APPENDIX 8-A. USER INSTRUCTIONS FOR THE LIFE-CYCLE COST ANALYSIS SPREADSHEET

TABLE OF CONTENTS

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8-A.1 USER INSTRUCTIONS

The results obtained in this analysis can be examined and reproduced using the Microsoft Excel spreadsheets available on DOE's Home Appliances Rulemaking website: http://www.eere.energy.gov/buildings/appliance_standards/. From that page, follow the links to the NOPR phase and then to Analytical Tools.

8-A.2 STARTUP

DOE's spreadsheet enables users to perform Life-Cycle Cost (LCC) and Payback Period (PBP) analyses for both product classes.

To examine the spreadsheet, DOE assumes that the user has access to a personal computer with a hardware configuration capable of running Windows NT/2000/XP. All LCC spreadsheets require Microsoft Excel 2000 or later installed under the Windows operating system. Because certain variables inside the spreadsheets are defined as distributions, the user's computer requires a copy of Crystal Ball (a commercially available add-on program).

8-A.3 DESCRIPTION OF LIFE-CYCLE COST WORKSHEETS

Each worksheet represents a conceptual component within the LCC calculation. To facilitate navigability and identify how worksheets are related, each worksheet contains an area on the extreme left showing variables imported to and exported from the current worksheet. Each LCC spreadsheet contains the following worksheets:

Summary	The *Summary* worksheet contains LCC and PBP simulation results for each design option and product class.
Statistics	The *Statistics* worksheet contains statistics for each design option and product class.
LCC & PB Calcs	The *LCC&PB Calcs* worksheet shows LCC calculation results for different efficiency levels for single Residential Energy Consumption Survey (RECS).[1]
Rebuttable PBP	The *Rebuttable PBP* worksheet contains the total and incremental manufacturer costs, retail prices, installation costs, repair and maintenance costs, energy use calculations, and simple payback period calculations for each efficiency level.
Equipment Cost	This worksheet calculates retail price values used as inputs in the LCC calculations in the *Summary* worksheet.

RECS Households	The *RECS Households* worksheet contains the RECS 2005 household data for each residential product class.
Base Case Eff Dist	The *Base Case EF* worksheet determines the efficiency of the base case unit.
Energy Prices	The *Energy Prices* worksheet calculates energy prices.
Energy Price Trends	The *Energy Price Trends* worksheet shows the future energy price trends.
Discount Rate	The *Discount Rate* worksheet contains the distributions of discount rates for replacement and new units.
Lifetime	The *Lifetime* worksheet contains the distribution of lifetimes for equipment of that product class.

8-A.4 BASIC INSTRUCTIONS FOR OPERATING THE LIFE-CYCLE COST SPREADSHEETS

Basic instructions for operating the LCC spreadsheet are as follows:

1. Once the LCC spreadsheet has been downloaded, open the file using Excel. Click "Enable Macro" when prompted and then click on the tab for the *Summary* worksheet.

2. Use Excel's View/Zoom commands at the top menu bar to change the size of the display to fit your monitor.

3. The user can change the parameters listed under USER INPUT on the *Summary* worksheet. There are four drop-down boxes and one command button. The default parameters are:

    a. Energy Price Trend: Defaults to "AEO 2010 - Reference." To change the input, use the drop-down menu and select the desired trend (Reference, Low, or High).

    b. Start Year: Defaults to "2014." To change the value, use the drop-down menu and select the desired year.

    c. # of Trials: Defaults to "10,000." To change the value, use the drop-down menu and select the desired number of trials (100, 1,000, 2,000, 5,000, 10,000, or 50,000).

    d. Analysis Group: Defaults to "National." To analyze a subgroup, use the drop-down menu and select the desired subgroup.

4. To run the Crystal Ball simulation, click the "run" button (you must re-run after changing any parameters). The spreadsheet will then be minimized. You can monitor the progress of the simulation by watching the count of iterations in the left bottom corner of the screen. When the simulation is finished, the spreadsheet will re-open.

5. Additional information can be found in the *Statistics* and *Summary* worksheets.

REFERENCES

1. U.S. Department of Energy: Energy Information Administration, *Residential Energy Consumption Survey: 2005 Public Use Data Files*. 2008: Washington, DC. http://www.eia.doe.gov/emeu/recs/recspubuse05/pubuse05.html