

**APPENDIX 10A. USER INSTRUCTIONS FOR NATIONAL IMPACT
ANALYSIS SPREADSHEET**

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10A.1 USER INSTRUCTIONS

The results obtained in the shipments and national impact analysis (NIA) analyses can be examined and reproduced using the Microsoft Excel spreadsheet available on the U.S. Department of Energy (DOE)'s website at:
http://www1.eere.energy.gov/buildings/appliance_standards/commercial/small_electric_motors.html.

The spreadsheet is called "NIA_SmallMotor.xls" and it enables the user to perform a national impact analysis of small electric motor standards for three product classes: polyphase, capacitor-start induction-run (CSIR), and capacitor-start capacitor-run (CSCR) motors. To run the spreadsheet, the user needs to have Microsoft Excel 2000 or a later version.

The NIA spreadsheet performs calculations to forecast the changes in national energy (NES) and net present value (NPV) due to an energy efficiency standard. The energy use and associated costs for a given standard are determined first by calculating the shipments and then calculating the energy use and costs for a product class. The differences between the standards and base cases (absent a national standard) can then be compared and the NES and NPV determined. The NIA spreadsheet, or workbook, consists of the following worksheets:

Summary	This worksheet summarizes the results of the NIA analysis and provides a means of changing the discount rate of the NPV analysis and the current year.
NIA-Polyphase	This worksheet provides the accounting and results for both the energy and economic impacts of each standard level for polyphase small electric motors. This is the main calculation worksheet for this product class and integrates the appropriate inputs from each of the other worksheets.
NIA-CSIR	This worksheet provides the accounting and results for both the energy and economic impacts of each standard level for CSIR small electric motors. This is the main calculation worksheet for this product class and integrates the appropriate inputs from each of the other worksheets.
NIA-CSCR	This worksheet provides the accounting and results for both the energy and economic impacts of each standard level for CSCR small electric motors. This is the main calculation worksheet for this product class and integrates the appropriate inputs from each of the other worksheets.

Shipments Drivers	This worksheet provides the data for the macro-economic drivers for small electric motors shipments. A macro-economic driver is a factor in the national economy that influences the demand for small electric motor sales. The three drivers selected by the DOE for small electric motor shipments include the value of manufacturing shipments, the amount of total commercial floor space, and the total number of residential homes.
Shipments Forecast	This worksheet provides the detailed forecast of motors shipments by size category and product class.
Shipments Data	This worksheet provides the input data that were used for initiating the shipments model with shipments by product class, size category, and number of poles for the year 2000 and projections of shipments for 2007.
Retirement Function	This worksheet contains the small electric motor reliability function and produces the retirement rates. The probabilities of retirement generated in this worksheet are used to calculate the annual retirements in the stock sheets.
LCC Inputs	Data in this worksheet are the mean values for the different variables from the Monte Carlo simulation runs of the LCC for individual design lines. These data provide the inputs regarding increases of initial cost, and the decrease in energy consumption per motor for each standard level.
Electricity Prices+Heat Rates	This worksheet provides the marginal heat rates (the ratio of source energy to site energy) the long term energy price trends, and the retail energy prices for small electric motors.
Ownership and Applications	This worksheet provides the input data regarding ownership, applications, hours of operation and motor loading for the different product classes of small electric motors.

Basic instructions for operating the NIA spreadsheet are as follows:

After downloading the NIA spreadsheet file from DOE's website, open the file using Excel. At the bottom, click on the tab for the worksheet "Summary." This worksheet provides the NIA results for all three product classes. The main parameter that affects the NPV is the discount rate. The worksheet allows the user to change the discount rate in cell C5. To provide flexibility, the spreadsheet permits some additional user modifications to the model on internal worksheets. In the "Shipments Forecast" worksheet, there are two pull-down menus where the user may select different sales growth scenarios or different purchase price elasticities which model how much shipments decrease with increasing purchase price.