

Chapter 17

Improving Food Quality With Energy- Efficient Technology in the Hotel Industry

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ABSTRACT

As one of the most vital tourism actors worldwide, the hotel industry must balance its high-quality dining services with eco-friendly energy consumption strategies and environmental sustainability measures. In this chapter, food quality is linked to energy-efficient technologies that improve food quality. This study uses an extensive literature review of case study strategies to explore energy-efficient technology integration areas. This study focuses on food purchase and storage, food processing and preparation, food display and presentation, waste management and recycling, and building energy management systems integration. The chapter also suggests a framework for assessing energy-efficient technologies' socio-economic and environmental benefits. It proposes a practical strategic action plan to adopt energy-efficient technology to enhance food quality and sustainability.

DOI: 10.4018/979-8-3693-8542-5.ch017

INTRODUCTION

In the context of the tourism industry worldwide, hotels play a crucial role in ensuring economic growth, an adaptation of new culture as well as socio-environmental well-being through the creation of employment opportunities, cross-cultural branding campaigns, lodging, dining, and other amenities as well as community-based development (Khan et al., 2021). In this industry, the room rates, food item sales, and provision of other services have contributed to boosting the economy across the globe (Mun et al., 2022). Individuals from different backgrounds get the opportunity to socialize and learn through interactive cultural adaptation processes (Manoharan et al., 2021). The hotels also endeavor to nurture local cultural legacy and customs by organizing community-based projects to promote sustainable tourism practices and ensure a pollution-free hospitality industry (Tahiri et al., 2022). In the contemporary era, hotels are encountering globalization, technology integration, and ever-evolving customer preferences, which have influenced the patterns of planning and booking trips using digital platforms (Erdem & Şeker, 2022). Moreover, the trends of sustainable tourism and the demands for individualized tourism experiences have also led to the idea of specialized and eco-friendly hotels (Liu et al., 2024). However, fierce competition, ever-evolving customer demands, fluctuation of the supply chain, and ever-increasing expenditure have also created impediments in hotels' ways of ensuring sustainable practices (Alrawabdeh, 2022).

To attract customers, the hotels offer high-quality fresh food and a well-designed atmosphere that requires energy-intensive operations like cooking, food preparation, lighting, etc. (Shabir et al., 2023). Hence, energy efficiency is of utmost priority in hotels due to the ongoing growth in energy expenses, concerns regarding climate change, and regulatory considerations (Salehi et al., 2021). In this regard, hotels must also optimize their operations by upgrading their equipment to energy-efficient ones and utilizing renewable energy to address environmental degradation (Aleksandrova et al., 2021). The diversified size, varieties in the facilities and guest management strategies, and sectoral complexities have also influenced the need to integrate energy-efficient technologies in the operations of the hotel industry. Hence, customer trends, newer technology adoption, and regulatory alignments have transformed the hotel industry towards figuring out energy-efficient solutions to food quality improvement issues (Clairand et al., 2020). In this study, the energy consumption in hotel operations, the impacts of energy-efficient technology integration in food quality improvement and associated trade-offs, and the ways forward to overcome the challenges related to energy-efficiency technology utilization in the hotel industry will be analyzed rigorously.

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