

CHAPTER 11. LIFE-CYCLE COST SUBGROUP ANALYSIS

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CHAPTER 11. LIFE-CYCLE COST SUBGROUP ANALYSIS

11.1 INTRODUCTION

The life-cycle cost (LCC) subgroup analysis evaluates impacts on any identifiable groups or customers who may be disproportionately affected by any national energy efficiency standard level. The U.S. Department of Energy (DOE) will conduct this analysis as one of the analyses for the notice of proposed rulemaking. DOE will accomplish this, in part, by analyzing the LCC and payback periods (PBPs) for those customers that fall into any identifiable groups. DOE plans to evaluate variations in regional energy prices and variations in energy use that might affect the net present value of a standard to customer subpopulations. To the extent possible, DOE will obtain estimates of each input parameter's variability and will consider this variability in its calculation of customer impacts. DOE plans to perform sensitivity analyses to consider how differences in energy use will affect subgroups of customers.

DOE will determine the impact on customer subgroups using the LCC spreadsheet model, which allows for different data inputs. The standard life-cycle cost and payback period analysis (described in the preliminary Technical Support Document (TSD) chapter 8) focuses on residential, commercial, industrial and agricultural consumers that use small electric motors or equipment containing small electric motors. DOE can use the LCC spreadsheet model to analyze the LCC for any subgroup by sampling only that subgroup. Model inputs used by the Department to determine LCC and PBPs are described in detail in the life-cycle cost and payback period analysis (see preliminary TSD chapter 8).

In the case of small electric motors, some possible subgroups DOE may choose to consider are: (1) small businesses (*i.e.*, those with low annual revenues) and (2) farmers. These subgroups may experience different economic conditions than the average owner of a small electric motor. Small businesses are likely to have higher borrowing costs and cost of capital than larger commercial and industrial firms. Farmers may have lower costs of electricity compared to the average small electric motor owner, and this may decrease the potential operating cost reductions from improved efficiency small electric motors for this subgroup.

11.2 PURCHASE PRICE IMPACTS

DOE will be especially sensitive to increases in the purchase price of the equipment due to new standards, to avoid negative impacts on identifiable population groups that may not be able to afford significant increases in equipment price. For such customers that are sensitive to price increases, increases in first costs of a product can preclude the purchase of a new model of that product. As a result, some customers may retain products past their useful life. These older products are generally less efficient to begin with, and their efficiency may deteriorate further if

they are retained beyond their useful life. Increases in first cost also can preclude the purchase and use of a product altogether, resulting in a potentially large loss of utility to the customer.