Energy Efficiency and Environmental Friendliness of Production as Factors of Consumer Value of Goods and Image of the Enterprise

I. V. Ershova, N. V. Dukmasova, and M. A. Prilutskaya

1 Introduction

The sociological polls of the population show that energy efficiency and ecological safety of production become the important component of public consciousness. At the same time, there is a big gap between understanding ecological safety and energy saving problems and perception of environmentally friendly and power effective technologies and products as a consumer benefit. Many authors of the research about consumer value of goods formation share the opinion that the value consists of the competitive benefits and should be measured in terms of money. Some researchers include the social benefits connected with the utilization and ecological safety [1] in the structure of the goods consumer value, but the process of financial measurement and accounting of these benefits, especially for the industry, is not formalized.

The goal of the work described in this chapter is to justify the methodical approach to the assessment of the ecological management system influence on the consumer value of the goods and producer image. More than 300 respondents were interviewed between 2008 and 2012 about their views on environment-friendly goods and energy-saving production, knowledge of eco-labeling, and ecological management systems. The results of the poll are given in the chapter. Their analysis shows that for the Russian buyer, these components of the industrial goods consumer value are insignificant and highly volatile. The share of ecological part in the general consumer value of the goods does not exceed 10%. This should be considered by the industrial enterprises during their price strategy and ecological actions development.

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S. Syngellakis, C. Brebbia (eds.), *Challenges and Solutions in the Russian Energy Sector*, Innovation and Discovery in Russian Science and Engineering,
https://doi.org/10.1007/978-3-319-75702-5_25

2 Accounting Features of the Environment Friendliness for the Industrial Production Goods

Depending on the nature of consumption, consumer goods can theoretically be divided into two groups: the first is essential goods (food, clothes, etc.); the second is the technical goods of industrial production. Concerning the first group, the ecological component in comparison with the energy efficiency is the defining characteristic of production and can be estimated quite easily. For example, under eco-friendly products we understand goods grown in personal gardens and farms, so they are mostly products of home production. Speaking about them, the consumer usually notes that this production was done without pesticides, herbicides, and growth factor usage and that there are no preservatives or colorants. It should be noted that many producers often use the word EKO or BIO on their labels, but it does not guarantee ecological purity of the goods. Such marketing mix is used to attract buyers. The consumer buys goods due to the low awareness in this sphere without considering whether the purchase differs from the others or whether this marking has anything to do with the ecological properties of the goods. Often the consumer does not correlate the ecological quality of the products to the sanitary and hygienic norms of packaging, storage, sale, and transportation of the foodstuff defining their safety. Nevertheless, more often buyers pay attention to the ingredients of the product. It means that people started to increase their ecological awareness. These questions are in detail considered in the scientific publications of Heijnen [2].

Difficulties arise when the consumer attempts to estimate the ecological purity and energy efficiency level of the technical goods of industrial production (characteristics of environment friendliness can differ, depending on the production type). The national standard of the Russian Federation GOST R ISO 14040-2010 "Ecological management-Assessment of life cycle-Principles and framework" defines the structure of technical production ecological properties. According to the standard, the good is "eco-friendly" if at each stage of its life cycle it causes the minimum damage to the environment and human health. The life cycle includes several stages: production and processing of raw materials, transportation, production, usage, utilization, or recycling (processing) of goods. The goods can be considered "eco-friendly" and "power efficient" if they are made with the minimal energy and natural resources consumption and can be processed with the minimal environmental load after they were used [3].

In order for the consumer to find and recognize eco-friendly products easily, eco-labeling was created more than 30 years ago. Ecological marking is ratified by the ISO 14020-2000 and GOST R ISO 14020-2011 standards "Environmental labels and declarations-General principles." The eco-labeling indicates the harmlessness of the goods for human health and the environment.

3 Research of the Consumers' Attitude to Eco-friendly and Energy-Efficient Goods

The authors conducted research to identify changes in the idea of the eco-friendly and energy-efficient goods among potential consumers. Within 5 years, consumers of different ages, sexes, and social statuses were surveyed about the ecological and power management and ecological qualities of the goods. More than a total of 300 people took part in the survey.

The result of the survey showed that the number of people who are ready to pay more for eco-friendly goods (made on energy-saving productions) is growing every year, which is confirmed by the non-Russian authors' research [4]. Also, the percentage of money consumers are ready to overpay if the goods really meet all the requirements imposed to eco-friendliness and energy efficiency (Fig. 1) increases.

The uncertainty and subjectivity of the terms "eco-friendly goods" and "energy efficiency of production" influenced the respondents' answers. Generally, the consumers consider that these goods should be safe to use. In Russia, these terms are not ratified at the federal legislative level, and there are no standards of the eco-friendly goods [5].

Based on the results of the survey, it is possible to note that the number of people paying attention to eco-labeling increases (Fig. 2) each year, but does not form the majority.

It is possible to conclude that people want to buy eco-friendly goods, but they do not know how to choose them and that they simply do not know the ecological labels. For the energy efficiency of production, such marking is not even developed.

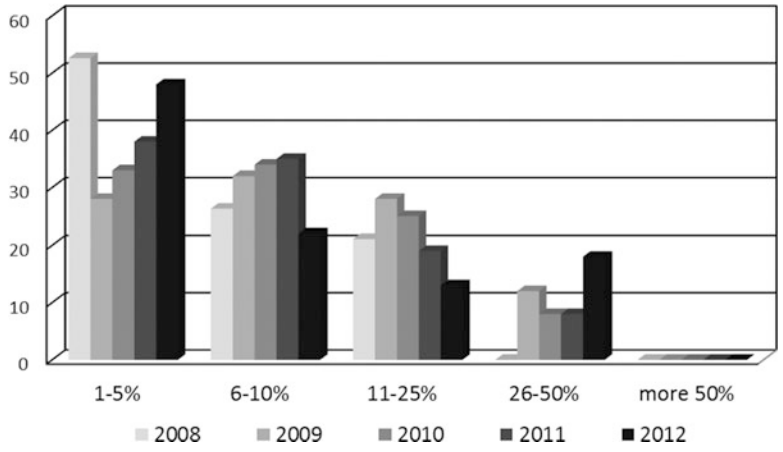

Fig. 1 Answers to the question: "How much are you ready to overpay for eco-friendly and energy-efficient goods made energy-saving technologies?"

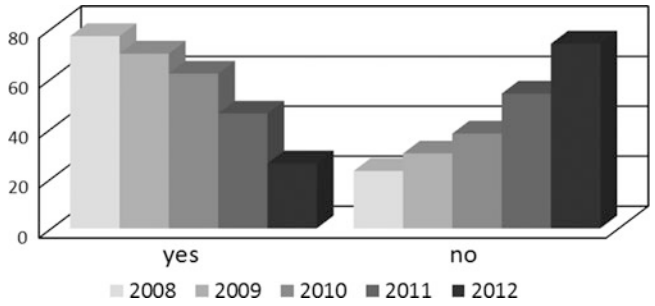

Fig. 2 Share of the consumers paying attention to the eco-labeling while choosing the goods

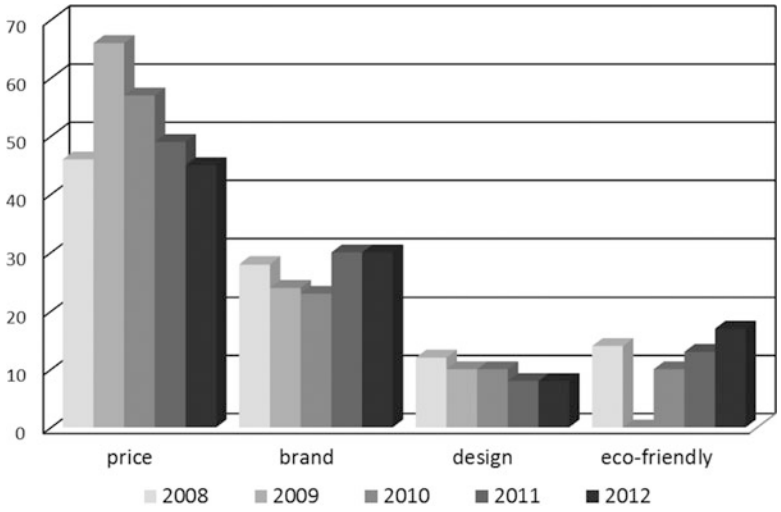

Fig. 3 Consumers' priorities at the choice of goods

Considering that, today, the definitions of terms "eco-friendly goods" and "energy efficiency of production" are not ratified for the consumers, the buyers were asked two additional questions to clarify their position. The first question was connected with the factors influencing the consumer's choice: "What priorities do you follow to make a purchase?" The results of the poll are given in Fig. 3.

The results of the poll show that the priorities of ecological benefits strongly fluctuate depending on the economic situation and are not deciding for the buyer. So in 2008 the price (46.5%) and brand (28%) of the goods were the most important criteria for the consumers and not the ecological component (14%). In 2009 the share of eco-friendliness decreased to 0%; it can be explained by the international economic crisis. In 2010 the situation changed: the share of the price was 57.5%, brand 23.7%, design 10.5%, and eco-friendliness 8.3%. In 2011 the situation changed again: the priority of the price decreased (49%); 30% of the respondents chose a product based on brand and 8% on design; the share of eco-friendliness increased to 13%.

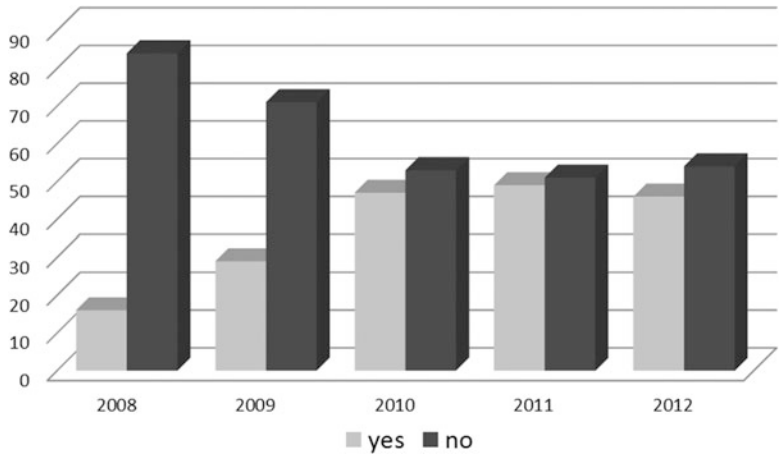

Fig. 4 Consumers' awareness on the existence of the ecological and power management systems

In 2012 economic indicators changed once more, and the priority of eco-friendly goods increased to 16%.

The next poll was designed to determine the consumers' awareness level on the ecological and power management systems at the enterprises. The question was: "Do you know about the existence of the ecological and power management systems at the Russian enterprises?" The results of the opinion poll are given in Fig. 4.

As was assumed, today more and more people can say with confidence that they know about the ecological and power management systems. Thus, in 2008 the share of the respondents who answered "yes" was 16%, and 84% of the respondents answered "no." In 2009 these figures changed: 29% against 71%, respectively. In 2010 47% answered "yes" and 53% said "no" and in 2011 49% and 51%, respectively. The unexpected results were received in 2012: 46% answered "yes" and 54% of the respondents said "no."

4 Results' Interpretation of the Consumers' Opinion Poll

The instability of the consumers' estimates allows us to assume that eco-friendliness of the goods and energy efficiency of their production are not considered as a substantial consumer value. After determining the average price increase for the eco-friendly goods produced with the energy-saving technologies based on the most significant sample frame (the first and second groups, Fig. 1), it is possible to note that the maximum price growth for the eco-friendliness and energy efficiency is in the range from 5% to 7%.

The received results in many aspects are correlated with the large-scale research conducted by Yermolaeva [6] on the Russian and American students' sample list.

The published results prove that along with the high ecological concern, the ecological culture and pro-ecological activity of the Russian youth are developed and formed rather slowly.

Perhaps, the growth of the cost value factors should be searched not in the ecological quality of the goods as this concept for technical production, unlike food, is unstable and subjective, but in the environmental friendliness and energy efficiency of the production technologies [7]. Not incidentally, the second priority for goods after the price is "brand."

The authors assume that the concept "brand" directly correlates with the concept "image of the producer." The eco-friendliness of the production technologies is confirmed by the introduction of the ecological management at the enterprise and availability of the ecological certificate. In Russia the process of the ecological management system implementation began in 2002, mostly at the metallurgical, extracting, and processing enterprises [8]. The mentioned enterprises export their production, and the availability of the ecological management certificate is a necessary condition of the production deliveries to the developed countries' markets. Approximately since 2007 the ecological management has been introduced at the enterprises of other branches and in a service sector. Along with it, the Russian enterprises use the existing standards and laws in the field of energy-saving, which also allows the ratification of the compliance assessment with the energy efficiency modern requirements [9].

According to the authors' previous research, the ecological component of the goods value in the direct deliveries of the industrial production to the foreign markets fluctuates within 5% [10]. An important task is to distribute this practice on the domestic markets, because in accordance with the authors' research and other ecologists [11], the costs of the ecological measures introduction in Russia do not pay off in spite of decrease in ecological payments and penalties.

5 Conclusion

Today, Russian consumers do not correlate the eco-friendliness of goods and energy efficiency of the technologies directly to the consumer value, but the tendency of awareness growth in this area is revealed. The research expects that in the near future, the buyer will become more ecologically competent and will consider such characteristics as power consumption, water-retaining capacity, and impact of goods on health while choosing the product.

The practice of the export enterprises shows that the approximate share of the ecological component in the production price of both consumer and industrial goods is about 5%. This factor should be considered by the enterprises positioning their goods as eco-friendly and made on the basis of the energy-saving technologies. The increase in consumer value should be reflected in the price policy and in the assessment of the ecological and power management introduction results.

Today, the most effective ecological and power management introduction incentives at the Russian enterprises are direct administrative measures from the state and direct influence of the foreign partners demanding the ecological certificate. The conducted research showed that with the correct marketing policy, it is possible to expect traditional ecological and economic effects, along with an increase in prices by 5% and receiving the additional "image" component of the economic effect.

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