

APPENDIX S. USER INSTRUCTIONS FOR SHIPMENTS AND NATIONAL ENERGY SAVINGS SPREADSHEET MODEL

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APPENDIX S. USER INSTRUCTIONS FOR SHIPMENTS AND NATIONAL ENERGY SAVINGS SPREADSHEET MODEL

S.1 USER INSTRUCTIONS

The results obtained in this analysis can be examined and reproduced using the Microsoft Excel® spreadsheet available on the U.S. Department of Energy Building Technologies website at: http://www.eere.energy.gov/buildings/appliance_standards/residential/xx.html.

S.1.1 Startup

The spreadsheet is called “NES.xls” and it enables the user to perform National Energy Savings (NES) analyses for trial standard levels for residential furnace and boilers. To execute the spreadsheet, the Department assumes that the user has access to a PC with a hardware configuration capable of running Windows NT/2000/XP. To use the furnace and boiler NES spreadsheet, the user requires Microsoft Excel® 2000 or later installed under the Windows operating system.

S.1.2 Description of National Energy Savings Worksheets

The NES spreadsheet performs calculations to forecast the change in national energy use and net present value of financial impacts due to a revised energy efficiency standard. Analyses for all product classes are contained in a single NES spreadsheet. The energy use and associated costs for a given standard are determined by first calculating the shipments and then the energy use and costs for all furnace and boilers shipped under that standard. The differences between the standards and base case can then be compared and the overall energy savings and net present values determined. The NES spreadsheet or workbook consists of the following worksheets:

National Impacts Summary	The National Impacts Summary sheet contains user input selections, source energy savings results matrix, net present value results matrix, a summary table for each product class and charts of national impacts for each product class.
Shipments Summary	The Shipments Summary sheet contains a tabular summary and chart of the annual shipments forecasts for each product class at each trial standard level.
Flow Chart	The Flow Chart sheet contains a diagram of the structure of the inputs and outputs used to derive the NES.
NES Gas Furnace - NW	The NES Gas Furnace - NW sheet contains non-weatherized gas furnace calculations for the base case and the shipments and stock energy savings and net present value at each trial standard level.

NES Gas Furnace - W	The NES Gas Furnace - W sheet contains weatherized gas furnace calculations for the base case and the shipments and stock energy savings and net present value at each trial standard level.
NES Gas Furnace - MH	The NES Gas Furnace - MH sheet contains mobile home gas furnace calculations for the base case and the shipments and stock energy savings and net present value at each trial standard level.
NES Oil Furnace	The NES Oil Furnace sheet contains oil furnace calculations for the base case and the shipments and stock energy savings and net present value at each trial standard level.
NES Gas Boiler	The NES Gas Boiler sheet contains gas boiler calculations for the base case and the shipments and stock energy savings and net present value at each trial standard level.
NES Oil Boiler	The NES Oil Boiler sheet contains oil boiler calculations for the base case and the shipments and stock energy savings and net present value at each trial standard level.
Base Case Shipments	The Base Case Shipments sheet contains data for shipments for each product class. It also includes calculations of replacements, conversions, efficiency upgrades, central gas heating retrofit for non-weatherized gas furnaces, percentage of shipments which are to existing homes for each product class, new housing, modeled new construction installations, modeled shipments - sum of replacements, conversions and new housing and oil replacements less conversions for both furnaces and boilers.
Change in Shipments	The Change in Shipments sheet contains the projected change in shipments from standards for non-weatherized gas furnaces and for mobile home furnaces at trail standard efficiency levels.
New Housing Market Share	The New Housing Market Share sheet contains new housing market shares data for single and multi-family homes and mobile homes.
Market Share Model	The Market Share Model sheet contains the calculations that determine the market share model elasticities.
Historic	The Historic Market Shares Data sheet contains data of historic market shares in

Market Shares Data	new homes.
LCC Inputs	The LCC Inputs sheet contains inputs from the LCC spreadsheet for each product class.
Retirement Function	The Retirement Function sheet calculates the lifetime distribution of furnaces and boilers.
New Housing Forecast	The New Housing Forecast sheet provides projected new housing construction completions and manufactured home placements.
Fuel Prices Heat Rates	The Fuel Prices and Heat Rates sheet contains projected energy price trends and heat rates.
Market Shift Heating Load	The Market Shift Heating Load sheet contains the heating load of houses that shifted away from gas due to new standards.
Price Indices	The Price Indices sheet contains equipment and energy price indices used in the determination of price elasticities for market share forecasts.
Chart GF Shipments	The Chart GF Shipments sheet contains a chart of gas furnace shipment components.
Chart GF Market Share	The Chart GF Market Share sheet contains a chart of fraction gas versus electric equipment for new households with central heating.
Chart NWGF Financial Impacts	The Chart NWGF Financial Impacts sheet contains charts of financial impacts at each trial standard level.

S.1.3 Basic Instructions for Operating the National Energy Savings Spreadsheet

Basic instructions for operating the NES spreadsheet are as follows:

1. Once the NES spreadsheet file has been downloaded from the Web, open the file using Excel® Click “Enable Macro” when prompted and then click on the tab for the worksheet National Impacts Summary.
2. Use Excel's® View/Zoom commands at the top menu bar to change the size of the display to make it fit your monitor.

3. The user can change the parameters under the title “National Impacts Summary”. The default parameters are:
 - a. Discount Rate: Defaults to 7%. To change value, click on cell C5 and enter value (7% or 3%).
 - b. Current Year: Defaults to 2005. To change value, click on cell C6 and enter desired year.
 - c. Economic Growth: Defaults to Reference Case. To change value, use the drop-down arrow and select the desired level (Reference Case, Low Economic Growth or High Economic Growth).

The results are automatically updated and are reported in the source energy savings matrix, net present value matrix, summary table for each product class and charts of national impacts for each product class.