Some Social Aspects of the Energy-Efficient Lighting in Poland

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1. SYNOPSIS

This paper attempts to outline definitions of the main target groups for the potential energy-efficient lighting programmes, while taking into account the current social structure in Poland.

2. ABSTRACT

The general characteristic of all steps taken worldwide to rationalize the use of electric energy is to target carefully worked out programmes on defined social groups. Depending on who they are directed to, these programmes greatly differ from one another in both: means and range. To find out typical character of a social group is essential for taking any action in this field, and programme's success considerably depends on the level of advancement of such examination. In this paper the author attempts to outline definitions of the main target groups for the potential energy-efficient lighting programmes, while taking into account the current social structure in Poland. The author discusses factors affecting energy-efficient lighting perspectives in

the residential and commercial sector as well, in relation to the present economic tendencies in Poland.

3. INTRODUCTION

Poland--country with the area of 312.000 km^2 and a population of almost 38 million people has a very ineffective structure of extraction and utilization of fuel. The prices for energy and fuel have been kept artificially low for years, favouring energy-consuming industry and waste of energy.

The problem of environmental pollution in Poland has also got a substantial value in terms of international relations. The export of air pollutants and contaminated water caused by the ways of gaining and consuming energy, can create concern in Scandinavia and among neighbouring countries.

Though the economic recession has caused apparent energy overproduction, all accessible forecasts say the economic recovery will bring shortage if definite energy-saving projects are not implemented immediately.

In 1994 a government sponsored research and development centre for lighting industry in Poland begun preparatory works to the National Energy-Efficient Lighting Programme. One of the first steps taken was the recognition of the social attitude towards

energy-efficient lighting practice.

The research which have been undertaken covered interviews with householders and persons who represented commercial users.

This paper presents results of that research and discusses their potential usefulness in implementation of energy-efficient lighting promoting initiatives.

4. RESULTS AND DISCUSION

Two social groups are distinguished by different attitudes towards the issue of the energy-efficient lighting, and they are of basic importance to the prevailing situation. The first one are residential customers, that is householders, the other group are commercial customers, in other words people who deal with the installation, repairs and operating of lighting systems in places of work or other places for public use (and that concerns both: interiors and exteriors).

The differences between these two groups derive mainly from character of their interest in energy-efficient lighting. In the first group, by far more numerous, the interest is of decisively private nature. The latter group's interest is strictly professional. This is followed by a different degree of knowledge about the problem and motives for action as well as varied

perception of action taken from outside (e.g. actions within the programmes designed to promote efficient methods and economizing on electric energy).

Within the group of residential customers the average knowledge about energy-efficient lighting is close to nil and generally is reduced to the incorrect notion that energy-efficient lighting means saving the light. This implies that an average residential
customer tends to install bulbs of lesser power in his house, thus worsening the quality of light produced, rather than replace such bulbs with more efficient light sources which allow saving energy without change in lighting conditions. An average individual knows much neither about technical aspects concerning modern lighting equipment nor even about advantages of employing energy-efficient lighting.

This kind of situation, though similar to the rest of the world (1), poses a more difficult problem in Poland because:

- the price on electricity for individual households is still low enough not to prompt actions directed at rational savings (at the present level of prices in the world on energy-efficient lighting equipment its use by individual households is just uneconomic);

- as far as energy-efficient lighting is concerned, stereotypes have been rooted that associate saving the light with merely

turning it off. (Such thinking was made popular by an unfortunate campaign at the time of global energy crisis in the 70s, when Polish TV presented a symbolic illustration of a crossed-out bulb while the street lamps were off);

- the whole range of issues dealing with saving energy, and energy-efficient lighting in particular, is being almost entirely omitted, these days.

On the other hand it should be noted that nowadays one can witness in Poland a tremendous fascination with technological accomplishments that started with opening our market to imports from the world leading producers. One of the results very expensive high-tech products are being purchased in this country (including--though still marginally--energy-efficient lighting equipment), even at the cost of other, more essential needs. The scale of this phenomenon which cannot be explained with any economic rationale, is a testimony to a big potential in the discussed field.

It must also be stated that the potential for saving electric energy in lighting within this group of users is the greatest. It may be estimated that in Poland individual households use for lighting 5--7% of the whole electric energy[1] . Taking into consideration the fact that householders almost always install incandescent bulbs, which means the most energy-consuming light

source, one can believe that their massive replacement for e.g. CFLs would make it possible to reduce energy consumption to half or even to one third[1].

Choices of light sources made by members of this group of customers are as individual as they are irrational, motivated by custom, taste or intuition rather than well thought-out intention
based on reasonable thinking.

It's strange that this concerns specialists as well to considerable degree who do not seem to be willing to employ their professional knowledge within their private undertakings.

The significant factors which determine attitudes of individual users are: level of overall education, material status, gender and age. In sum there is a wide range of attitudes toward the problem of economical lighting. Generally one may notice that people who are more educated, better-off in and younger share interest for economizing on lighting. The same goes for men who are more active in this respect than women.

For the reason stated above, appropriate programmes directed at groups of residential customers will require actions on a scale as large as possible, which at the same time would take into consideration low level of technical knowledge as well as wide spread resistance to excessive interference in the customers'

private lives. In this case the actions should be as far from being homogenous as they can be in both: the form and the content. They must acknowledge not only intelectual, but also emotional conditions of the recipients' perception. They ought to take into account enormous differantiation among their individual traits.

The commercial customers make a group of recipients that uses the rest of electric energy consumed by lighting. In Poland it is now about 8--10% of the whole electric energy[1]. Within this quantity the main shares and more or less equal belong to: the industry, services and streets (+ roads).

In contrast to residential customers, the use of incandescent bulbs within this group is small, making such radical savings is unlikely in this case. Knowing about a very bad quality of light in the sector of commercial customers in Poland /2/ one should ask a question whether economical methods are possible at all? It seems that in the view of wide spread use of lighting below recomended illumination standards economizing could basically stand for the employment of energy-efficient lighting equipment and efficient lighting technologies in order to improve quality of light without much increase in power consumption. We might expect proper actions aiming at this goal to generate soon radical improvements in quality of lighting in Poland while the same level of power consumption would be mantained.

Unfortunately commercial customers (to be more precise--persons employed in services that are responsible for lighting) display very little expertise. In spite of their strict relation to lighting through profession their knowledge on the matter does not go above the average. This refers in particular to the know-how on state-of-the-art methods and materials for economical
lighting. The situation in Poland may raise serious concern especially when the above-mentioned group of professionals, that has the most important say about installation and use of given lighting equipment and systems, is unwilling to take modern lighting experts advice. The other thing that prompts worries are the practices of many trade and service companies in relation to this group of customers, especially to those representing public sector, where among others so called commissions are given to persons putting out defined contracts instead of discounts that are the rule in the civilised world. This, and there is no doubt about it, affects negative attitudes within the group.

Another concern-causing practice of some trade, trade-service and service companies in the field of lighting is that they offer commercial customers, including delivery of equipment, "free-of-charge" designer's services, in most cases regardless of the size of prospective orders. In this way the role of a designer with sound credentials has been eliminated from the investment and retrofit processes, and the designs that are provided have little (or just nothing) to do with the necessary procedures in the

field. This kind of practice is in breach of building regulations. In efect there are numerous cases in which persons responsible for the condition of lighting in the public sector act according to motives that have nothing in common with electric energy saving, nor with the interest of companies they represent.

As an additional remark, it should be noted that in Poland graduates from technical colleges specializing in Illuminating Engineering are not only ones who design lighting. The others who do it (and that is a prevailing situation) are electricians of unrelated specialties, as well as architects, interior designers, and, as has already been mentioned, dealers and installation engineers. The sad paradox is made by the fact that the first mentioned group, though its members are best qualified for the job, has just a fractional share of the design work carried out in the country.The work status of lighting designer, moreover, has not been recognised in Poland up till now, though it is undoubtedly well deserved. It must be clearly stated that such situation has a negative effect on the quality of designs, which in turn affects quality of lighting. This can be harshly felt particularly these days, when a lighting standard that has been in force since 1984 /3/ and was defined according to international regulations, is understood (especially in the area of requirements) exclusively by specialists in the field of Illuminating Engineering.

Recapitulating the above reflections on the group of commercial customers it is a safe judgment to say that no actions will bring about necessary effects unless a proper legal infrastructure is created (that is working out sound and easily executed law).

It must be underlined here that--due to fairly good level of
education--the group of commercial customers is more susceptible than individual householders to organised campaigns that target at expanding and developing the technical know-how. For this reason the group in question ought to be presented with--apart from other energy-saving schemes--adequate information and educational programmes that would promote the knowledge on up-to-date methods and means of energy-efficient lighting. These programmes should have ample and substantial contents with particular reference to the operation of lighting systems. Also training sessions, like sets of lectures and seminars can be arranged for this group of users.

5. CONCLUSIONS

To conclude, it is worth mentioning that energy-efficient lighting is of significant importance in the economy of electric energy. Lighting accounts for high proportion of the energy balance of the country. On the other hand, economizing in this field creates good prospects of big advantages, not only in the form of energy saved and upgraded environment, but also as a way
of improving light quality, which will be followed by bettered working conditions, safety in the streets and other factors determining the advancement of a nation.

6. FOOTNOTES

[1] According to author's own estimates

7. REFERENCES

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