# INTRODUCTION

## 1.1 Purpose of the Report

This report analyzes the results of using various energy-efficient strategies to determine if such practices actually make a difference in the amount of energy consumed by an average house. Additionally, it analyzes which home system improvements provide the greatest reductions in energy and whether such improvements are cost-efficient in the long run.

## 1.2 Background of the Report

Annually, 24% of the natural gas and 35% of the electricit7y in the US is consumed by the residential housing sector. Consequently, 1.3 metric tons of greenhouse gases are emitted annually [6,7]. Understanding energy consumption and taking measures to reduce it is essential if a systematic and comprehensive reduction of environmental impacts is desired. Reductions in home energy consumption will not reduce utility but also reduce the impact on the environment.

## 1.3 Scope of the Report

This report provides technical background on the construction of the standard and the energy-efficient house, the energy-efficient strategies used in the latter, energy-consumption rates, construction costs, and other relevant details. Not included in this report are discussions of the receptiveness of the American home-building industry or American home buyers to energy-efficient housing design or of pending legislation to promote energy-efficient housing design.

*Note*: A basic understanding of terminology for housing constructing, HVAC, and cost analyses is assumed.