

# CHAPTER 1. INTRODUCTION

## TABLE OF CONTENTS

1.1	OVERVIEW .....	1-1
1.2	STRUCTURE OF THE DOCUMENT .....	1-1

## **CHAPTER 1. INTRODUCTION**

### **1.1 OVERVIEW**

The Energy Policy and Conservation Act of 1975 (EPCA), as amended, sets energy conservation standards for various products and authorizes the U.S. Secretary of Energy to prescribe amended or new energy standards for each type (or class) of covered product.

This document assesses the economic impacts of trial energy-efficiency standards for electric, natural gas, liquified petroleum gas (LPG), and oil-fired residential water heaters according to the criteria in the EPCA. The assessment includes analysis of: the water heater market; retail prices, manufacturing costs, and markups for water heaters; design options to improve water heater energy efficiency; and costs and benefits of efficiency standards to consumers (including subgroups of consumers who might be particularly affected), manufacturers, utilities, and the nation as a whole, including effects on employment.

### **1.2 STRUCTURE OF THE DOCUMENT**

This document consists of 15 chapters and 11 sets of appendices, plus one bound-in report:

- |           |  |
|-----------|--|
| Chapter 1 | Introduction:<br>outlines the structure of the document.   |
| Chapter 2 | Analytic Framework:<br>presents the major components of the analysis.  |
| Chapter 3 | Marketing and Technology Assessment:<br>characterizes the relevant product markets and existing technology options.                              |
| Chapter 4 | Screening Analysis:<br>describes the process used to select design options to improve water-heater energy efficiency to meet proposed standards. |
| Chapter 5 | Retail Prices:<br>discusses the retail price database used in the analysis.  |
| Chapter 6 | Manufacturing Cost Assessment:<br>presents data on which manufacturing costs for water heaters are based.  |
| Chapter 7 | Markups:<br>establishes a range of markups from manufacturing cost to manufacturing price and retail price.                                      |

- Chapter 8      Engineering Analysis:  
presents detailed energy use and cost information.
- Chapter 9      Life-Cycle Cost Analysis:  
describes the effects of standards on lifetime equipment and operating costs paid by consumers.
- Chapter 10     Consumer Subgroup Analysis:  
analyzes the potential effects of standards on particular groups of consumers (e.g., the elderly) who might be disproportionately affected.
- Chapter 11     Shipments:  
presents data on water heater shipments and explains possible effects of energy-efficiency standards on shipments.
- Chapter 12     National Energy Impacts:  
describes national forecasts of energy consumption and the impact of new energy efficiency standards for water heaters.
- Chapter 13     Manufacturer Impacts Analysis:  
describes the financial impact of standards on manufacturers.
- Chapter 14     Utility Impacts Analysis:  
examines the effects of standards on electric and gas utilities.
- Chapter 15     Net National Employment Impacts:  
describes the effects of standards on employment nationwide.
- 
- Appendix A:    Contributors; Acronyms and Abbreviations
- Appendix B:    Water Heater Price Database
- Appendix C:    Manufacturers' Cost Assessment
- Appendix D:    Engineering Analysis
- Appendix E:    Life-Cycle Cost and Payback Results
- Appendix F:    Shipments
- Appendix G:    National Energy Savings
- Appendix H:    Manufacturing

Appendix I: Interpolation of Utility and Environmental Results from NEMS-BRS Output

Appendix J: ImBuild Model Spreadsheet

Appendix K: Environmental Analysis for Residential Water Heaters

In addition, there is an independent, but related, report bound in with this document:

Regulatory Impact Analysis: compares the projected national economic impacts of major alternatives to prescriptive standards.