businesses* (U.S. Census Bureau, 2003a) and includes receipt tabulations by employment category. The data are reported for 1997 and published according to the Standard Industrial Classification (SIC) system. EPA will incorporate North American Industry Classification

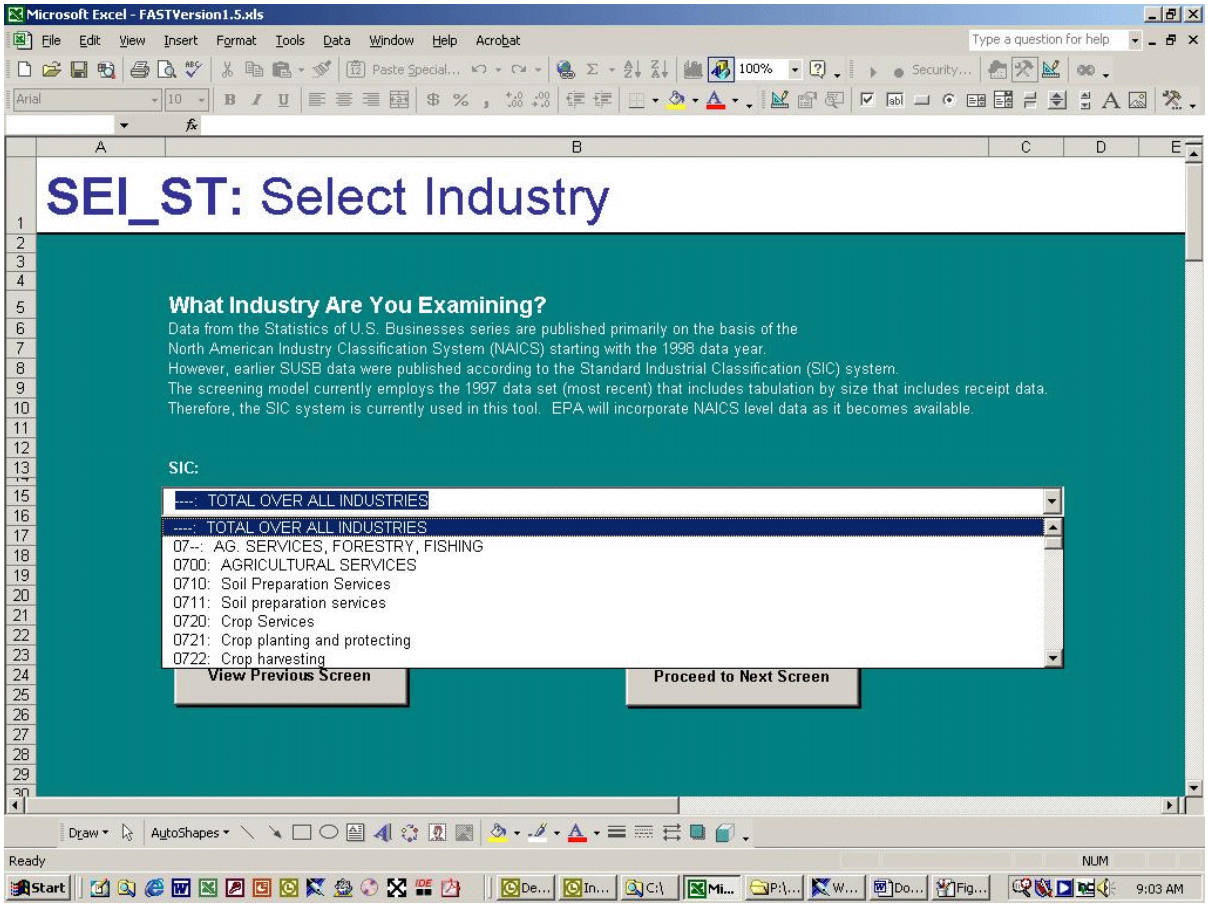

Figure 2-3. SEI-ST: Representative Entity Screening Analysis: Use Drop-Down Menu to Select Industry

System (NAICS)-level data as they become available. Once an industry is selected, you can proceed to the **NEXT SCREEN** or **VIEW** the previous screen.

Step 2—Data Entry: Average Revenue Data

You begin the data entry process for an average entity by selecting the type of entity being analyzed. As shown in Figure 2-4, FAST provides two choices for the type of entity: firm or a government or nonprofit organization. Next you can choose to use default average revenue data (computed using the census data for the industry selected) or enter your own data. If default data are selected, you can proceed directly with Step 3. If your own data is selected, FAST will provide a series of data entry prompts that guide you through the data entry process.

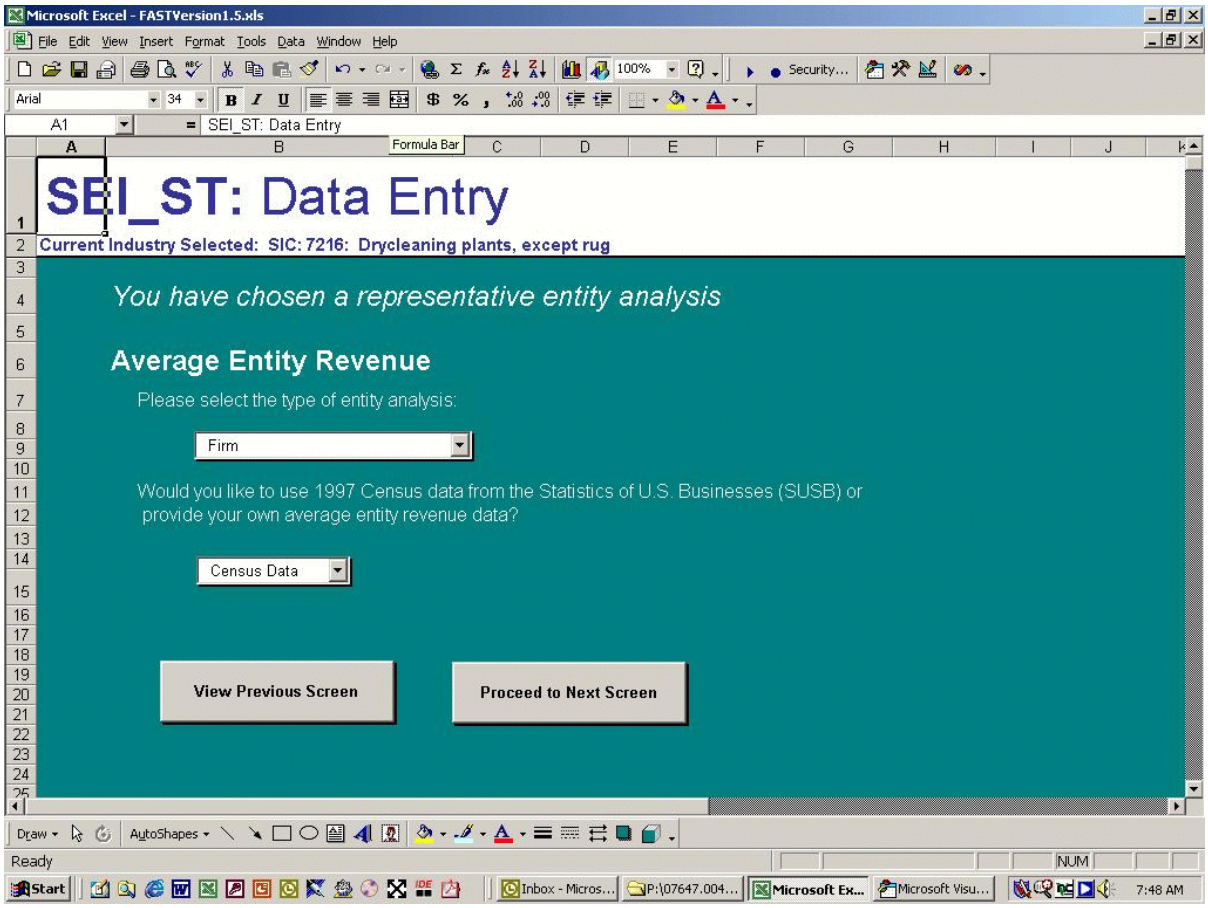

Figure 2-4. SEI-ST: Use Drop-Down Menu to Select Entity Type and Data Source

As shown in Figure 2-5, FAST currently offers the capability of analyzing impacts for the following three employment category combinations:[2]

- Employment Category Option 1 (four employment categories)
  - ✓ fewer than 20 employees
  - ✓ 20 to 99 employees
  - ✓ 100 to 499 employees
  - ✓ 500 or more employees

[2]These categories are defined by the number of employees within the firm and are limited to predefined categories developed by the Census Bureau.

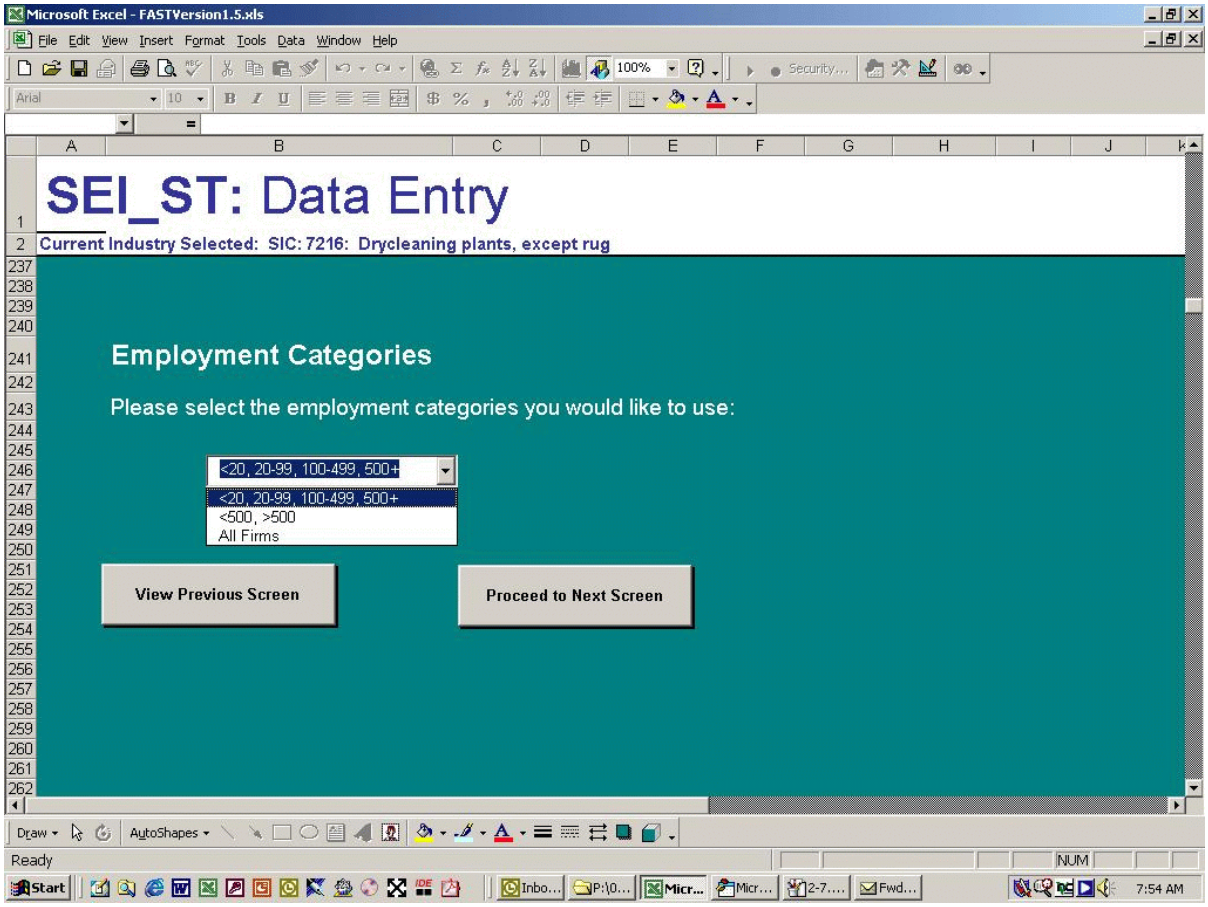

Figure 2-5. SEI-ST: Use Drop-Down Menu to Select Employment Category

- Employment Category Option 2 (two employment categories)
  - ✓ fewer than 500 employees
  - ✓ 500 or more employees
- Employment Category Option 3 (one employment category)
  - ✓ all firms

For example, if employment category Option 2 (<500 employees and 500+ employees) is selected, FAST will compute impacts for two representative entities, one with fewer than 500 employees and one with 500 or more employees. When making this selection, you may want to consider sales data availability and the detail of the environmental compliance cost inputs.

For example, it may not be necessary to use employment categories if environmental costs are provided by the engineering analysis at the national level.

Once an employment category option is selected, you proceed with average revenue data entry (expressed as $1,000 per entity). The program uses a generic data entry template that highlights data entry cells in "yellow" and blacks out cells that are not applicable. For example, if the analyst chooses Option 1, FAST highlights all four employment categories in yellow (see Figure 2-6). Alternatively, FAST highlights only the "all firms" data entry cell in yellow if Option 3 is chosen, as shown in Figure 2-7.

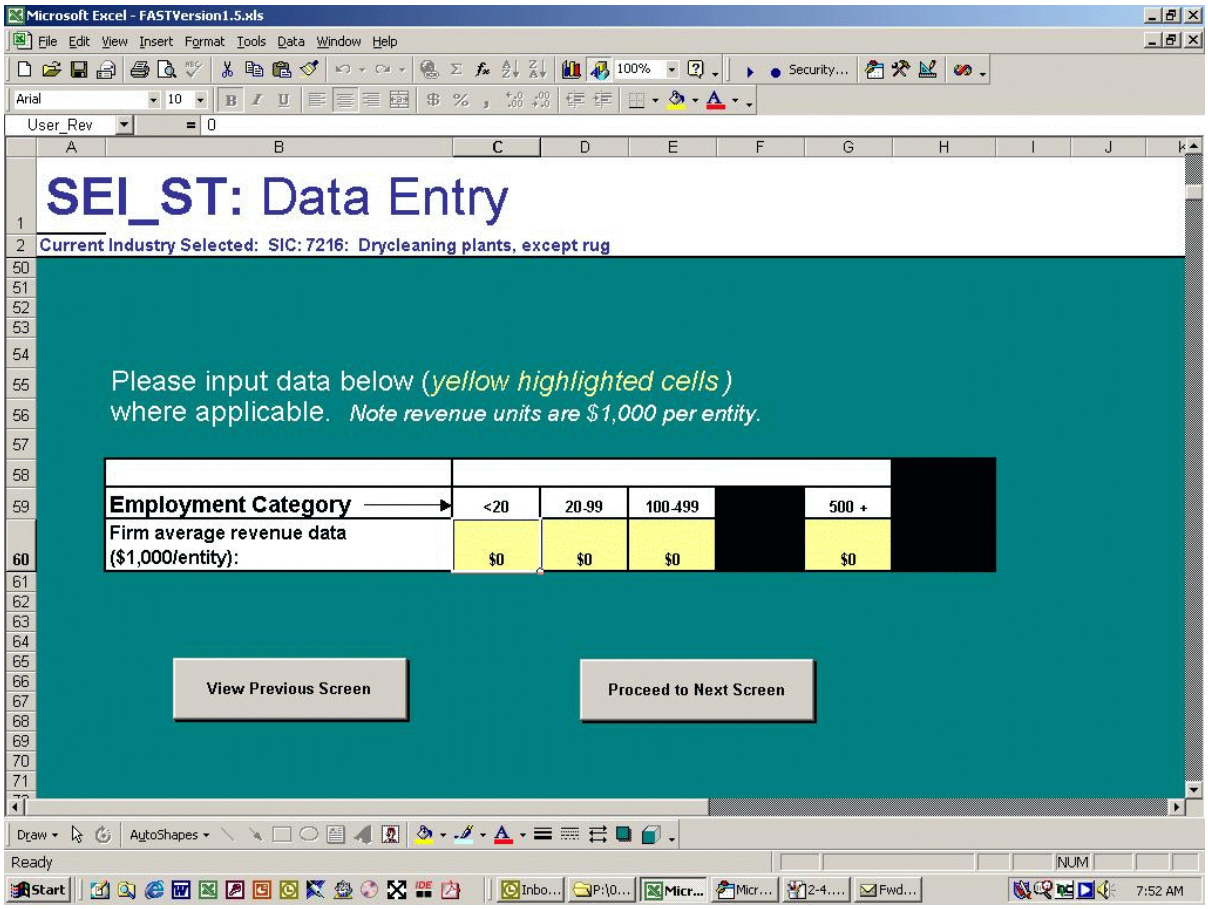

Figure 2-6. SEI-ST: Enter Entity Average Revenue Data by Employment Category

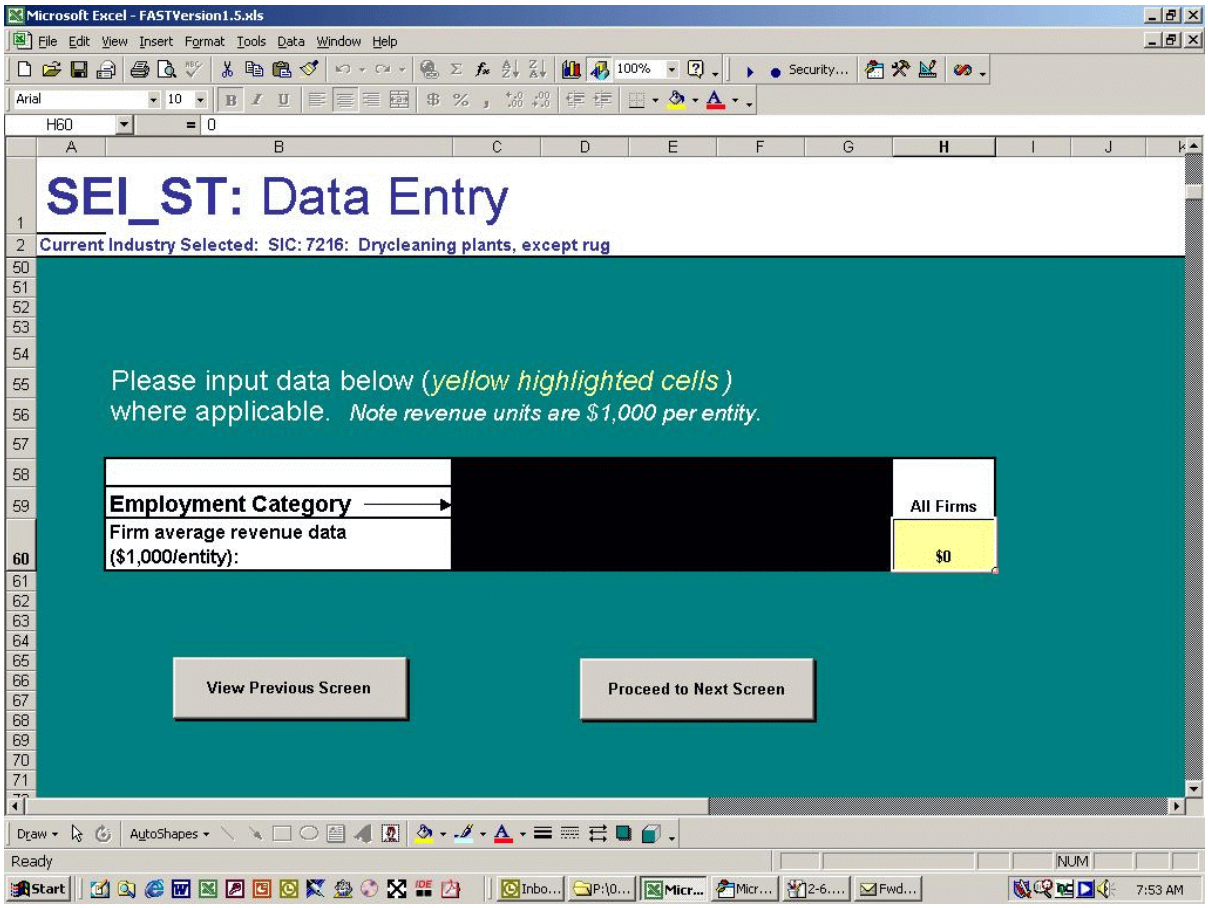

Figure 2-7. SEI-ST: Enter Entity Average Revenue Data for Industry

Step 3—Data Entry: Environmental Compliance Costs

After average revenue data entry is complete, you are prompted to enter total annual compliance costs (TACC) information. You can enter TACC by employment category (if known) or as national total (if costs by employment category are unknown) (see Figure 2-8). This process is described in more detail below.

Entering TACC by Employment Categories

If this option is selected, the tool requires you to specify the method of entering TACC using a drop-down menu. If you select **TOTAL TACC PER CATEGORY**, FAST requires a total dollar value of costs at the employment category level and the affected number of entities. The tool uses these values to calculate average entity TACC (see

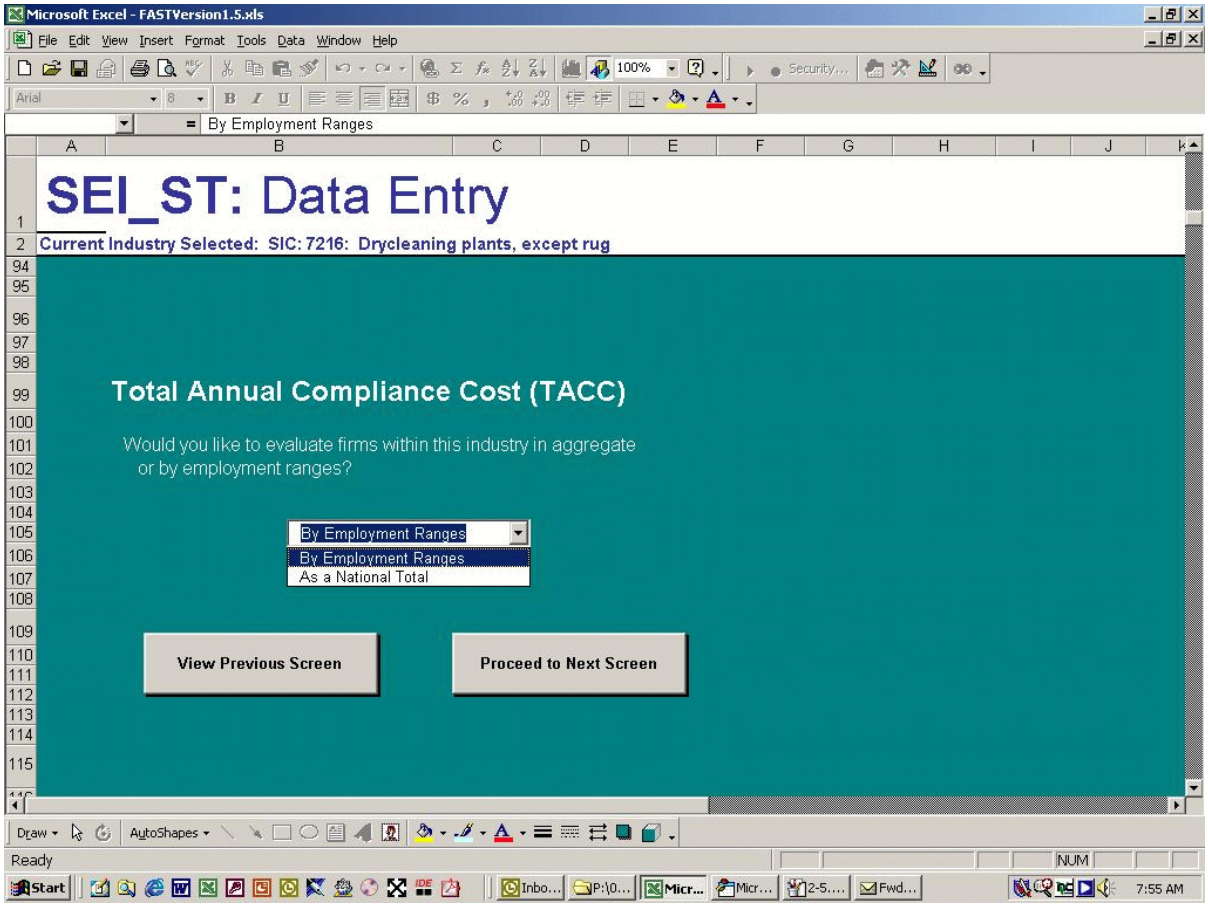

Figure 2-8. SEI-ST: Use Drop-Down Menu to Choose How to Enter Environmental Compliance Costs

Figure 2-9). Alternatively, you can enter the **AVERAGE TACC PER CATEGORY** for and enter average entity TACC directly rather than have FAST compute the measure, as shown in Figure 2-10. Finally, you can use a drop-down box to specify the unit of measurement for the costs.

TACC Data Entry: An Example

To illustrate this process, consider an analysis that computes average revenue for two representative entities (<500 employees and 500+ employees). You have TACC for both employment categories and also know the number of affected firms. In this case, you would use the drop-down box to select **TOTAL TACC PER CATEGORY**, to enter the number of firms affected, and to enter the TACC for each category.

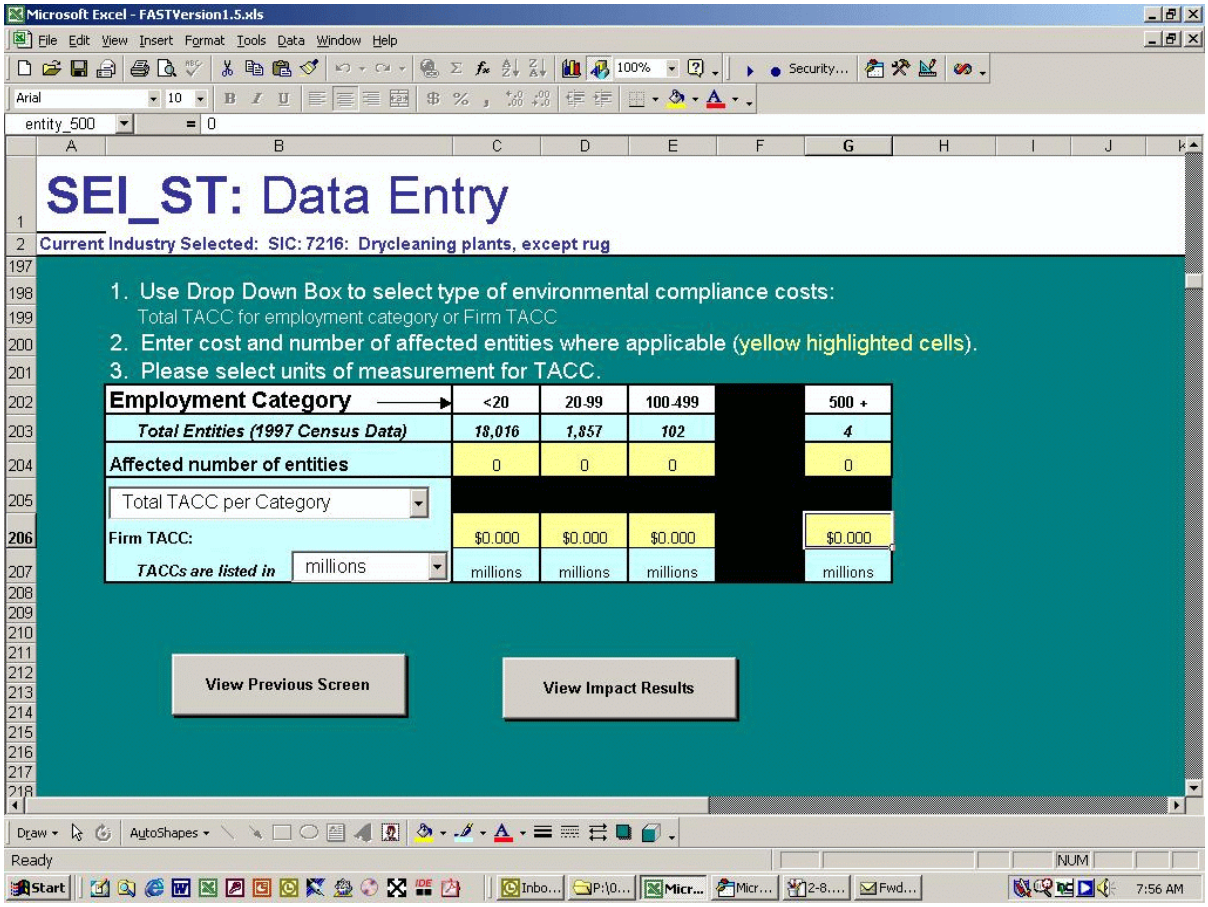

Figure 2-9. SEI-ST: Environmental Compliance Cost Data Entry: Total Annual Compliance Costs per Employment Category

You can follow a similar procedure if you have estimates of the average TACC for both employment categories. In this case, you would use the drop-down box to select **AVERAGE TACC PER CATEGORY** and enter the value in the appropriate data entry cells.

Entering TACC as National Total

If the compliance costs inputs are not available by employment category, you can enter values using a simplified data entry table that asks for the number of affected entities and the national TACC. In this case, FAST will use the data input to compute an *industry* average TACC per entity (see Figure 2-11).

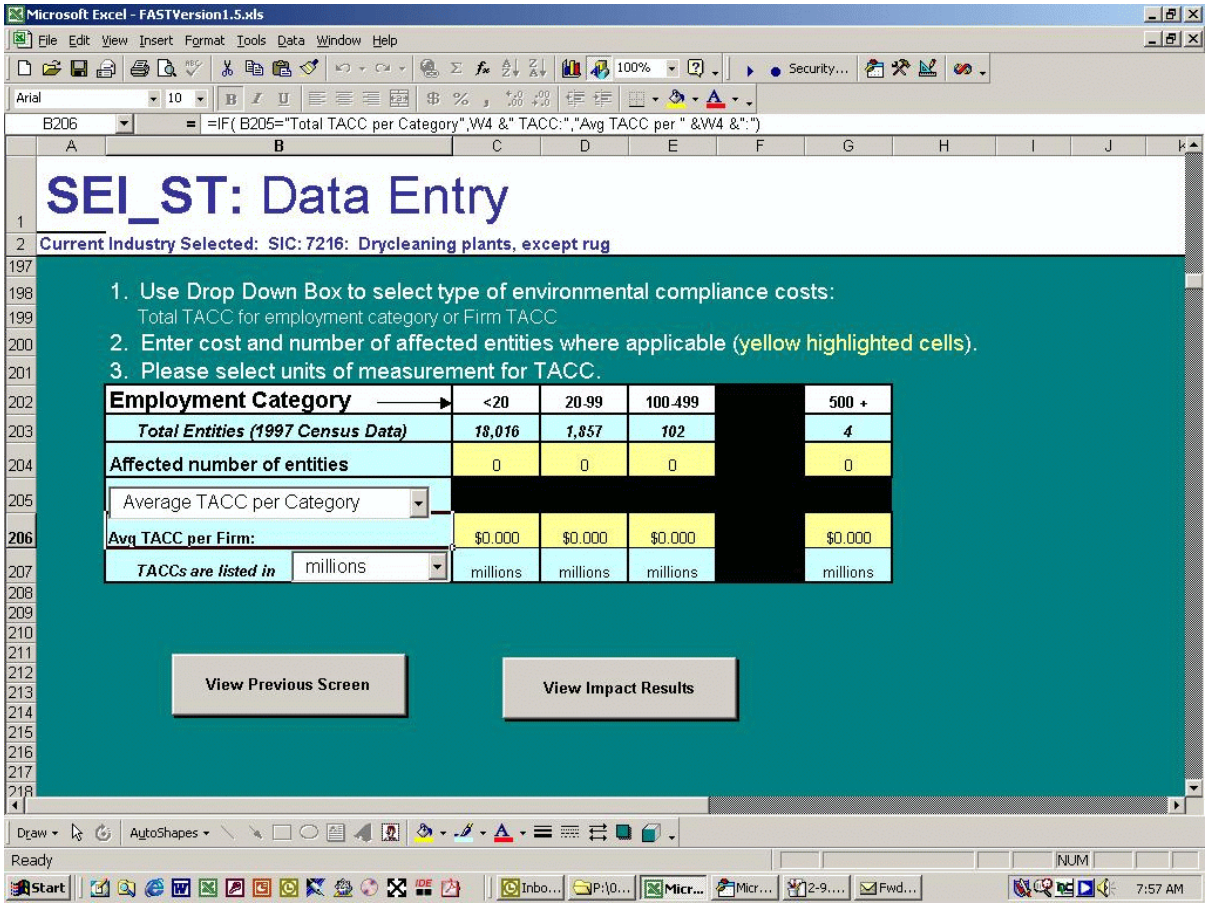

Figure 2-10. SEI-ST: Environmental Compliance Cost Data Entry: Average Total Annual Compliance Costs per Entity

Step 4—View, Print, and Save Tabular Results

When you have completed all data entry steps, you can generate impact results tables. Tabular output includes a standard SBREFA impact table (see Figure 2-12), which presents the number of affected firms in the industry, the average TACC, and the cost-to-sales ratios (CSRs) across employment categories. The reporting conventions are consistent with the OAQPS resource document and recent EIAs conducted by OAQPS. Data are also available to place the CSRs in the context of broad industry profitability measures.

Once you have viewed the tables, you can use the screen buttons to print, save and export the results:

- Print results—Tabular results will be sent to your default printer.

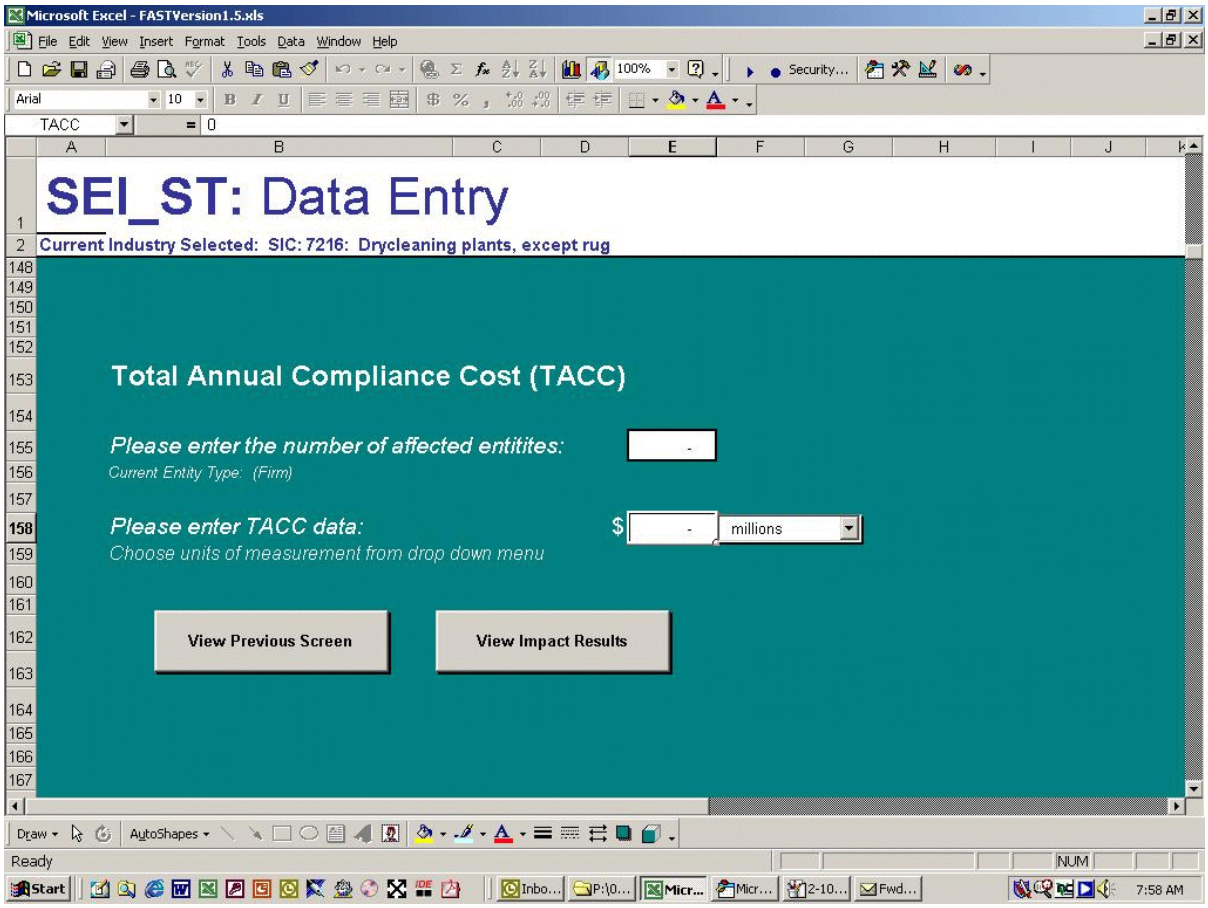

Figure 2-11. SEI-ST: Environmental Compliance Cost Data Entry: National Total Annual Compliance Costs

- Save and export results—Tabular results will be saved as a stand-alone MS Excel file and can be stored for future reference.

Step 5—Options for Next Steps

As shown in Figure 2-13, once you have viewed, printed, and/or saved the screening results, you can

- return to the main menu, or
- revise the environmental compliance cost values.

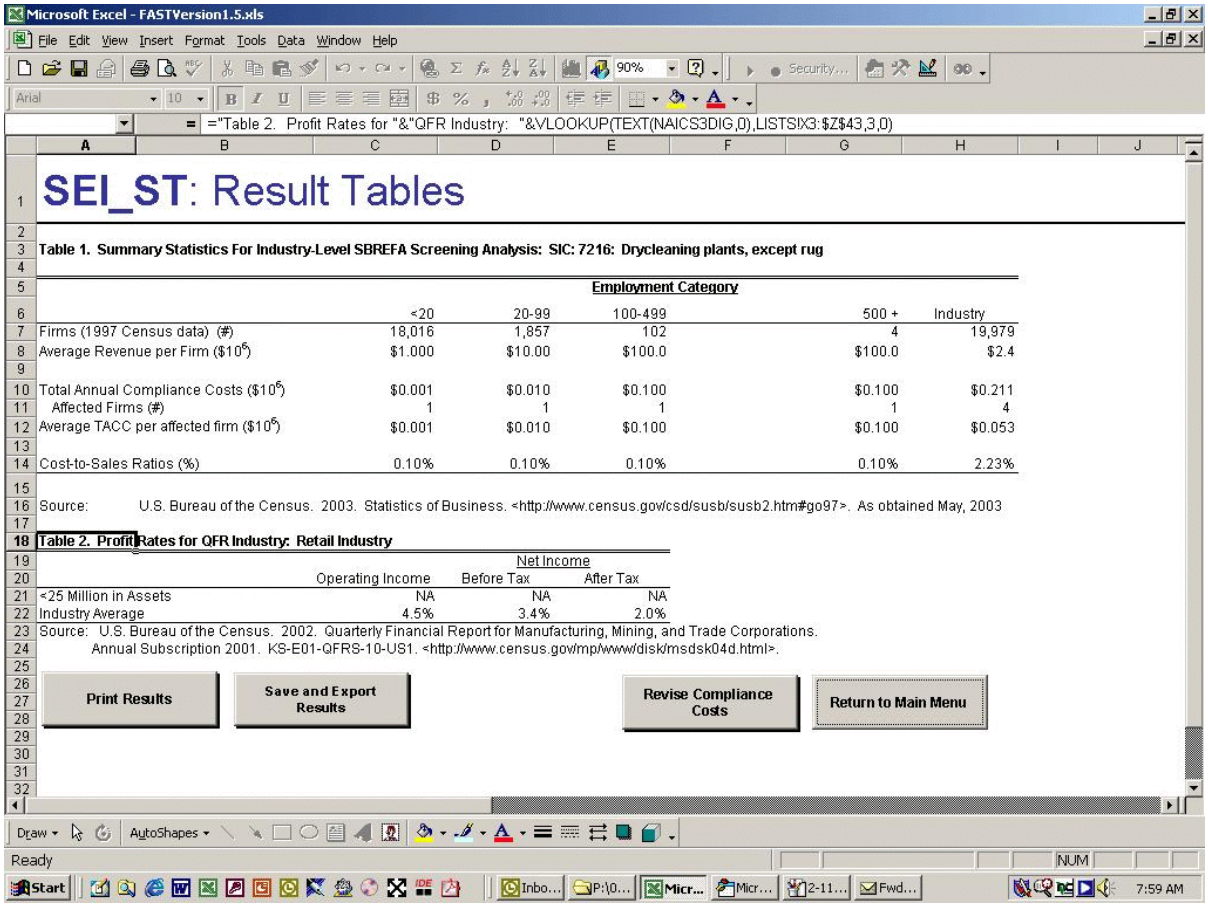

Figure 2-12. SEI-ST: Example Result Tables for Industry-Level Analysis

2.3 Conducting a Screening Analysis with Entity-Specific Data

If you prefer to conduct an entity-specific analysis, FAST can use pre-existing sales and employment data sets. Alternatively, you may choose to collect company sales and employment data using FAST's "database building feature" to create formatted input data sets. To conduct a screening analysis in this case, you follow six steps:

- Step 1—Select an Industry
- Step 2—Data Entry: Total Annual Compliance Costs
- Step 3—Data Entry: Company Sales and Employment Data
- Step 4—Determine Small Business Definitions

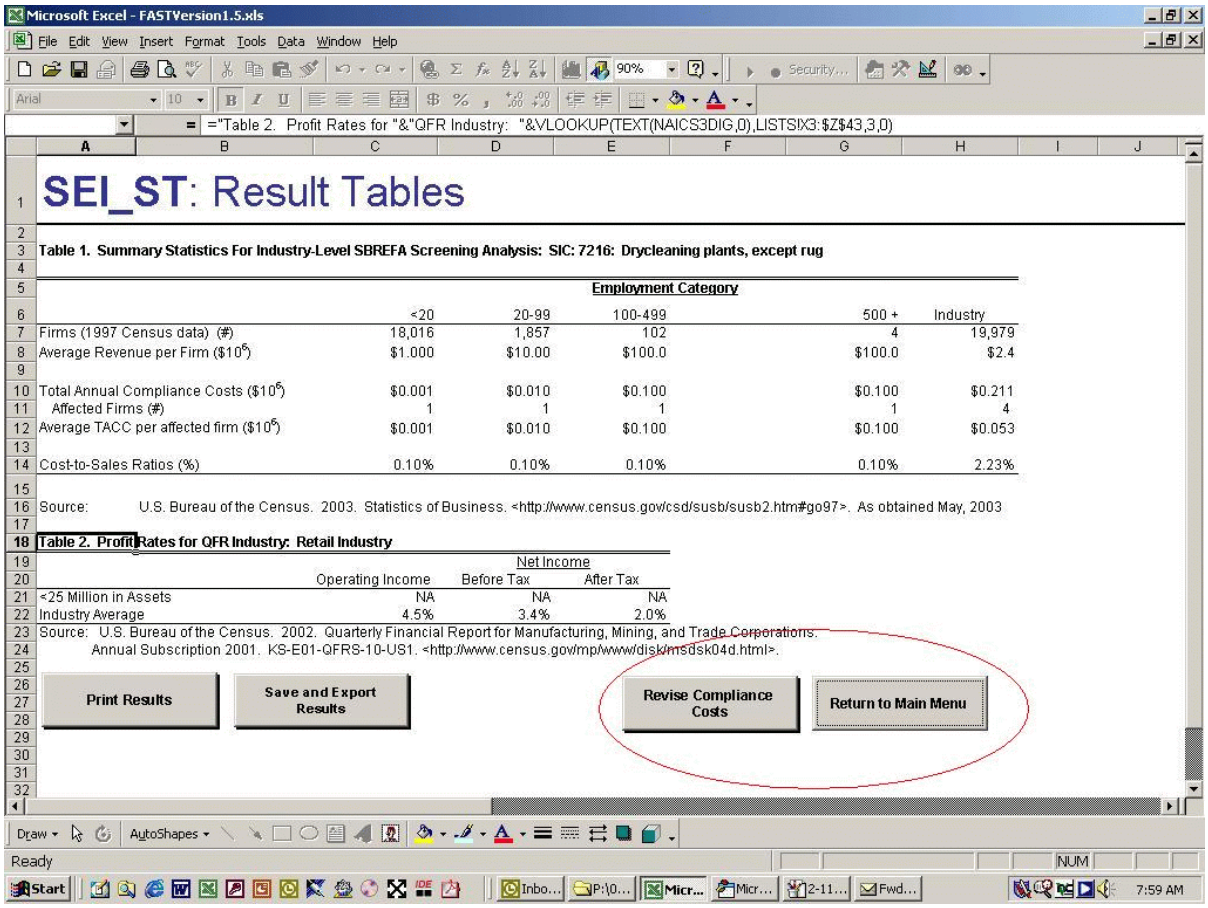

Figure 2-13. SEI-ST: Next Steps for Analysis

- Step 5—View, Print, and Save Tabular Results
- Step 6—Options for Next Steps

Step 1—Select an Industry

As shown in Figure 2-14, you must first define the industry for analysis by selecting from the industry listing using the drop-down menu list of available industries from NAICS. This selection will be stored for use in determining the Small Business Administration (SBA) size standard for small businesses (SBA, 2003).

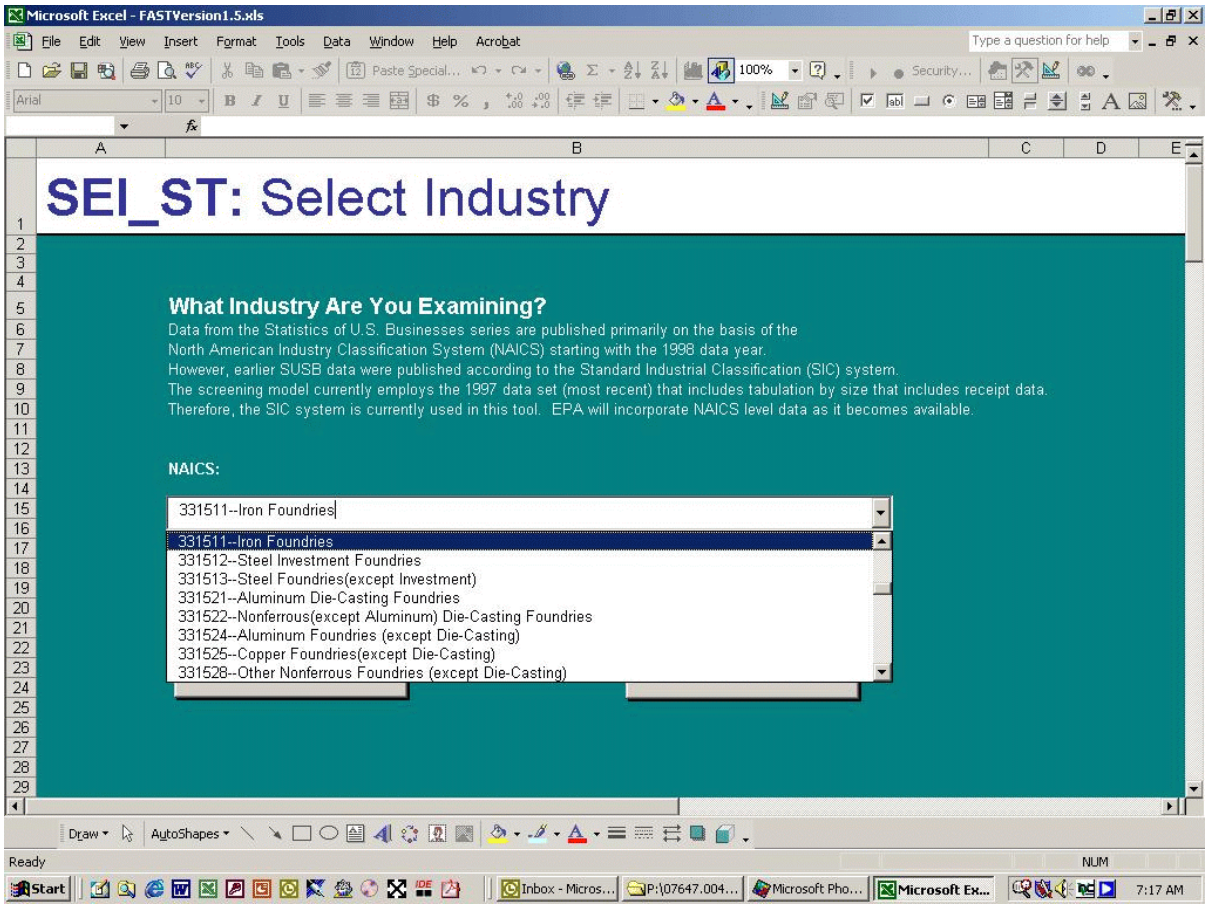

Figure 2-14. Use Drop-Down Menu to Select Industry: Entity Specific Screening Analysis

Step 2—Data Entry: Total Annual Compliance Costs

After selecting an industry, you will then enter the TACC by selecting the method by which TACC will be entered from a drop-down menu. As shown in Figure 2-11, you can enter the TACC in one of the following three ways:

- National total—You will be asked for the TACC and the number of entities affected. The tool will use this information to compute an average TACC per company. You must specify the units of the compliance costs using a drop-down menu (see Figure 2-15).

- Average per company—You may already have an estimate of the average TACC per company. In this case, you must enter this value directly and specify units of the compliance costs (see Figure 2-16).

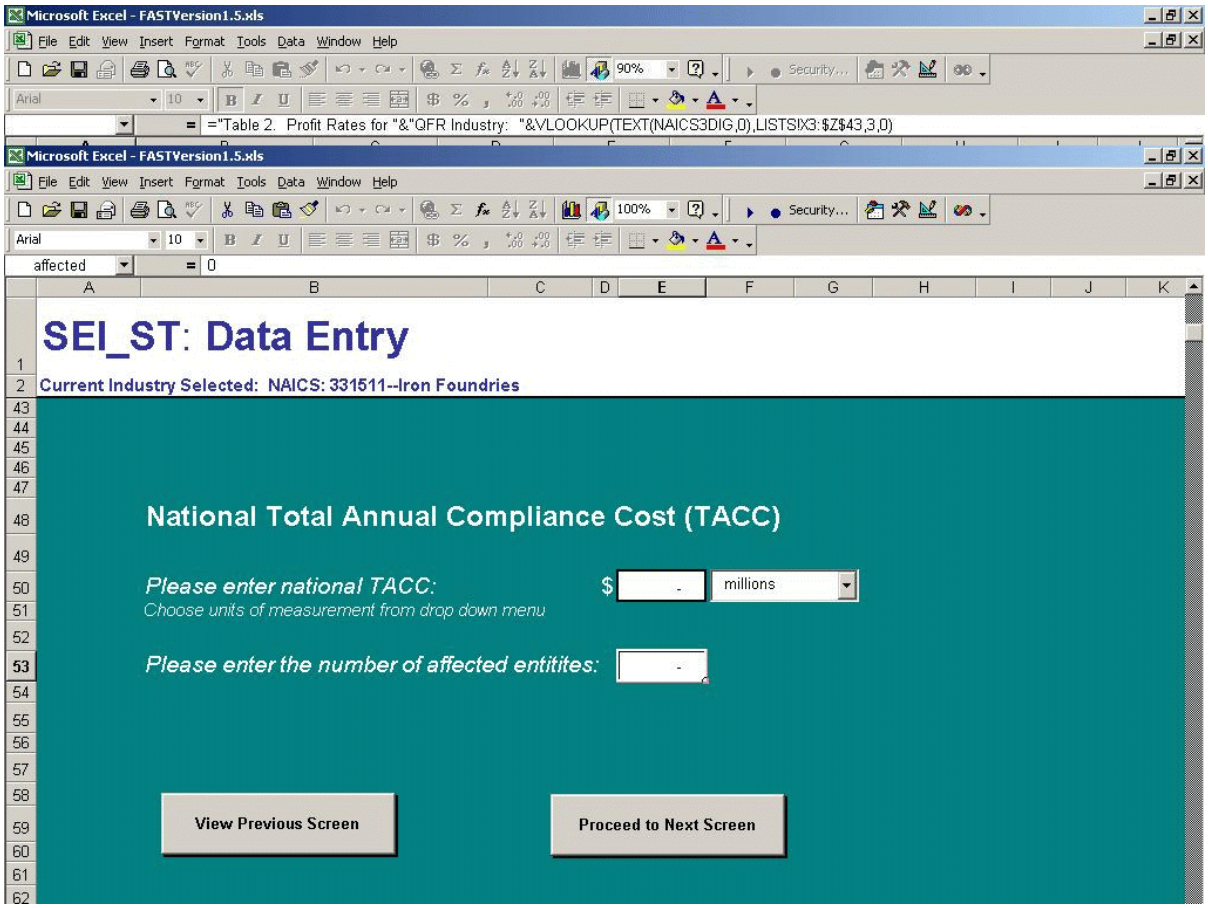

Figure 2-15. SEI-ST: Enter National Total Annual Compliance Costs and Number of Affected Entities

- Company specific—You may possess company-specific compliance costs. When this option is selected, the tool will proceed directly to Step 3 (see below) and you must input these cost data as part of the sales and employment data entry.

Step 3—Data Entry: Company Sales and Employment Data

Once Step 2 is completed, you can enter company sales and employment data or retrieve the data from a pre-existing database. This process is described in more detail below.

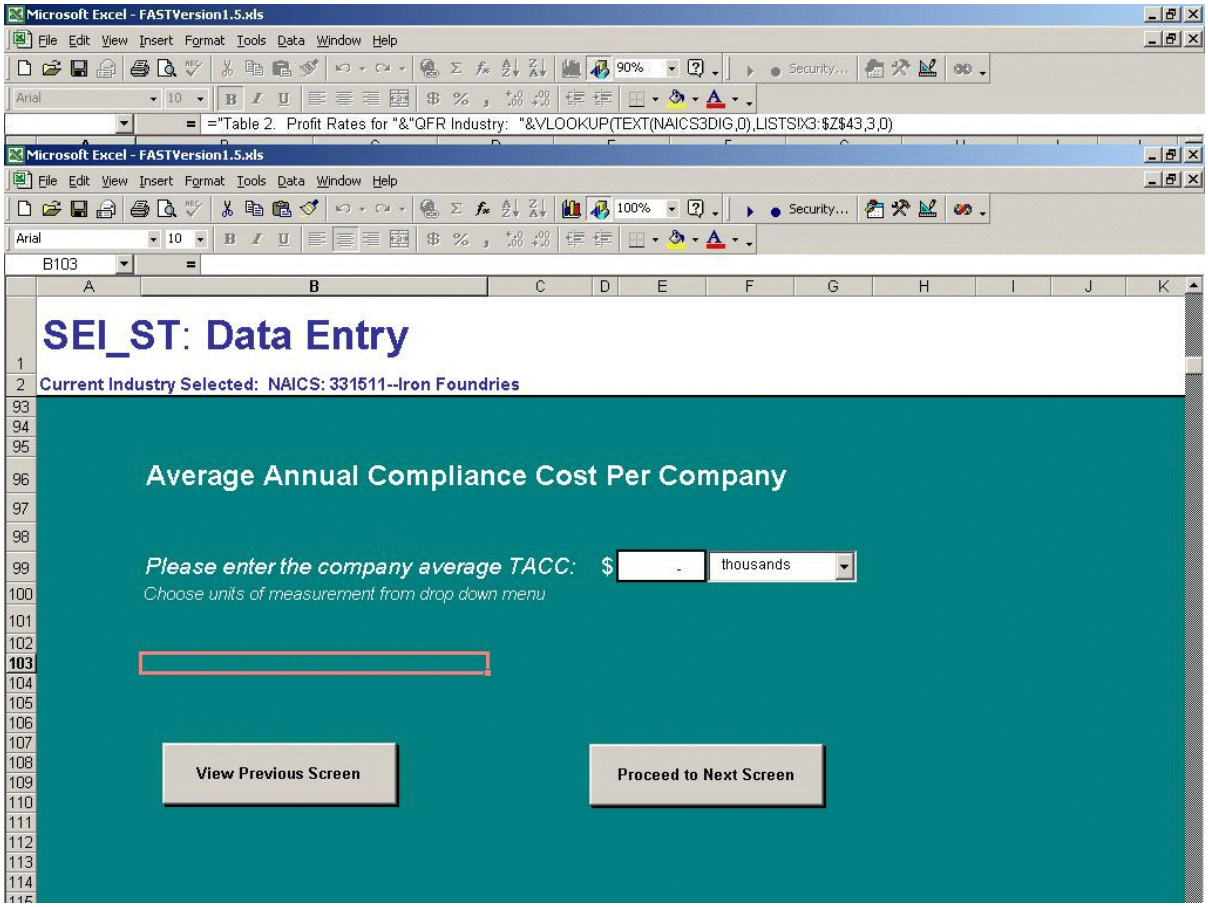

Figure 2-16. SEI-ST: Enter Average Total Annual Compliance Costs per Entity

Analyst Directly Enters Data

As shown in Figure 2-17a, this option requires the following information: unique company ID,[3] company name, company employment, and company sales. You must also specify (with drop-down box) the units of employment and sales. The company information should reflect the data for the ultimate parent company that owns the source being regulated. If you have selected to enter company-specific compliance costs in Step 2, these data can be entered at this stage, as shown in Figure 2-17b.

[3]This is typically a numeric system. For example, if there are 10 firms affected by the rule, the analyst would assign each a unique number 1 through 10.

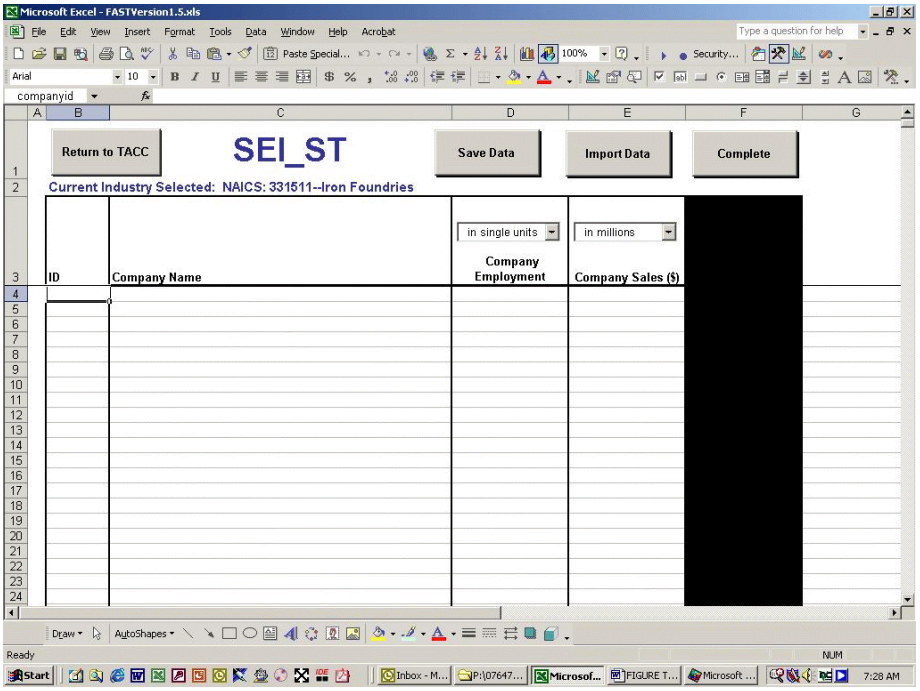

Figure 2-17a. SEI-ST: Entering Company Data Set: Sales and Employment

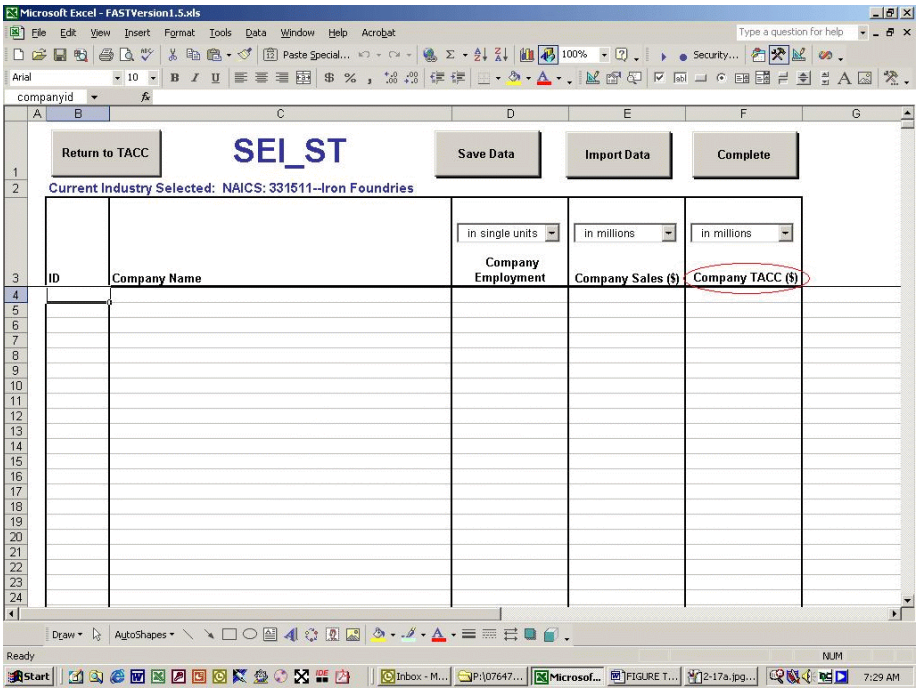

Figure 2-17b. SEI-ST: Enter Entity-Specific Total Annual Compliance Costs

Once the data are entered, you can save the input for future use by clicking on the **Save Data** button. The tool will ask you the following: Do you want to save data? If yes, a message box will appear asking for the filename. The file will be automatically saved in the dataset folder associated with FAST for future use, as shown in Figure 2-18.

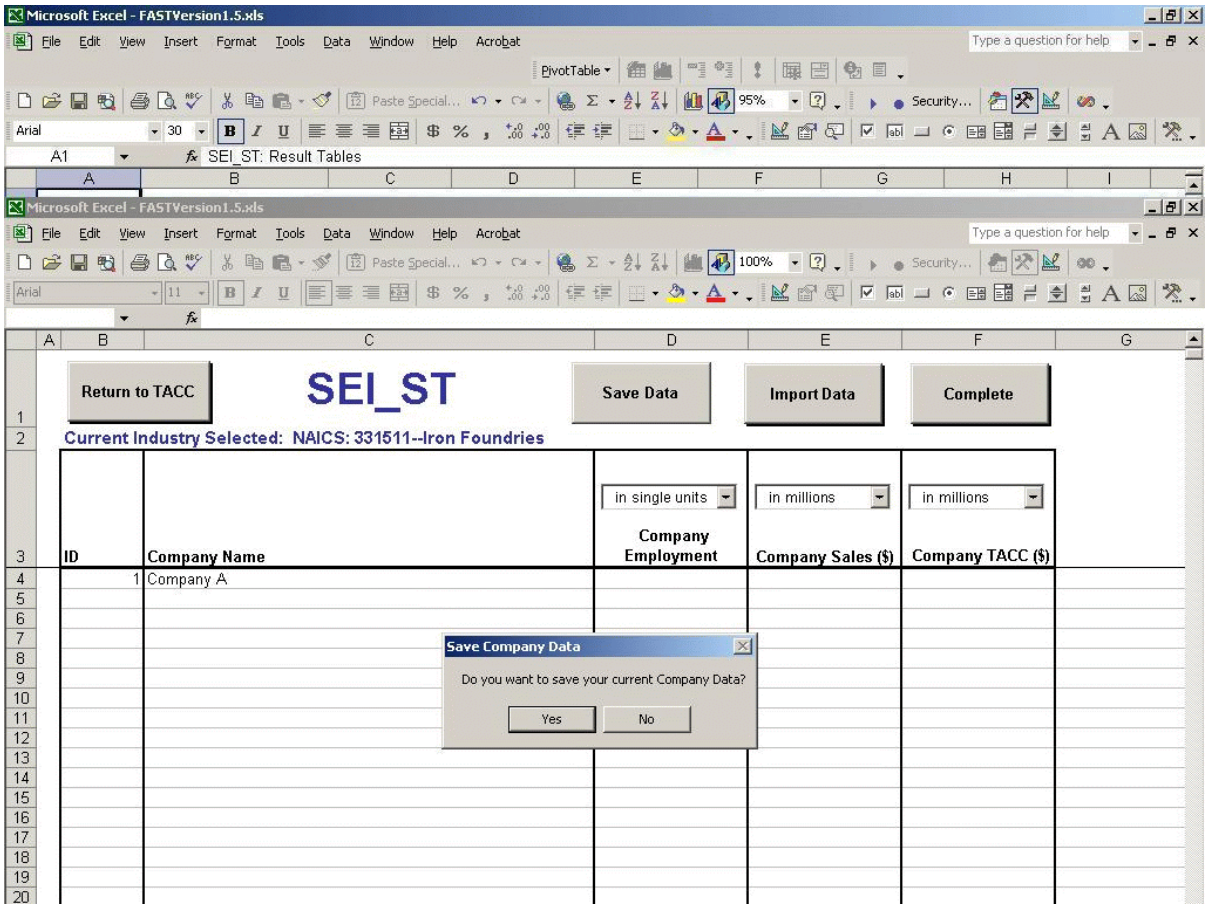

Figure 2-18. SEI-ST: Saving Company Data Set

Analyst Imports Data from an Existing Data Set

To access a pre-existing data set, the analyst can click on IMPORT, and a message box will bring up the open file directory as shown in Figure 2-19. You can choose the appropriate directory, subdirectory, and filename of the input file, and the data will imported into the current spreadsheet.

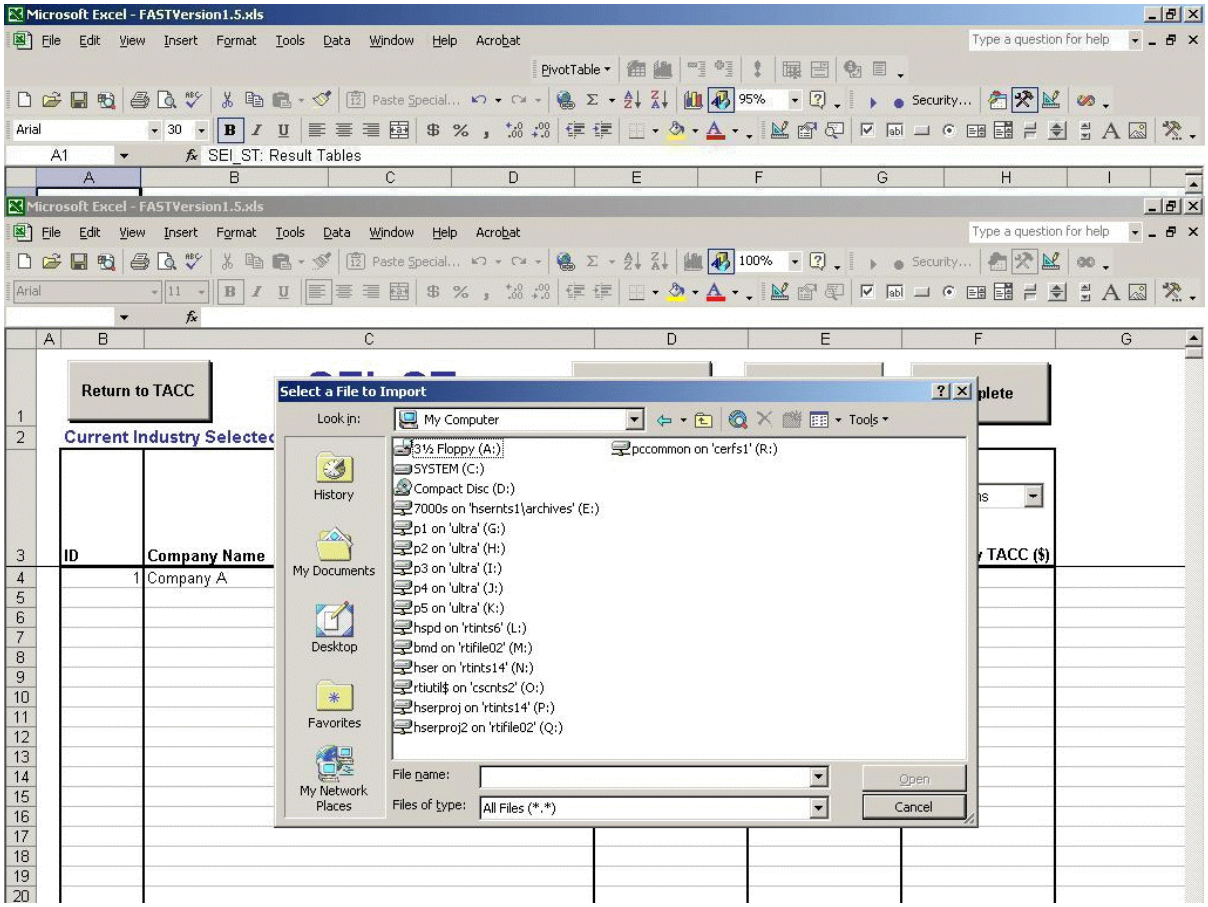

Figure 2-19. Importing a Pre-existing Data Set

Step 4—Determine Small Business Definitions

Once data entry is complete, you are prompted to specify which small business definition to use (either SBA or analyst defined) (see Figure 2-20). If you select the SBA definition, FAST will extract the appropriate definition based on the industry identified earlier in Step 1. Alternatively, you can specify the size definition and use the drop-down menu to denote whether it is a revenue or employment standard.

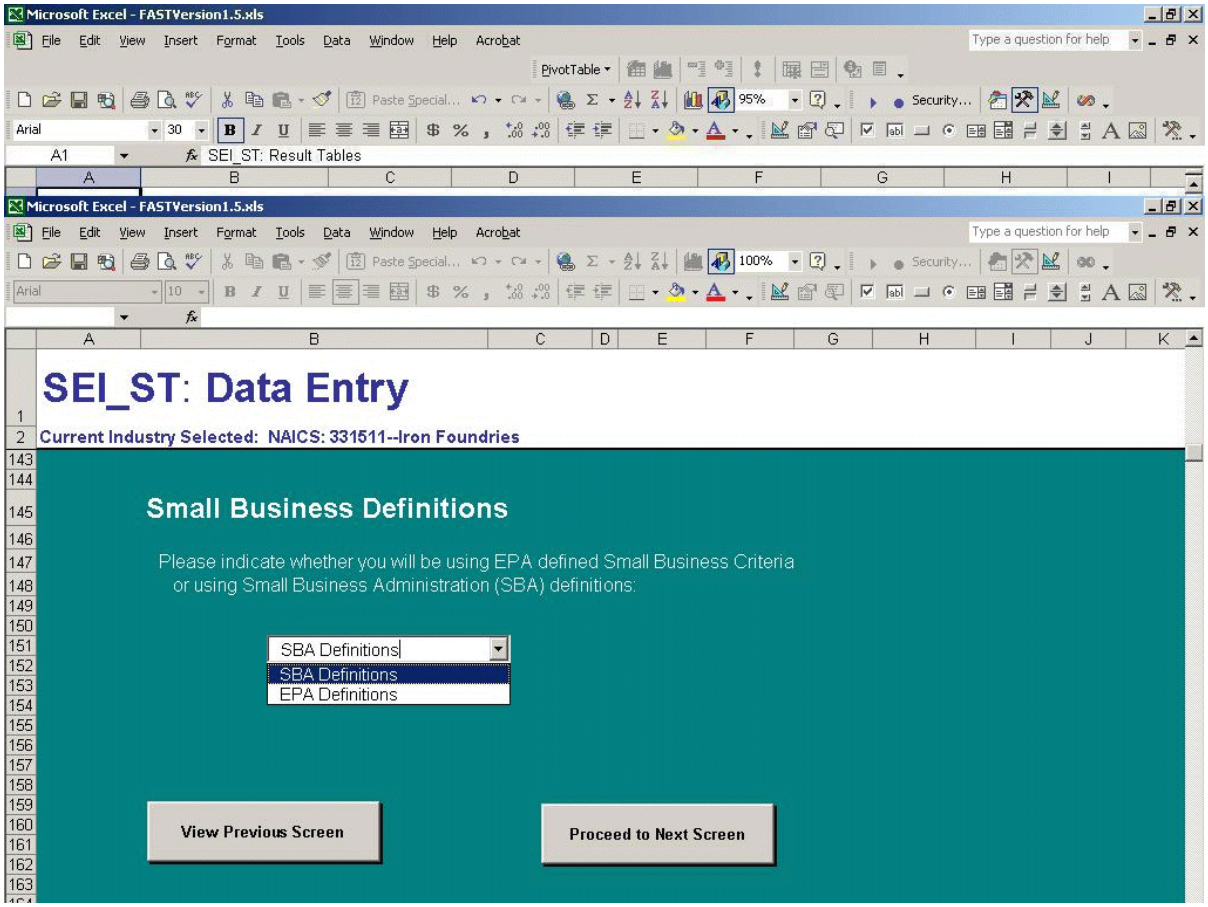

Figure 2-20. SEI-ST: Selecting Small Entity Definitions

Step 5—View, Print, and Save Tabular Results

Once Steps 1 through 4 are complete, you can generate impact results. Output includes standard SBREFA impacts, which present the number of affected firms in the industry, the average TACC, and the CSRs across employment categories (see Figure 2-21). Profit data are also available for selected manufacturing industries and can be used to place the CSRs in the context of these profitability measures. Please refer to the OAQPS resource document, Section 6, for guidance on using these outputs during the regulatory process.

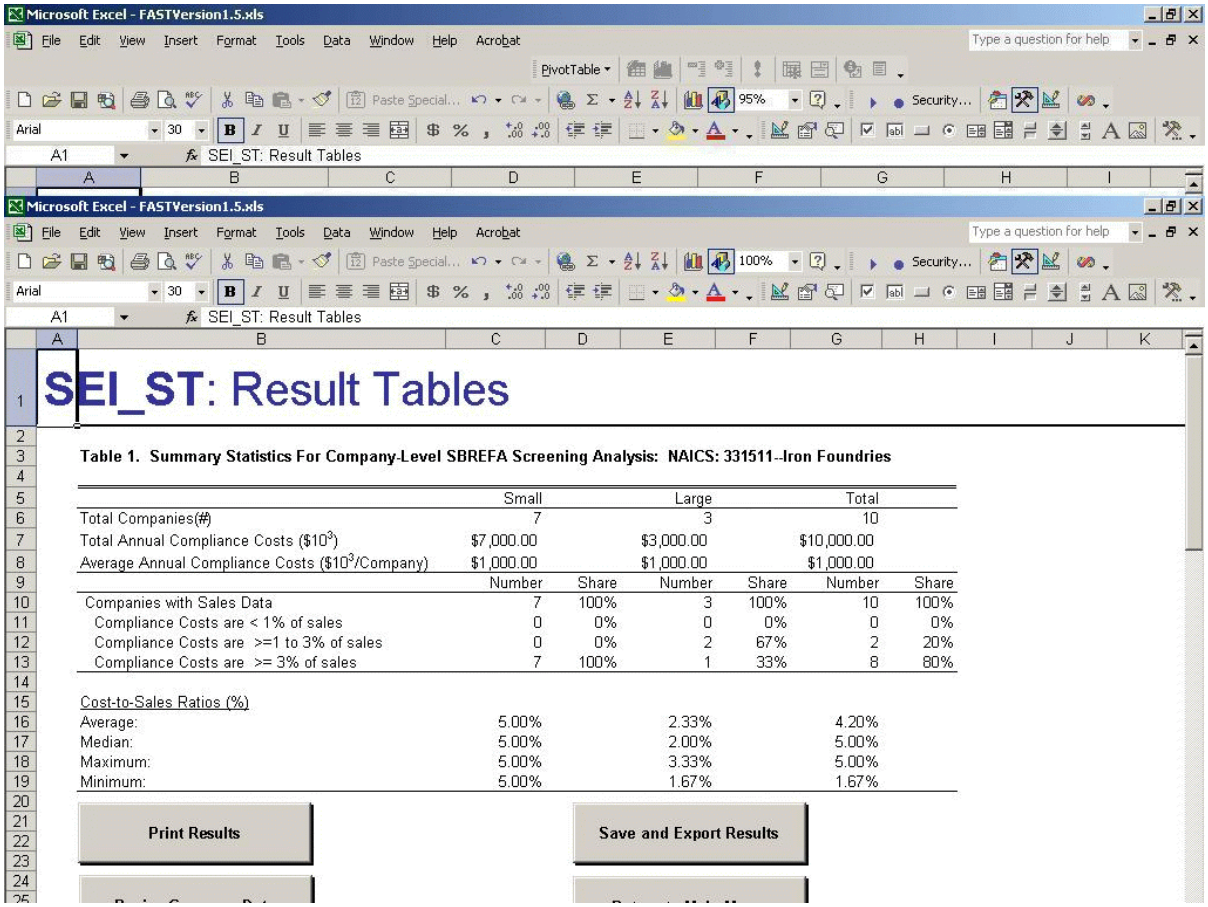

Figure 2-21. SEI-ST: Example Summary Company-Level Results

Once you have viewed the results, you can then use the screen buttons to print and save and export the results:

- Print results—Tabular results will be sent to the analyst's default printer.
- Save and export results—Tabular results will be saved as a stand-alone MS Excel file and can be stored for future reference.

Step 6—Options for Next Steps

Once you have viewed, printed, and/or saved screening results, you can return to the main menu or revise company data as shown in Figure 2-22:

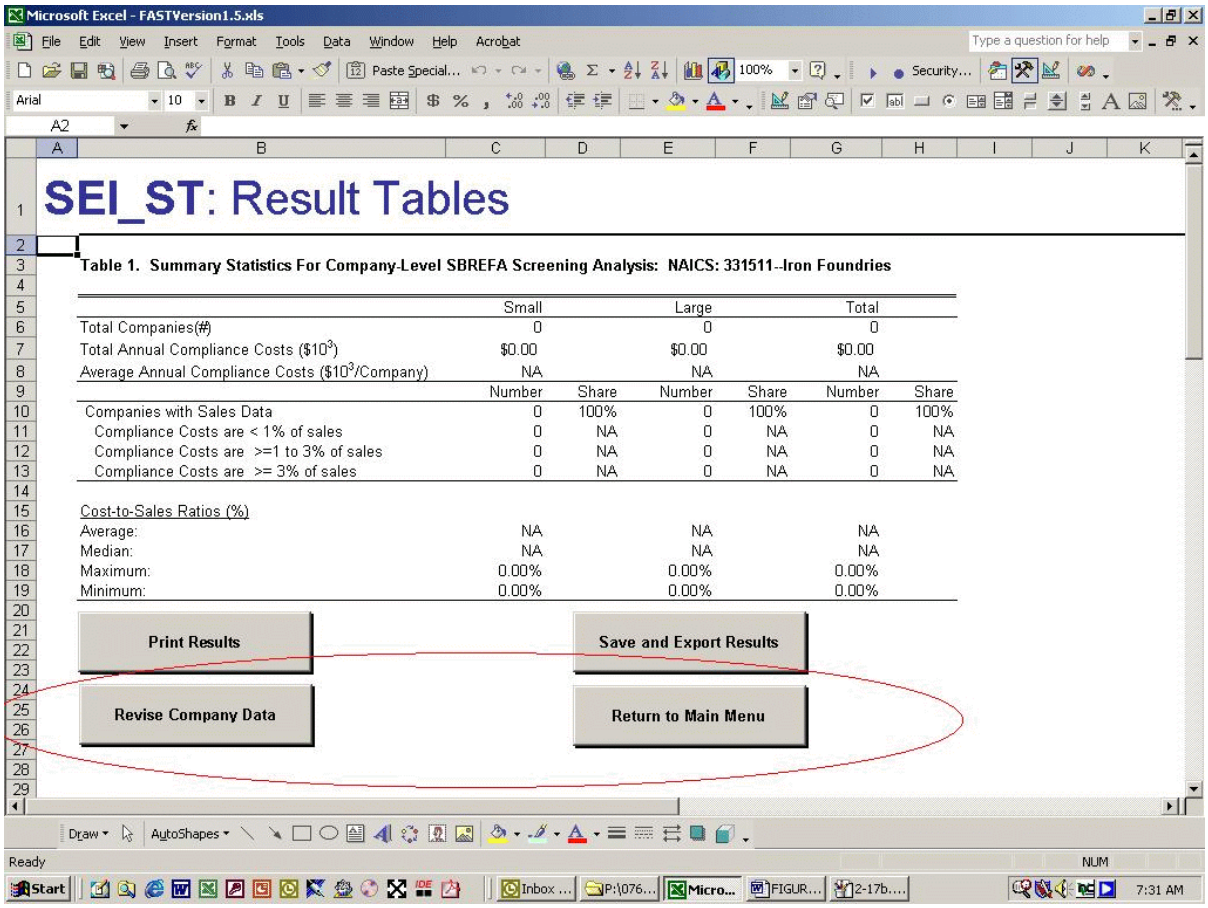

Figure 2-22. SEI-ST: Options for Next Steps

- Return to main menu: If the company data have not been saved, FAST asks whether you want to save and export data. If yes, a message box will appear asking for the filename. The file will be automatically saved in the dataset folder associated with FAST for future use. If no, a message box will appear asking you whether or not you want to return to the main menu, and FAST then clears out the existing data and analysis.

- Revise company data (including company-specific compliance costs).

SECTION 3

ECONOMIC IMPACT ANALYSIS SCREENING TOOL (EIA-ST)

Economic impact analysis or EIA describes the various analyses performed to gauge the economic consequences of EPA regulations. Over time, conducting EIAs has become an integral part of ISEG's role in EPA's regulatory development process. Typically, ISEG provides estimates of the impacts of variables without and with the regulation for the time period of the analysis. Some examples of impacts include:

- market-level impacts, which may include changes in market prices, domestic production and consumption, and foreign trade and
- industry-level impacts, which may include compliance cost burden; revenue, cost, and profit changes; and employment changes.

By quantifying and evaluating these impacts in the EIA, the ISEG analyst is able to provide valuable inputs to policy makers in the regulatory development process and, if applicable, improve the benefit-cost analysis. Section 5 of the OAQPS resource document outlines the EIA analytical framework and key modeling issues.

3.1 Overview of the EIA-ST

As shown in Figure 3-1, upon selecting the EIA-ST from the FAST Welcome Screen, you are provided with an interface screen for the EIA analysis. The remainder of this section provides details on conducting a screening analysis of economic impacts using this tool.

3.2 Conducting an EIA Screening Analysis

To conduct an EIA screening analysis, you follow these five steps:

- Step 1—Define Baseline Year of Analysis
- Step 2—Select an Industry
- Step 3—Data Entry Options
  - ✓ Step 3a. Domestic Data
  - ✓ Step 3b. Trade Data
  - ✓ Step 3c. Elasticity Parameters

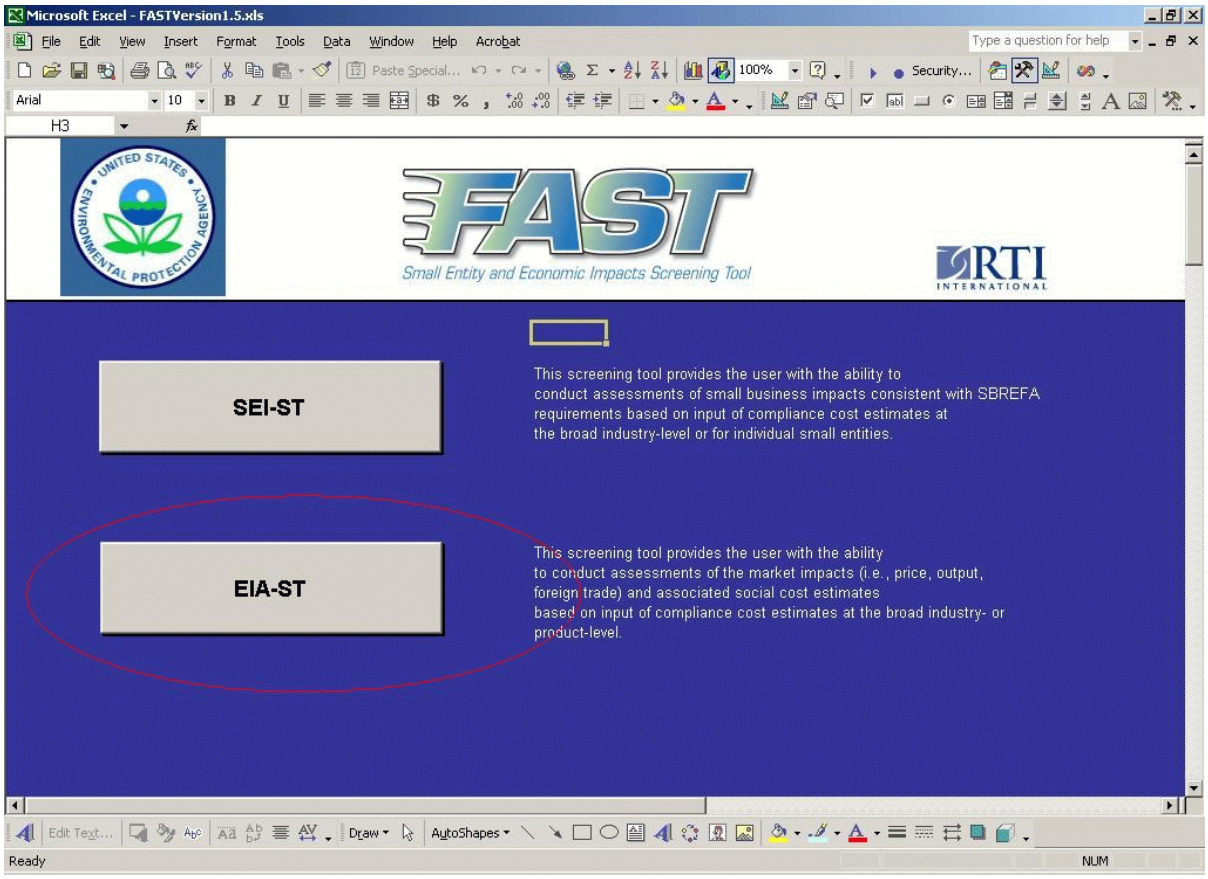

Figure 3-1. Welcome to FAST: EIA-ST

✓ Step 3d. Total Annual Compliance Costs

- Step 4. View, Print, and Save Tabular Results
- Step 5. Options for Next Steps

The remainder of this section provides detailed descriptions of each of these steps with examples to illustrate use of this tool.

Step 1—Define Baseline Year for Analysis

First, you are asked to select the baseline year of the analysis. FAST uses this year to scale the data to the baseline year of the economic analysis. We use growth rates from the Department of Energy's *Annual Energy Outlook* (EIA, 2003) and these values are reported in Appendix A.

Step 2—Select an Industry

Next, the analyst selects the industry for analysis using a drop-down menu of available industries listed by NAICS code (see Figure 3-2). Currently, only the manufacturing industry codes are available and they are listed by two- to six digit codes.

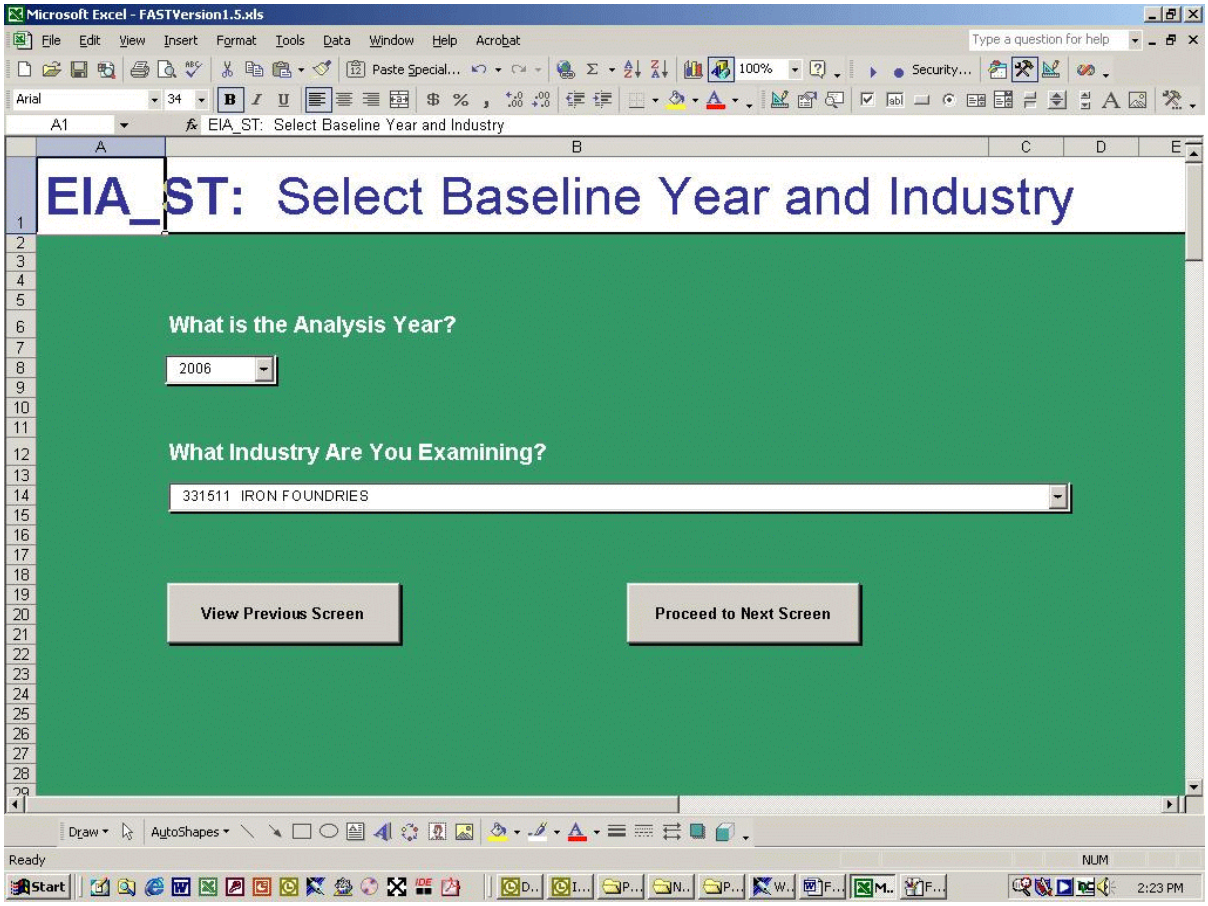

Figure 3-2. EIA-ST: Use Drop-Down Menu to Select Baseline Year and Industry

Step 3—Data Entry Options

After you select the industry, you see a data entry option screen (see Figure 3-3). Key data include domestic production, prices, foreign trade, and elasticity parameters. These inputs provide the necessary information for calibrating a partial equilibrium model of the affected sector, and the model simulates the rule's market-, industry-, and social welfare impacts.

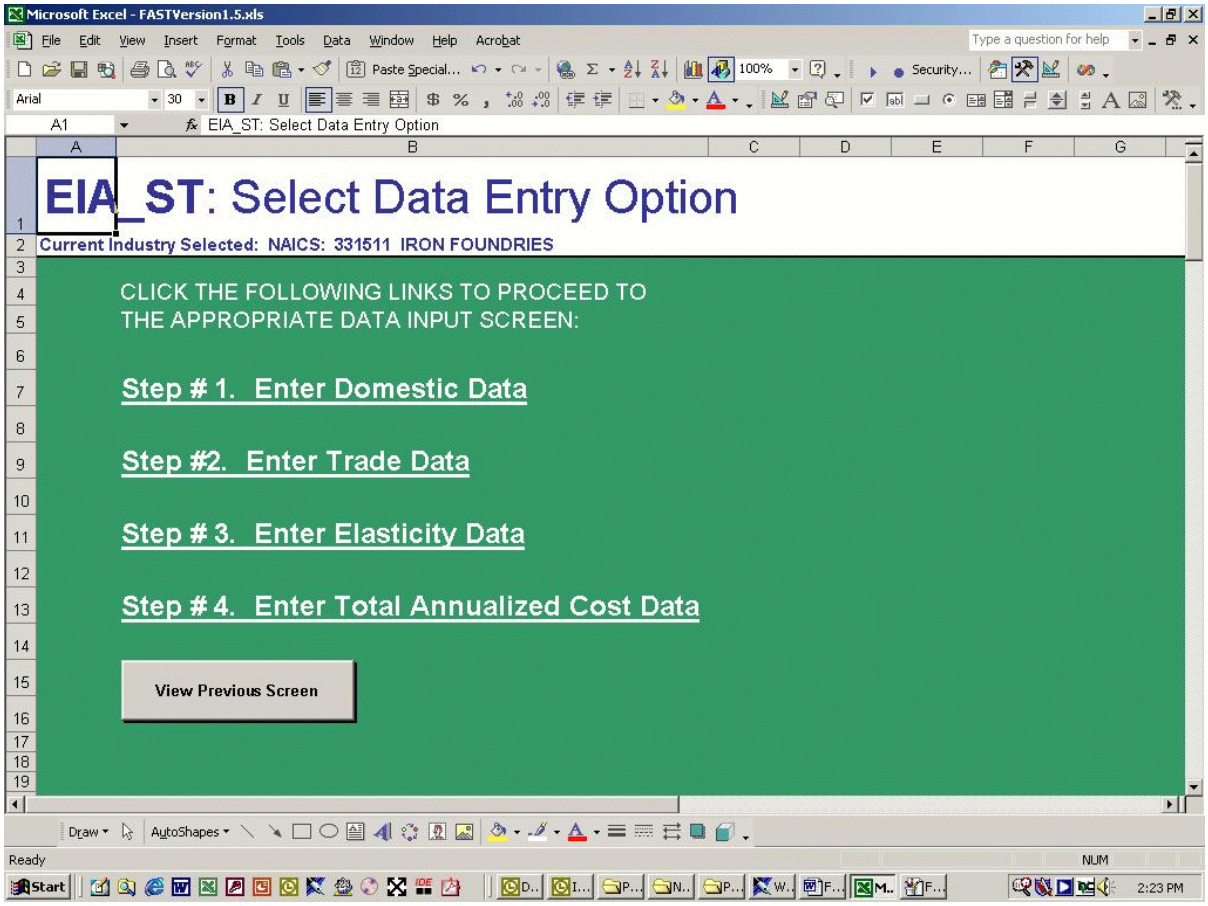

Figure 3-3. EIA-ST: Use the Links to Access Appropriate Data Entry Screen

Step 3a. Data Entry: Domestic Data

FAST asks you if secondary data are available on units of production and prices (see Figure 3-4). Secondary data are typically included in the industry profile (if available) or may be collected by the analyst.

If domestic production and price data are available, you will enter the data and the year of the data and select the measure of production units using a drop-down box (see Figure 3-5). It is important to enter the year of the data because FAST will use the growth rates to scale this value to the appropriate baseline year. In addition, you must specify the year in which the dollars are expressed. This ensures consistency between the market data and engineering cost inputs.

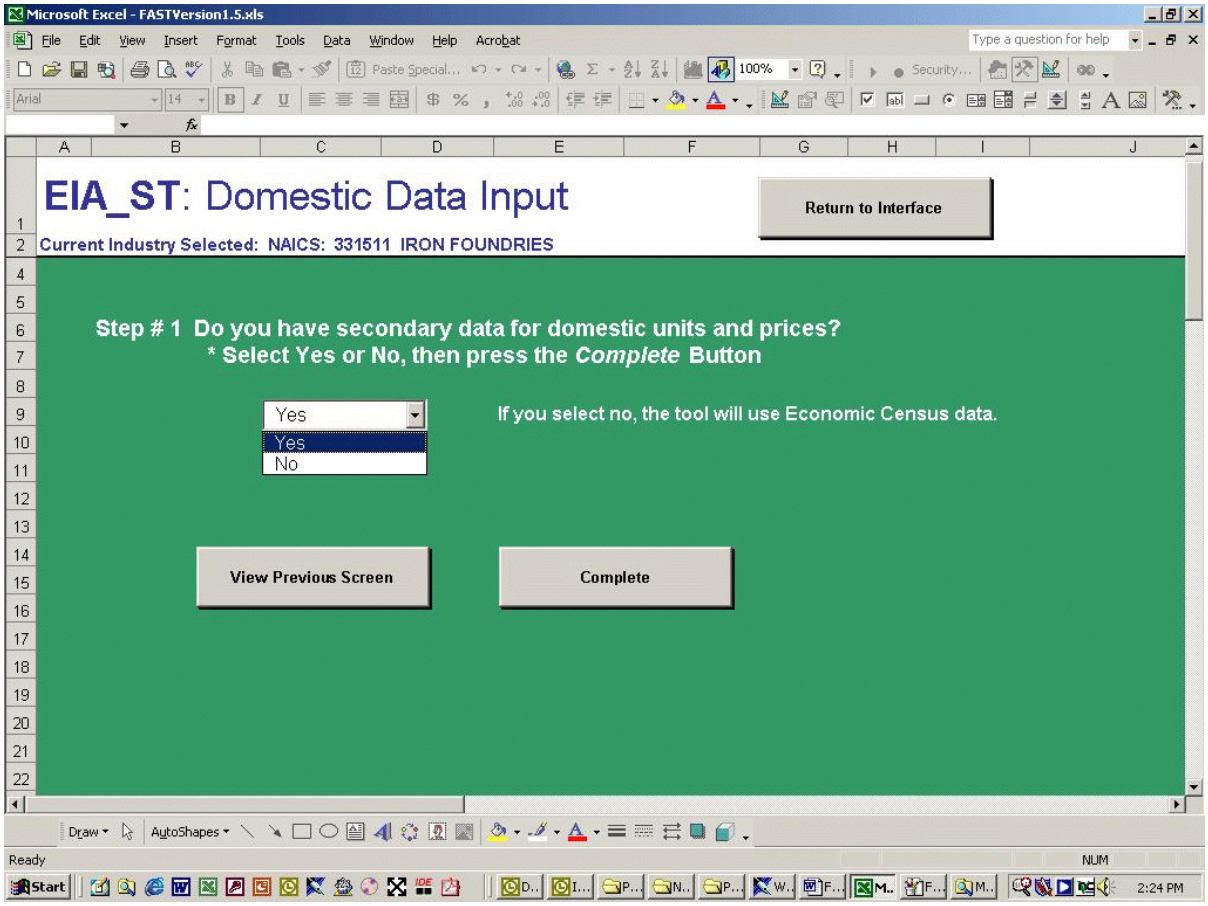

Figure 3-4. EIA-ST: Choose to Enter Own Data or Use Default Economic Census Data

If domestic production and price data are not available, FAST uses the 1997 Census data set for the NAICS code selected in the previous screen. FAST retrieves these data so the analyst can see the current value of shipments based on the industry selected (see Figure 3-6). Note, the units of production are chosen so that the baseline price equals one and the output level is total shipments.

Step 3b. Data Entry: Trade Data

After entering the domestic data, you can also choose to include foreign trade in the market model. If trade data are unavailable or represent an insignificant share of the affected market, you can select "no" from the drop-down menu and can then proceed immediately with entering elasticity parameters (see Figure 3-7).

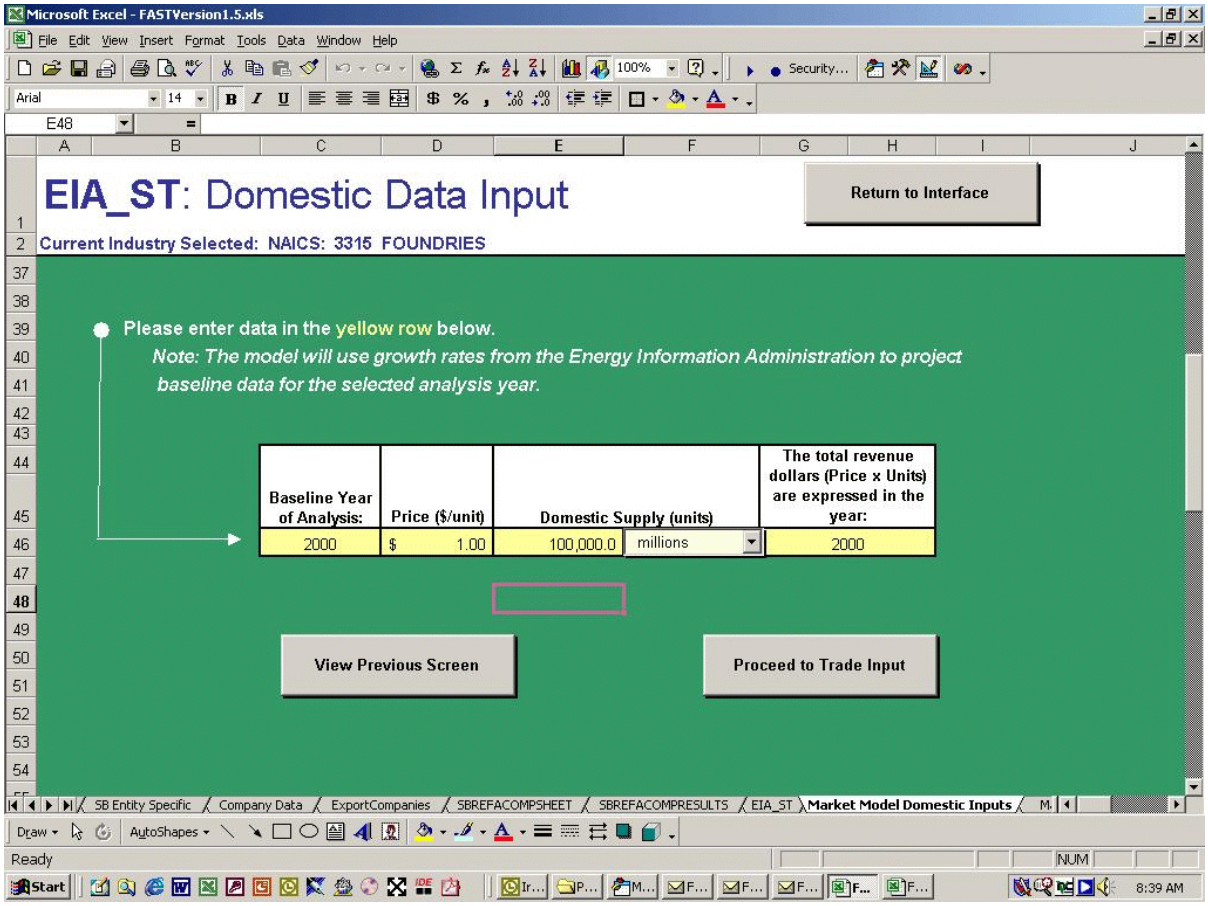

Figure 3-5. EIA-ST: Enter Domestic Data Values

If trade data are available, you can select "yes" and proceed with several data entry prompts. The type of trade data employed in the model is a function of the type of domestic data entry. The options are described below:

- Option 1: If you have domestic unit data, you can choose to enter unit data or use trade share data (see Figure 3-8). FAST will display the appropriate data entry template once the unit or share data option is selected. For units, you must enter quantity of imports and exports and select the units from a drop-down menu (see Figure 3-9). For share data, you must enter an estimate of the value of imports or exports as a share of the value of shipments (expressed as a percent) (see Figure 3-10). For example, an industry with value of imports of $10 million and value of shipments of $100 million would have an import share value of 10 percent.

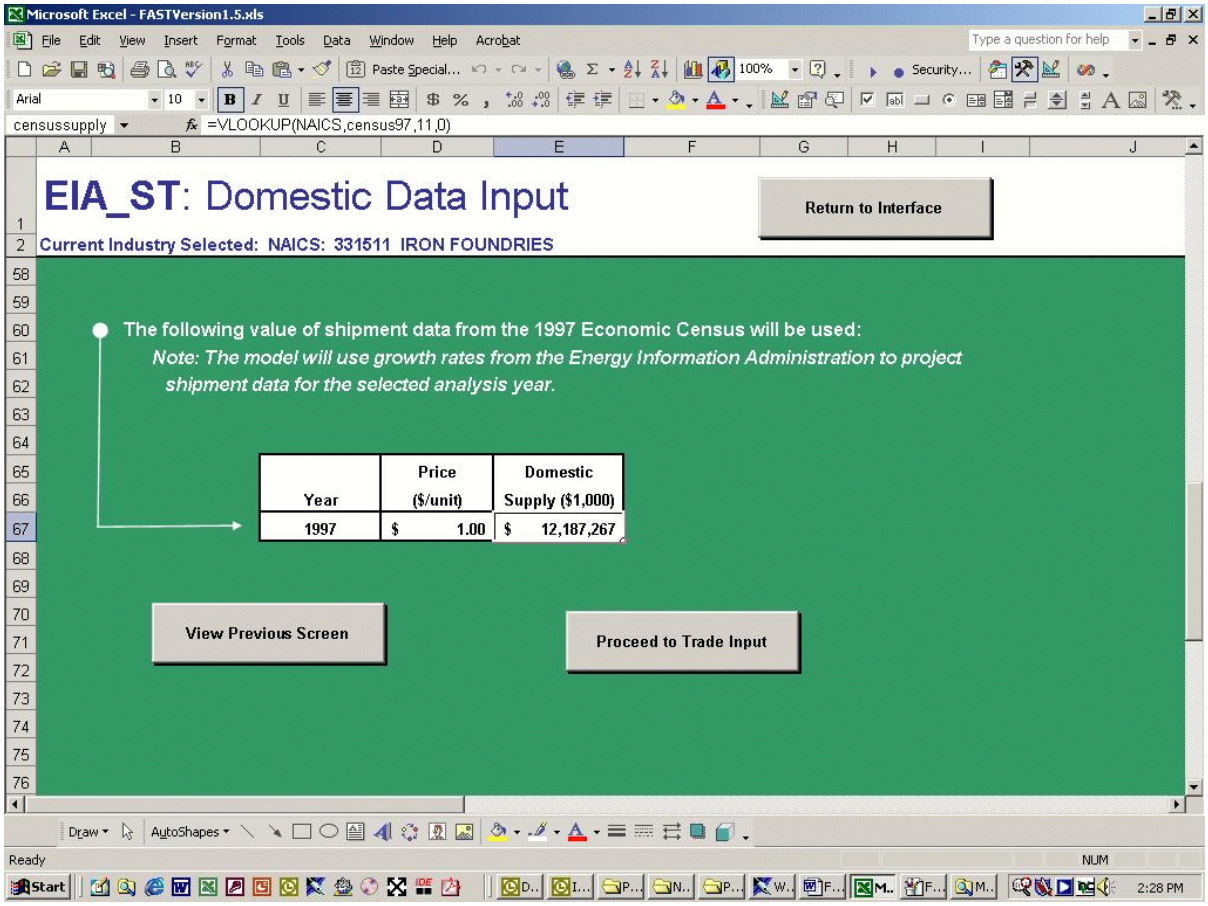

Figure 3-6. EIA-ST: Displaying Pre-Existing Census Data Set

- Option 2: If Census data are used for domestic data, FAST restricts the analysis to using share foreign data only and requires you to specify these import and/or export shares (see Figure 3-10). This data will typically come from secondary sources (e.g., industry profile).

Step 3c. Data Entry: Elasticity Parameters

After considering the trade data, you must proceed to the next data input step: entering supply and demand elasticity parameters (see Figures 3-11 and 3-12). You can specify one to three elasticity parameter scenarios. FAST also has data validation rules on these data entry cells:

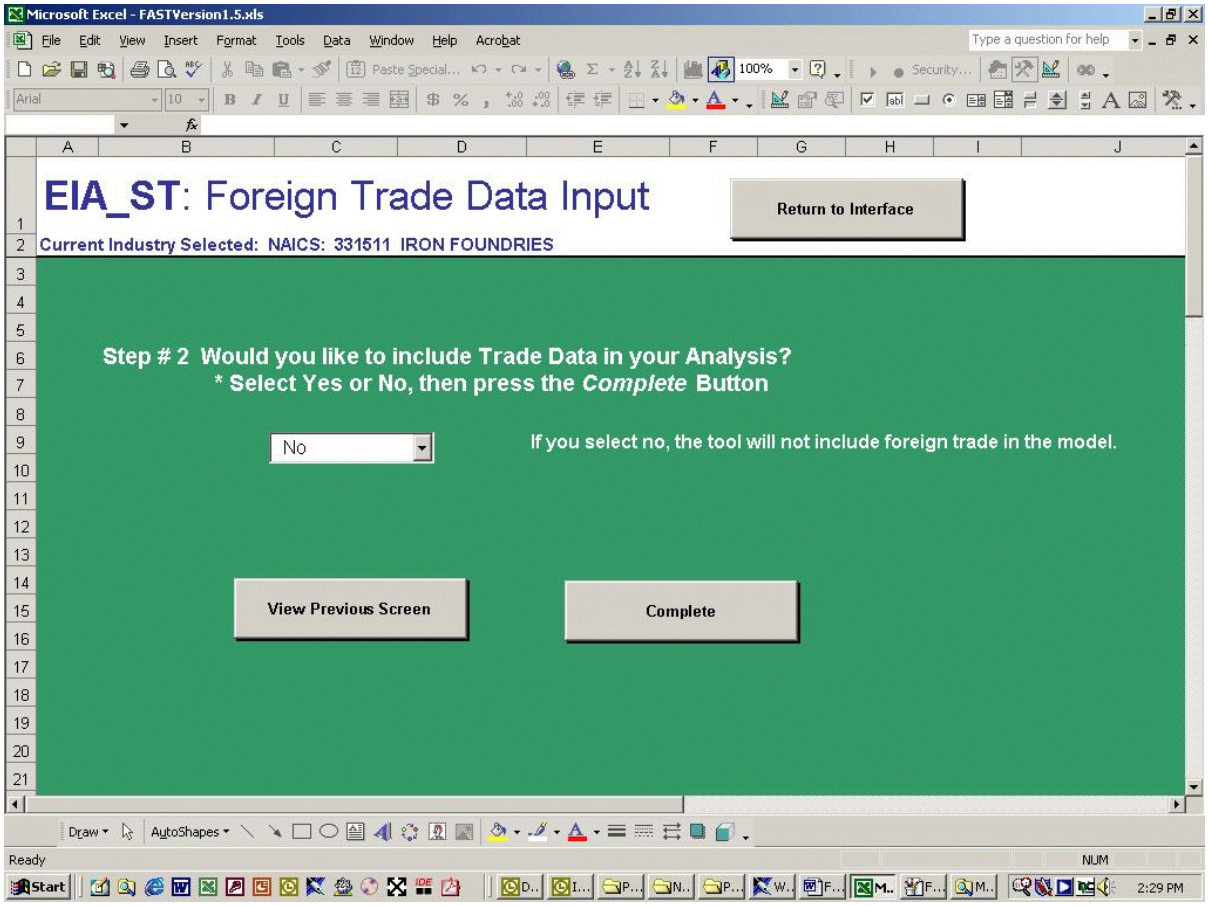

Figure 3-7. Select "No" If Trade Data are Unavailable or Represent an Insignificant Share of the Affected Market

- Supply elasticities: Values must be positive and between 0 and 25.
- Demand elasticities: Values must be negative and between –25 and 0.

EPA is currently developing an Elasticity Databank that will provide relevant elasticity parameters for the industry of interest (EPA, 2003).

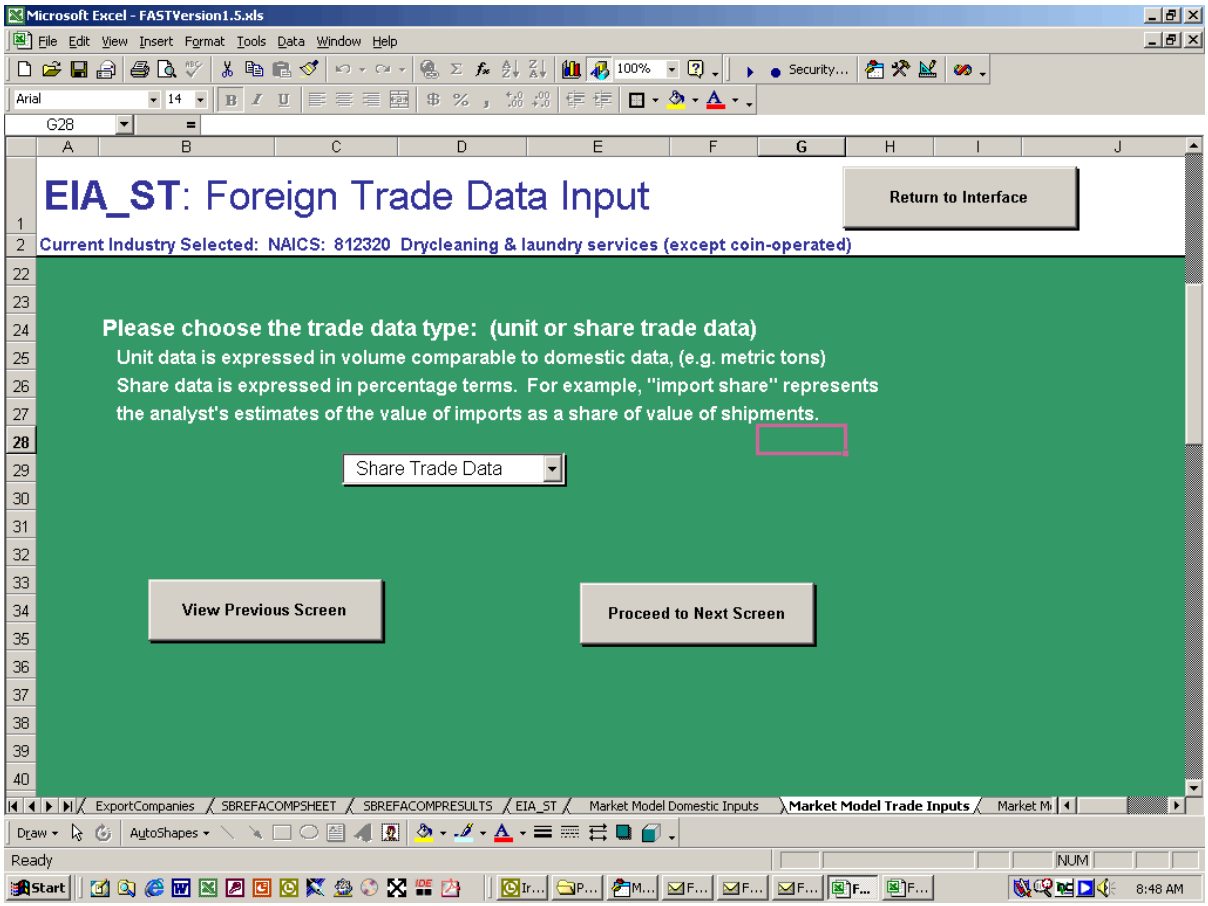

Figure 3-8. EIA-ST: Select Trade Data Type

Step 3d. Data Entry: Total Annual Compliance Costs

Finally, you must enter the total dollar value of annual compliance costs (TACC) for the industry (see Figure 3-13). In addition, FAST requires the year the environmental compliance costs are expressed and employs ratios[1] to ensure consistency.

Step 4—View, Print, and Save Tabular Results

After you enter the compliance costs, you can view the results of the simulation by clicking the **Proceed to Results** button. A spreadsheet algorithm computes the simulation

[1]A capital equipment producer price index is currently employed in this version of the model. If Census data are used, the dollar values are expressed in $1997. If user-defined data are used, you specify the year in which the dollar values are expressed.

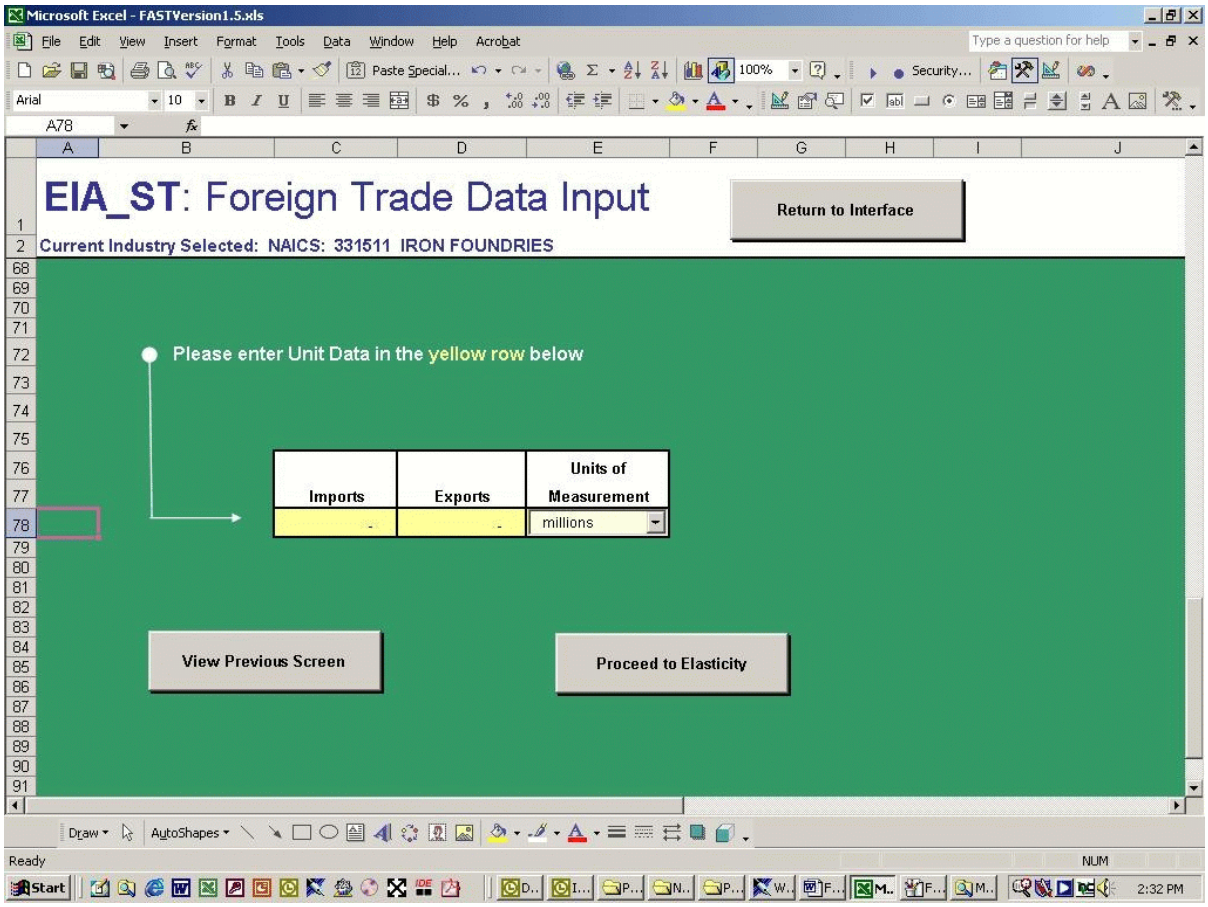

Figure 3-9. EIA-ST: Foreign Trade Data Entry: Units Data

results for the specified scenarios and displays them for you as shown in Figure 3-14. You can then either

- print hard copy results, or
- save and export the results files.

Step 5—Options for Next Steps

After printing, saving, and/or exporting the results, you can either

- return to the main menu (clearing current model results), or
- revise the environmental compliance cost inputs and rerun another analysis.

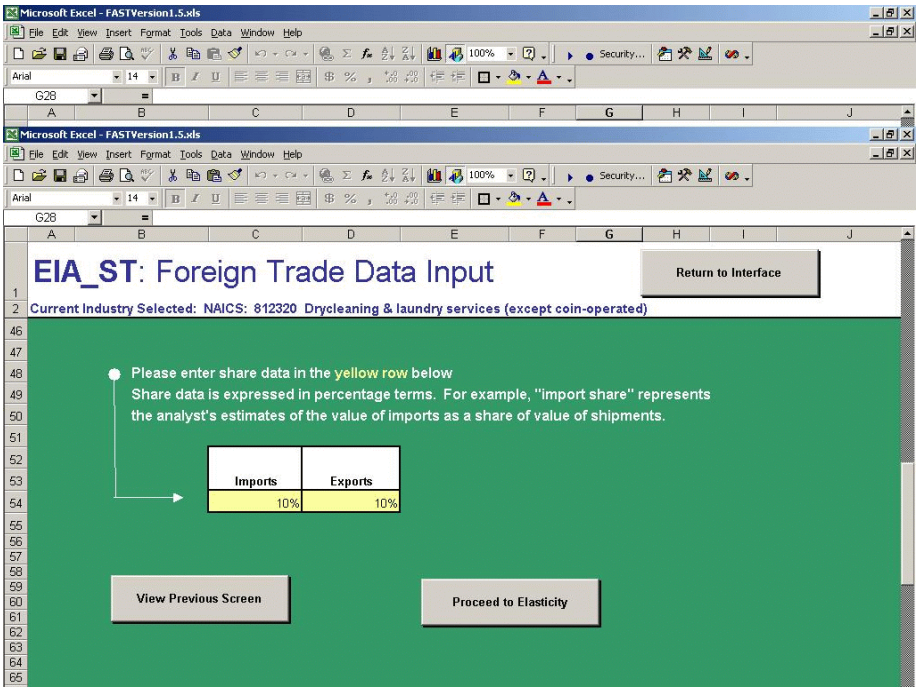

Figure 3-10. EIA-ST: Foreign Trade Data Entry: Share Data

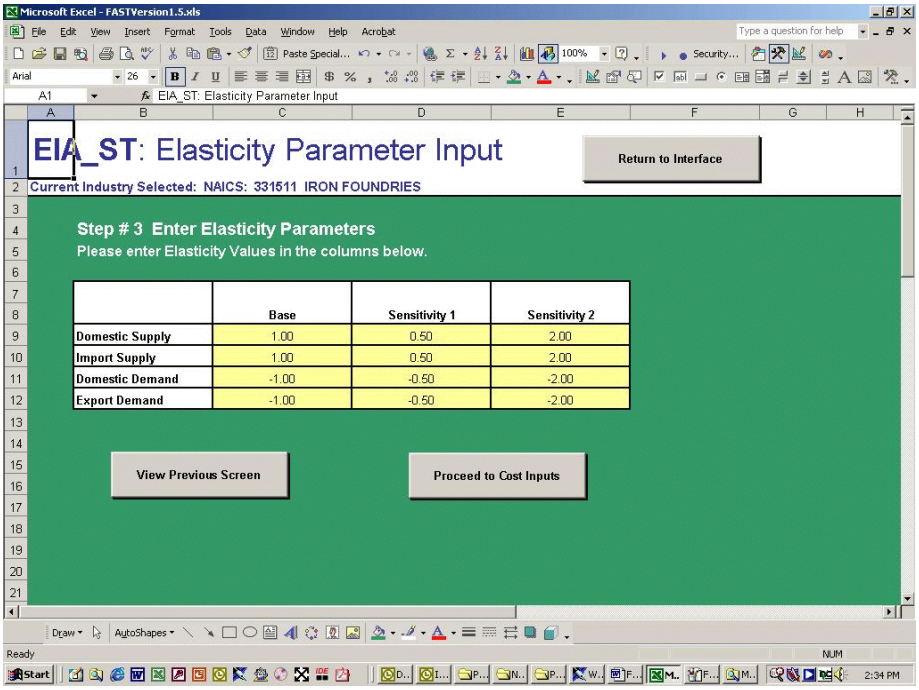

Figure 3-11. EIA-ST: Enter Elasticity Parameters: Domestic and Trade

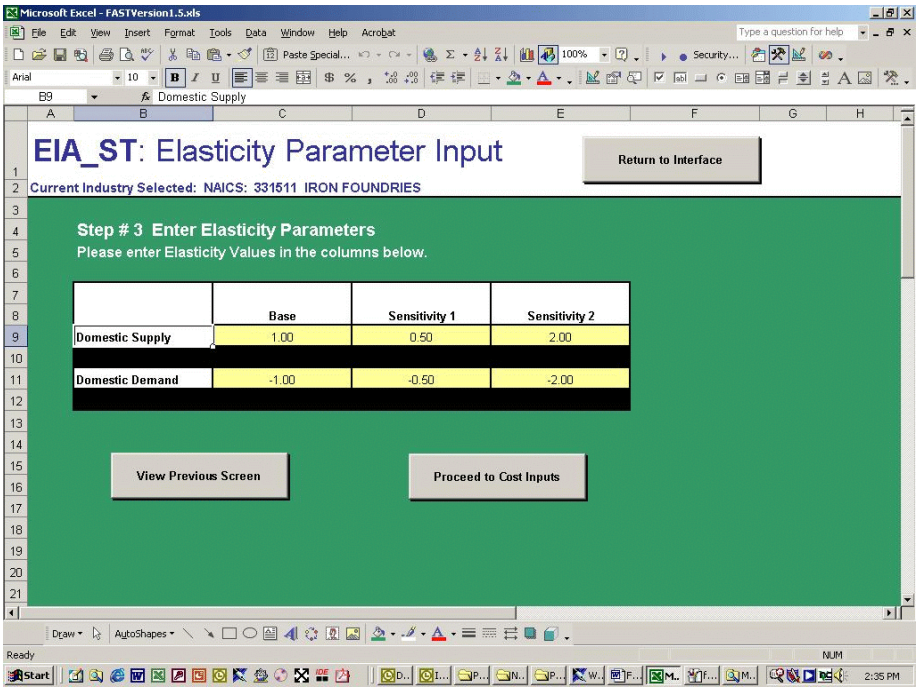

Figure 3-12. EIA-ST: Enter Elasticity Parameters: Domestic Only

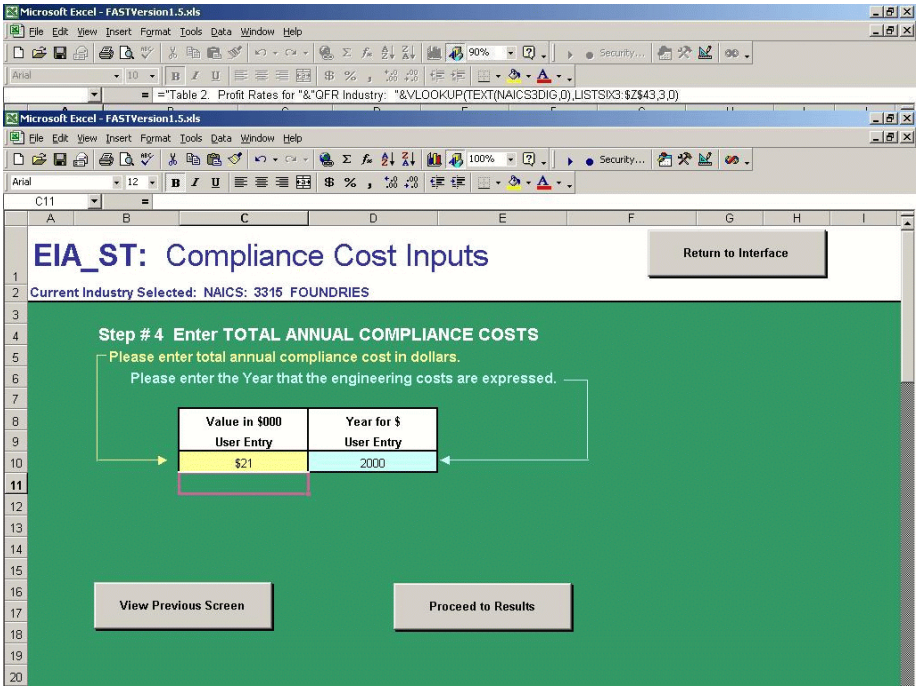

Figure 3-13. EIA-ST: Environmental Compliance Cost Data Entry: National Total Annual Compliance Costs

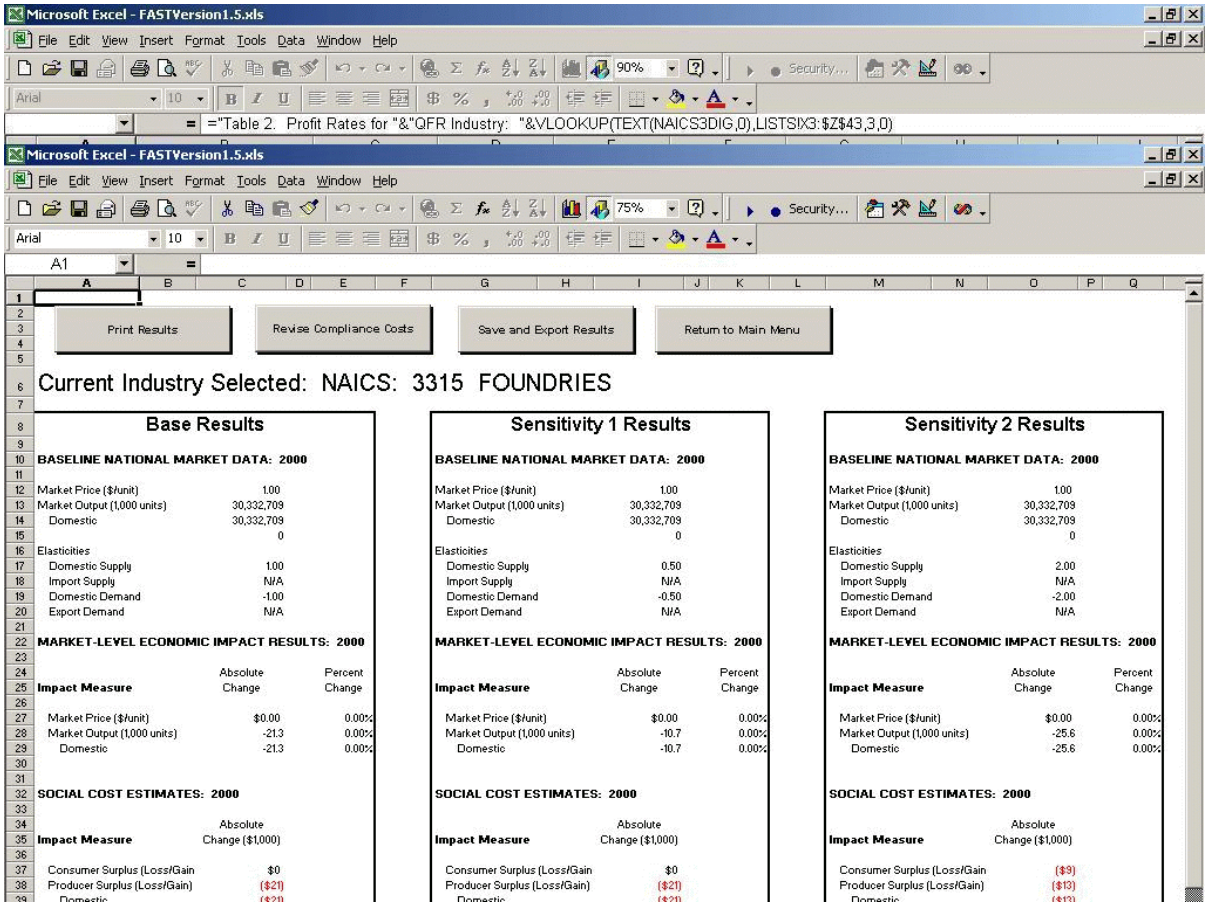

Figure 3-14. EIA-ST: Example Industry Economic Impact Results

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APPENDIX A

FAST: INPUT DATABASES AND SOURCES

An important element of FAST is the underlying databases, or data library, containing industry statistics. These data are used in both the SEI-ST and EIA-ST. This appendix provides a detailed description of these databases and sources.

A.1 Statistics of U.S. Businesses (U.S. Bureau of the Census)

The Census Bureau's *Statistics of U.S. Businesses* (SUSB) is an annual series that provides national data on the distribution of economic data by industry and size of company. These data were developed in cooperation with, and partially funded by, the Office of Advocacy of the SBA. Data from the SUSB series are published primarily on the basis of the NAICS starting with the 1998 data year. However, earlier SUSB data were published according to the SIC system.

The SEI-ST module employs the database version with the most recent tabulation by size that includes receipt data (1997). Data include number of firms, number of establishments, employment, annual payroll, and receipts. The industry classification is currently only based on the SIC. This dataset was obtained in May 2003 from the following Census Bureau website: http://www.census.gov/csd/susb/susb2.htm#go97.

A.2 1997 Economic Census: Economy-Wide Statistics (U.S. Bureau of the Census)

The economic census is the major economic statistical program of the United States and constitutes the chief source of economic data for the national economy. The Bureau's American FactFinder database provided national data on revenue by industry for the market module of FAST. The data set also contains the following data: number of establishments; sales, receipts, revenue, shipments, or business done; payroll; and employment for the United States and by state, county, place, and metropolitan area at the two- through eight-digit NAICS code levels for 1997. This data set was obtained in May 2003 from the following Census Bureau website: http://factfinder.census.gov/servlet/DatasetMainPageServlet?_program=ECN&_lang=en.

A.3 Annual Energy Outlook 2003 (U.S. Energy Information Administration)

The Energy Information Administration (EIA) prepares the Annual Energy Outlook 2003 (EIA, 2003), which presents midterm forecasts of energy supply, demand, and prices through 2025. The projections are based on results from EIA's National Energy Modeling System (NEMS). We use annual industry value of shipment growth rate forecasts for industry shipments (Table 23 of the supplemental tables) to project baseline shipment data for the market module (see Table A-1). This dataset was obtained in January 2003 from the following DOE/EIA website: http://www.eia.doe.gov/oiaf/aeo/supplement/sup_rci.pdf.

A.4 Quarterly Financial Reports (QFR): U.S. Manufacturing, Mining, and Trade Corporations, 2000–2001 (U.S. Bureau of the Census)

The QFR includes statements of income and retained earnings, balance sheets, and related financial and operating ratios for manufacturing corporations with assets of $250,000 and over, and for mining, wholesale trade and retail trade corporations with assets of $50 million and over. The data are classified by industry and by asset size. EPA obtained two annual data sets (2000–2001) and included them for the small entity screening module: http://www.census.gov/mp/www/disk/msdsk04d.html.

Table A-1. Annual Growth Rates Employed by FAST

Sector	Description	Average Annual Growth Rate 2000 – 2025
National	GDP (billion 1996 dollars)	3.0%
11	Agricultural	1.3%
21	Mining	1.1%
23	Construction	1.4%
311	Food and Kindred Products	1.4%
312	Beverages and Tobacco Products	1.3%
313	Textile Mill Products	0.8%
314	Apparel and Other Textile Products	–0.2%
321	Lumber and Wood Products	1.6%
337	Furniture and Fixtures	1.3%
322	Paper and Allied Products	1.7%
323	Printing and Publishing	1.5%
325	Chemical and Allied Products	2.6%
324	Petroleum and Coal Products	1.1%
316	Leather and Leather Products	–2.7%
327	Stone, Clay, and Glass Products	1.2%
331	Primary Metals Industry	1.4%
332	Fabricated Metal Products	2.1%
333	Industrial Machinery and Equipment	4.5%
335	Electronic and Other Electric Equipment	5.8%
336	Transportation Equipment	2.9%
334	Instruments and Related Products	3.4%
339	Miscellaneous Manufacturing Industries	3.8%

Source: U.S. Department of Energy. 2003. *Annual Energy Outlook 2003 With Projections to 2025.* Washington, DC: Energy Information Administration.

APPENDIX B

LIST OF INDUSTRIES WITH PRE-EXISTING LIBRARY OF COMPANY DATA

To be determined.