

## THE USE OF SOCIAL MARKETING TO THE PROMOTION OF ENERGY-EFFICIENT CONSTRUCTION

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Енергоефективні, або пасивні будинки в найближчі роки повинні стати нормою в Польщі та Європі. Енергоефективні споруди, як правило, є дорожчими ніж традиційні, а це означає, що є якісь психологічні бар'єри перед прийняттям рішення щодо їх будівництва. Незважаючи на значне збільшення усвідомлення інвесторів в цій сфері, важливо розповсюджувати знання щодо необхідності та вигоди від використання таких об'єктів. Недостатньо зміни стандартів для споруд, що пов'язана зі зміною будівельних законів – необхідне використання різних форм фінансової підтримки та розвиток освітньої діяльності. Потрібно також використовувати різні типи рекламних та освітніх заходів, що підвищують знання громадськості про позитивні ефекти будівництва споруд з високою енергоефективністю.

Однією з рекламних кампаній, проведених в 2014 році, в Польщі була акція під назвою “Дім, який економить для мене”. Її мета – сприяння будівництву пасивних енергозберігаючих споруд, що використовують відновлювальні джерела енергії. Ця кампанія була основана на креативній ідеї, яка повинна пояснити суть пасивного, або енергозберігаючого будинку і використання поновлюваних джерел енергії. З їх використанням знизити витрати власника, а зекономлену частину можна використати на різні споживчі товари. Передбачалося, що такий спосіб переконає багатьох інвесторів, щоб побудувати свій власний будинок з можливістю отримання кредиту і його погашення завдяки економії експлуатаційних ресурсів.

**Key words:** енергоефективна будівля, просування по службі, соціальний маркетинг.

Energy-efficient buildings or passive in the coming years should become a standard in Poland and Europe. Energy-efficient buildings are generally more expensive than traditional, so there are some psychological barriers before making a decision on their implementation. Despite a significant increase in awareness of investors in this area it is essential to disseminate knowledge about the need and benefits coming from the use of such solutions. Changing standards for buildings results from changes in building regulations, the use of various forms of financial support and educational activities. Different types of promotional and educational activities increase the public awareness about the positive effects of the construction of buildings with high energy efficiency.

One of the promotional campaigns conducted in 2014 in Poland was a campaign under the title “The house, which saves me”, whose aim was to promote the construction of passive, energy-saving and renewable energy sources. This campaign was based on the creative idea of showing that a passive or energy-saving and using renewable energy sources building can reduce expenses of the owner, who can allocate funds for a variety of different consumer goods. It was assumed that this way of promotion will convince many investors to build their own home with the possibility of taking out a loan and its repayment of savings due to minimized maintenance fees.

**Key words:** energy efficient building, promotion, social marketing

**Introduction.** Energy-efficient buildings are generally more expensive than conventional, so investors have some economic and psychological barriers in making their implementation decisions.

Despite the increase in the number of this type of buildings there is need of active work with the potential investors showing benefits from the adoption of integrated energy-saving solutions in the design of a new building and also in modernized buildings. Unfortunately the decisions taken by investors have behavioural nature and are not effective and do not meet the expectations of the investors. You have to know that the energy-efficient building are designed on such a complex structures, not only at the design stage as well as further operation, that all sorts of explanatory work is necessary. Changing the energy standards of buildings is a result of the introduction of new building law, the use of various forms of financial support and also educational activity.

The prospect of a sharp worsening the construction standards for energy efficiency of buildings in future, requires activation of all sorts of actions and activities aimed at the preparation of all parts of the investment process for a new challenge.

Various types of advertising, clarifying and educational activities, increase the level of public knowledge of the population about the positive consequences of the construction and modernization of buildings, which should lead to significant improvements in energy efficiency construction. Today, in Poland there is gradually increasing interest in certification, confirming that the building is energy efficient and uses a minimal amount of energy or the media as opposed to traditional buildings.

Promotion of energy-efficient construction consists of dissemination and promotion energy-saving ideas, which ultimately have a positive impact on the environment locally and globally, and show the advantages of not only energy, but also economic, environmental, including human health, and social areas.

**Prospects of changes in energy standards in the construction of buildings.** Distribution of final energy consumption in the European Union according to data for 2013, shows that the heat and electricity together are about 69 % of all energy consumed (Fig. 1). For the period from 2009 to 2013 the distribution of energy along main sectors of the economy of the European Union where energy has been showed in the following table and figure. (Table 1).

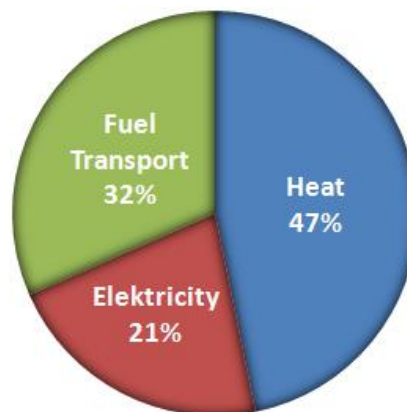


Fig. 1. Distribution of final energy consumption in the EU [1]

Table 1

**The distribution of energy along main sectors of the EU economy. [2]**

Year	Civil engineering and services	Industry	Transport
	%		
2009	40,8	27,2	32,0
2010	43,0	31,7	25,3
2011	41,0	26,0	33,0
2012	42,6	25,6	31,8
2013	43,3	25,1	31,6
The average value	<b>42,1</b>	<b>27,1</b>	<b>30,7</b>

It shows that the buildings in EU use approx. 42 % of all energy (tab. 1). In turn, approx. 85 % of the energy consumed by buildings is the energy associated with heating and hot water preparation. If we add to this electricity associated with cooling the air in buildings, this value reaches approximately 90 %. [2]. It is assumed that by 2050 energy consumption in residential buildings will decrease by 29 % and the public buildings by 18 %, compared with 2010 [3].

It turns out that the proportions in energy consumption in some sectors of the economy in our country are somewhat different (Table 2). It is characteristic here that the much higher proportion of the energy consumed by buildings and services is accounted for 49.1 %, 24.4 % in industry, 26.5 % in transport [4] (Fig. 2).

Table 2

**Energy distribution on main sectors of economy in Poland [4]**

Year	Civil engineering and services	Industry	Transport
	%		
2009	47,6	26,9	25,6
2010	50,3	23,2	26,5
2011	47,5	25,0	27,5
2012	49,5	23,4	27,2
2013	50,5	23,8	25,7
The average value	<b>49,1</b>	<b>24,4</b>	<b>26,5</b>

Requirements in the field of energy saving and thermal insulation of buildings in the European Union in recent years are based on the following documents:

- CPD (Construction Products Directive) – Directive 89/106/EEC of the Council of the European communities on the approximation of the laws and regulations of the Member States relating to construction products (repealed may 9, 2011).
- CPR (Construction Products Regulation) is a Regulation of the European Parliament and of the Council (EU) No. 305/2011, establish uniform conditions for the marketing of construction products and repealing Council Directive 89/106/EEC (entered into force on 24 April 2011);
- EPBD (Energy Performance of Buildings Directive – Directive 2002/91/EC of the European Parliament and of the Council (EC) of 16 December 2002 on energy performance of buildings, which was revised and then published in the form of a Directive of the European Parliament and of the Council (EU) 2010/31/EC (recast) of 19 may 2010. on energy performance of buildings.

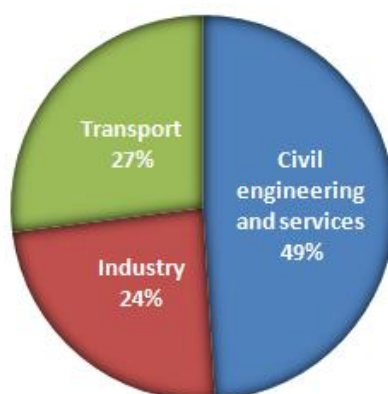


Fig. 2. Distribution of final energy consumption in Poland [4]

Prerequisites for the creation of the above mentioned directives are different, however, two aspects are key. The first premise is the need to limit energy consumption as a way to limit the energy dependence of European Union countries. The second premise is that the need to reduce energy consumption from non-renewable sources to reduce greenhouse gas emissions.

The result of the adoption of these directives were the changes introduced in the Polish construction requirements.

According to Polish building regulations the building will comply with the requirements of energy saving, while if the rate of annual consumption of non-renewable primary energy EP for heating, ventilation, preparation of hot water will not exceed the maximum values of  $EPH+W(\max)$  and a heat transfer coefficient  $U$  of all the external barriers will not exceed the limit value of  $U_{c(\max)}$  or  $U_{\max}$  [5].

The next planned change of technical regulations on energy efficiency of buildings, which will take effect on 1<sup>st</sup> January 2017 exacerbates the demand for energy efficiency - especially in the case of new single-family and public buildings. It must be emphasized that every year in Poland, there is introduced about 80-90 thousand buildings [7] that require a serious approach to the problem.

According to the latest changes requirements for determining the energy certificate of the building, except for the indicator of EP it is necessary to calculate the emissions  $CO_2$  gas and the percentage of energy consumed from renewable sources. However, for the last two parameters of the building regulations do not specify limit values.

In the Directive EPBD and later in the construction regulations the definition of a building with almost zero energy consumption appears. This type of building should become the norm in beginning of 2021, and in the case of buildings occupied or owned by the state or local government should become norm in 2019. According to the Directive these are buildings with a very low or almost zero primary energy consumption. That energy must be generated to a large extent, from renewable energy sources. Based on this definition, a building with almost zero energy consumption-technically means 0 kWh/(m<sup>2</sup>a) rate of consumption of non-renewable primary energy EP.

In 2013, in Poland there was introduced the first program of subsidizing the construction of low energy houses in standard NF 40 and passive buildings in the standard NF 15. The symbols indicate the maximum level of final energy consumption for heating of 40 kWh/(m<sup>2</sup>a) and 15 kWh/( m<sup>2</sup>a). Investors can get a grant in the amount of 30 000 and 50 000 PLN for single-family houses or 11 000 and 16 000 PLN for the apartments. To get a grant there is a need to fulfill a number of requirements, including insulation of external barriers of the building.

There has also been developed the document in the form of a national plan to increase the number of buildings with low energy consumption [9], indicating big business existing conditions and opportunities to achieve economically viable energy efficiency of buildings. In addition, the plan represents the actions of the government in order to improve the design, construction and reconstruction of buildings to improve energy efficiency and increase the use of energy from renewable energy sources in new and existing buildings.[9]

One of the characteristic trend of designing modern buildings called green buildings is the consideration of various environmental aspects. The energy efficient buildings which are close to green buildings with minimal consumption of energy generate a very low emission of fuel combustion products. According to a recent report [10] that represents the results of the analysis of the status and forecast of development of green building in 69 countries, over the next 2–3 years there will be a double increase in the number of buildings which are characterized by a minimal negative impact on the environment. Experts predict that in 2018 in more than 60 % of building projects the green building features will be applied. It mainly concerns the new and modernized office and public buildings for which the investor tries to obtain a certain environmental certificate.

In the Polish construction there are mainly two systems of multi-criteria environmental certification used: the British Breeam and American Leed. As follows from the report [11], in Poland there were 249 certified office buildings in BREEAM or LEED. That's 60 % more than in 2014. Most objects with an environmental certificate is located in Warsaw (126), Krakow (26) and Poznan (17).

**The results of a survey of public opinion in the field of energy efficient construction.** The results of surveys conducted in recent years on energy issues of buildings are very interesting. Most of Poles have rather low level of knowledge as far as energy is concerned. It mainly concerns the use of energy for the building in period of exploitation of the building and the influence of these processes on the state of the natural environment. Many people cannot properly assess how much of the energy is used for heating. From the public opinion survey "Poles about energy savings" in 2007, [12], we know that 71 % of respondents indicated that most energy is consummated by industry and by buildings only 18 %.

To the question, what percentage in consumption energy is the energy for heating the apartment/house, most of the respondents, 35 % gave the answer that it's up to 20 % of all energy consumed by the building. 23 % of respondents did not answer this question. Approx. only 16 % of respondents were close to the truth [12].

To the question what most affects the use of energy in the apartment/house: 32 % of respondents indicated heating, 46 % lighting and electrical equipment, 8 % heating hot water, 7 % fuel for cars and 7 % were unable to give an answer [11].”

In fact, the percentage of the energy consumption of individual Polish engineering systems of buildings are the following: (Table 3) (Fig. 3).

Table 3

**The share of energy consumption of separate engineering systems of buildings [13]**

Engineering systems	Year		
	2002	2009	2012
	%		
Heating	71,3	70,2	68,8
Heating hot water	15,0	14,4	14,8
Preparing food in the kitchen	7,1	8,2	8,3
Lighting	2,3	1,8	1,5
Electrical equipment	4,3	5,4	6,6

Despite the growing awareness in the sphere of energy saving building the owner of the building rarely takes action associated with a reduction in energy demand for heating and ventilation.

Every tenth Pole has an energy-saving equipment, and the most popular are relatively new, energy-saving televisions (68 %), washing machines (65 %), laptops (49 %), kettles (49 %) and the least popular are energy-saving components and heating systems (7 %) [14].

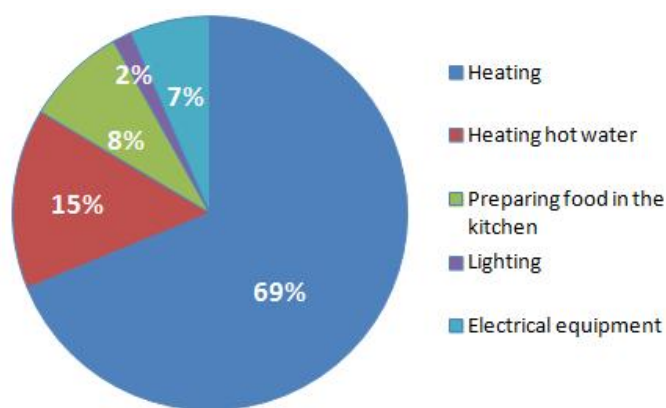


Fig. 3. The share of energy consumption of separate engineering systems of buildings in 2012. [13]

From a report on the Polish energy sector the majority of respondents (87 %) says that they try to conserve energy, particularly electricity. As the main reason of its solutions they indicate the financial conditions [15].

The results of the survey in 2013 conducted in the framework of “Energy in my house/flat”, it follows that a relatively not many Poles approx. 19 % of respondents indicates heating as the most energy-consuming operational process. 51 % of respondents as the most energy-intensive indicated electrical appliances, 14 % to heat water and 13 % lighting. For comparison with earlier surveys it shows that the consciousness in this area has not changed significantly [16].

Public opinion survey “Energy Efficiency in my house” conducted in 2015 shows little progress, but still consciousness in the field of energy efficiency in buildings remains unsatisfactory. More than half of Poles do not know that the most energy in their homes is spent on heating (only 24 % of respondents indicated heating), 46 % of respondents said that the most energy in their buildings is consumed by appliances [17]. Another survey which was conducted in the same year showed that 86 % of Poles indicate that energy saving is only connected with the reduction of electricity consumption.

**The use of social marketing to promote energy efficient construction.** Many popular social-oriented strategy, although widely spread, has not received not only a single definition. Among them the increasingly popular tool of influence on public consciousness is the form of social marketing.

Social marketing involves the use of methods of commercial marketing for the analysis, planning, implementation and evaluation of programmes that affect intentional behaviour of selected groups of consumers, in order to enhance human wellbeing and the state of society. Social marketing uses planning process and applies the principles and methods of traditional marketing. It focuses on change of behaviour, and is designed to benefit the society. The concept of social marketing includes public service announcements, and other besides advertising methods of influence. Mission of social advertising is to convince or discourage the audience to a particular idea or behaviour. Other activities are aimed at facilitating the implementation of new approaches and behaviour of the message recipient. Public campaign is the orderly in time operation using the tools of marketing, in particular advertising and Public relations affecting the changing attitudes and way of thinking. This, in turn, leads to the solution of social problems that block the achievement of the common good, defined as marketing goals.

One of the promotion tested in 2014 in Poland related to energy saving, was a campaign called “the House that saves me” [18]. Its purpose was to familiarize and convict all investors also in future in the construction of passive and energy saving buildings using renewable energy sources (Table 4). It was directed and received a great response especially among the younger generation.

*Table 4*

**The basics of the marketing campaign “the House that saves me” [19]**

Marketing challenge	The predominant target audience	Implementation
Stimulating the construction of buildings in passive technology, energy saving and use of renewable energy, by creating the conscious action of the profitability of this investment. This solution is more expensive than standard, but it should quickly pay off due to lower cost of operation. The client was waiting for a bright, interesting proposals, which should stand out against other promotional materials.	People planning the construction / reconstruction of houses or apartments over the next 3 years, at the age of 25–54 years, with a monthly household income of more than 5 000 PLN net. Analysis of studies shows a significant impact of women in taking decisions concerning the construction or modernization of the house / apartment.	A key element of the campaign and the connecting element of the event was website <a href="http://www.oszczedzam-energie.pl">www.oszczedzam-energie.pl</a> that contain database articles, tutorials, and graphic material. In order to read the content of the campaign in the Internet and the press the app AR for mobile devices was created. Users could create a passive or energy efficient house and compare annual savings compared to a traditional house. The campaign was supported by PR activities (including unintentional use of training for journalists and bloggers). The accompanying element was coffee served from a special food truck.

This action was based on creative ideas of selecting different construction solutions and calculating the resultant effects in the operation of a passive or energy-efficient buildings, which is supposed to use renewable energy sources. Choosing different solutions there is possibility of achieving such an option that it allows to cut spending and gives the opportunity to save funds for other needs. It was assumed that this will increase the number of investors who want to build their own home with the help of a loan, with the possibility of redemption through saving costs.

The whole event with a variety of planned activities fits into the action characteristic of social marketing. The goal of social campaigns is the belief of the audience for which it is organized to accept changed or rejected certain beliefs, attitudes or behaviour. The proposed tools that have an impact on potential investors and the people from their entourage, refer to activity within the framework of social marketing.

A key element of the campaign was the creation of website [www.oszczedzam-energie.pl](http://www.oszczedzam-energie.pl) containing a database of technical and other data, database articles, tutorials, and graphics and video materials. To familiarize yourself with its contents the campaign in Internet and press was organized. It was also created a mobile app AR (Augmented Reality), in which the user can move the virtual process of design and construction of energy-efficient or passive houses. The user can change the size and rotate the display detail of the building, interact with it, modify its technical parameters, as well as obtaining additional information with a text description (Fig. 4). The investor can also learn what is important while choosing the technology of construction and installation works, and is able to see how much can save on lowering the energy consumption for heating and ventilation.



*Fig. 4. The screen indicating the possibility of rotation of the building relative to the cardinal directions [19]*

The page also contains suggestions how you can use internal installation and what level of savings you can expect. The user can find answers to the following questions: On what to pay attention when designing energy-efficient or passive house? How to organize the construction? What is the process of construction? What is the energy certificate of the building? How to get financial support? How to live in a passive house? How much can you save? This function performs a mobile 3D application that allows you to create a home concept, ensuring the adoption of appropriate projects solutions for energy-efficient or passive houses. It allows you to calculate the annual energy savings for heating and ventilation comparing to conventional building. Using the app it is possible to view a 3D model of this building. The program, which you can download from the Google Play store is available on iOS and Android devices.

For a better acquaintance with the advantages of energy-efficient construction it was also suggested that communication through Facebook is possible. There were published three info graphics called “the

House that saves me". Using Facebook you could learn where to receive coffee from the coffee truck which saves for me."

The campaign was supported by action in the form of Public Relations (including training, training for journalists and bloggers). During the distribution of coffee it was possible to receive a QR code to access the program (Fig. 5). On the web page there is also a special calculator, which can estimate the amount of savings in standard energy-efficient or passive houses while comparing it to conventional houses.



Fig. 5. The cup of coffee with a QR code to the calculator [19]

There have been used all kinds of tools of communications online: website, mobile app (iOS, Android), AdWords, banners, video inserts, mobile campaign, mobile apps and advertising in the electronic editions of weeklies and magazines (articles, links, materials from the editors, sponsorship). In the press: print and promotional materials, in the most famous weeklies and magazines on architecture, construction and construction equipment - a total of 17 titles of journals, a model of a house with piggy Bank function etc. In just six weeks, the information was viewed on the popular Internet portals and on YouTube more than 400 thousand times, the log on page was approx 80 million times [20].

The action was included in a number of educational and promotional events in the field of energy efficiency and renewable energy, including the idea houses harmless to environment.

The project "the House that saves me" won the main prize at the Competition of the Public campaign of the year 2014 in the category "Campaign for environmental issues". The main arguments underlying justification of the verdict of the jury was: interesting and unusual approach in creating positive motivation for environmental activities, witty symbolism and the choice of forms of communication and information transfer to social circles.

**Conclusion.** In conclusion it must be emphasized that the process of introduction of energy-saving and passive construction is very complicated. The fact that the change in energy consumption in the building had grown very slow was showed in statistics. The research also shows relatively low level of knowledge in the field of energy efficiency in construction. The creation of appropriate building regulations is not enough. It is necessary to conduct multilateral educational action in order to prepare for the realization of the different groups of the investment process for the construction and further operation of the standard buildings. An example of using social marketing for promotion of this idea is very interesting and should be developed in similar type of projects.

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