# Global Illumination for Fun and Profit

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**Abstract**—Saving energy in buildings has become and remains a major issue for the planet. The last decade, systems have been developed to provide consumers with information about their energy consumption. Research has shown that the type of information displayed and the techniques used to present it have an impact on the user energy saving. This raises the question about how to display the information to the consumer in a comprehensive, attractive and non-intrusive way.

In this paper we compare and discuss the various methods of visualizing energy usage for consumers. Some of the design components of user interfaces such as historical comparisons and presentation of costs are more likely to aid in providing the consumer with an understanding of his energy usage and changing his behavior. We will extract the most effective methods from research and surveys.

The comparison of the different methods is based on the reduction of energy usage of consumers using such eco-feedback systems and if consumers keep using the eco-feedback systems for longer periods of time.
We expect to find the most effective methods to visualize energy consumption data for future eco-feedback systems.

**Index Terms**—Eco-Feedback, interface design, energy consumption, consumption feedback systems, energy feedback

## 1 Introduction

Reducing energy usage in buildings still remains a major challenge.

One method of reducing energy consumption is by increasing the awareness of consumers about their energy consumption using eco-feedback systems. These are systems with integrated sensors that provide the consumers in the building with information about their energy usage. The goal is that this leads to more energy efficient behavior by the consumers in the building.

However, research has shown that the type of information displayed and the technique used to present it have an impact on the user behavior. This means that the design of the user interface is a key factor in changing the users energy consumption behavior.

## 2 Conclusion

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