

RESIDENTIAL AND COMMERCIAL SURVEY FOR A ROMANIAN ENERGY EFFICIENT LIGHTING PROGRAM

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The paper is based on a research made by the Lighting Engineering Center about the lighting consumption in households and commercial buildings and make some proposals for the CFLs promotion and practical implementation problems for energy efficient appliances. For Romania there are no data about the repartition of electric energy consumption in buildings which could be the base of any further programs. In 1996, the average electric energy consumption was at the very low level of 386 kWh/ people. In 1999, for 7.836.246 households, the electric energy consumption was 7841 GWh [9].

Even if tertiary and residential sector represents only about 30% of total electric energy consumption, the trend is to increase this figure as industry and transport are in a continuous decline. The research was based on an electrical consumption survey of three and four rooms flats, residential houses, student residential halls and an university building. The houses survey was conducted in two cases (the first with incandescent lamps and the second by replacing of six incandescent lamps with CFLs) and showed that the lighting is responsible of about 20-30% of the total electric energy consumption. There is interesting to notice the important consume of a very small appliances, like water pump of the heating unit and stand-by appliances, due to their continuous working state. In the case of using CFLs there was a reduction of the energy consumption with 6% and of load curve picks.

There is also important to see the impact of new kind of consumers like PCs and from here it's easy to anticipate that this distribution is dynamic, with new devices on the market every year.

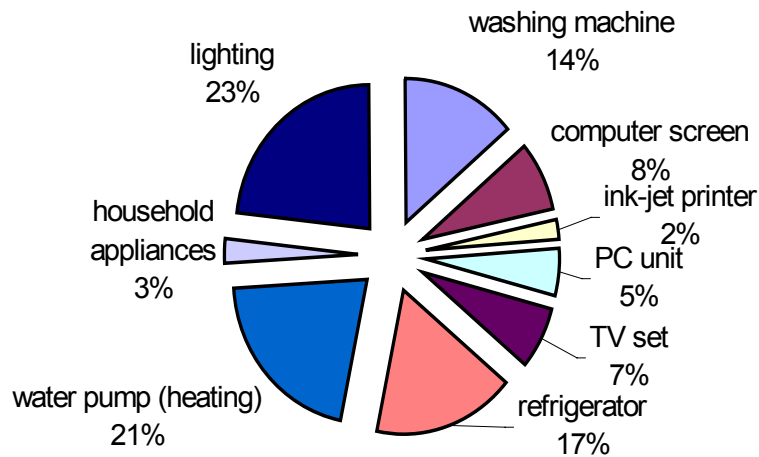


Figure 1 Energy consumption of some household electric appliances [6]

The use of the CFL sources assure a reduction of the energy consumption and a curve without important picks.

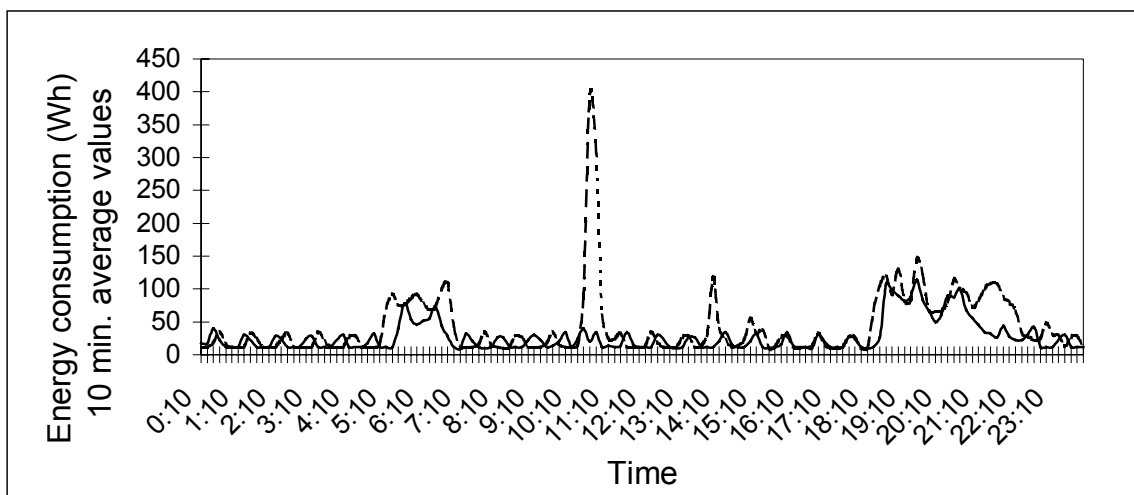


Figure 2 Load curves for incandescent (----) and compact lamps (—) for a household [6]

The price of electric energy for household use was subsidized by high prices for industrial-use electricity until June 1999. Since then the people is very interested in electric energy reduction use but most of them have neither good information nor financial possibilities. The main problem remains that the energy reduction is made not with energy efficient appliances but just with by plugging-off the refrigerator, using less the vacuum cleaner, switching-off the lamps, replacing 60 W incandescent lamps with 40 W incandescent lamps etc. In some cases, energy reduction is

associated with lack of comfort, and this wrong conclusion may affect next evolution by reversing the conclusion (for example, “the comfort is equal with the excessive use of energy”).

In order to overcome this lack of information, the authors are proposing a Romania CFLs campaign. At the beginning it will have to form a lobby for energy efficiency which will include electricity utility, university professors, lighting manufacturers, politicians, environmental NGOs and public relation specialists. The specific problems are: a) people see CFLs as a sort of gadgets and have no confidence on it, partly due to the lack of information. In some cases, the salesmans can not provide useful information; b) household fixtures are not always suitable for CFLs, and the cheapest version of CFLs, with magnetic ballast, are sometimes too heavy; c) the difficulty to choose: after years in which there was no possibility to choose and purchasing a product was limited to the chance to find it in the shop, people meets with difficulties making their own choice; d) lack of financing programs for CFLs buying; one of the possible explanation that there is no market aggregation (like county school organizations) in order to reduce unit costs; e) little interest in electric utility programs; there is no program for the peak-load reduction or in reduction of CO₂ emission for the moment.

The target of this campaign will be residential and commercial buildings.

1. the first step will focus on information about the advantage of CFLs. It will start with energy managers of institutions and also on decision makers and will continue will leaflets and TV campaigns.
2. on second step, there will be an attempt to set some minimal standards for household appliances and also some technology procurement incentives for schools and hospitals.
3. the third step will try to involve more electricity utility in some CFLs pilot projects, by allocating some free kWh bonus for CFLs buyers, or by giving 2 CFLs to each family in an area with disadvantage people.
4. an assessment of the results will finalised the campaign. One of the most important topics will be to summarize the impact of campaign and what where the reasons of program success or failure. Depending on the results the campaign should be continued or not.

Aknowledgements

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