Replacement of Conventional Light Sources with LEDs in Households

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Lux Junior 2017

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The purpose of this paper is to present some problems in replacing conventional light sources with LED retrofit analogs, mainly in households.

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Two main problems when replacing conventional LED lighting (so-called “retrofit lamps”):

- Misunderstanding most parameters of LED products by "ordinary" people;

- The price barrier of LED products compared to existing light sources.

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Presentation of the technical parameters

***Figure 1**. Packaging of widespread LED retrofit products*

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Information that manufacturers provide:

- Nominal luminous flux - F, lm;
- Color temperature - Tc, K;
- Modification of the LEDs in the lamp housing;
- Others.

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Presentation of the technical parameters

***Figure 1**. Packaging of widespread LED retrofit products*

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Figure 2. *Packing of LED retrofit products with introduced an explanatory text about the power of the lamps*

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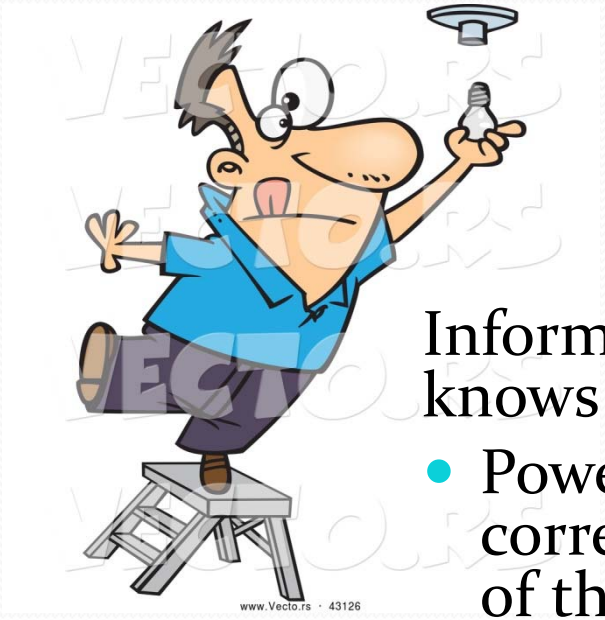

Information that "ordinary" people knows:

- Power of the LED lamp and the corresponding replacement power of the filament lamp;
- Lifetime of the lamp;
- Warranty period given by the manufacturer;
- Color of the light (warm, neutral, cool).

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Economic effect of replacing conventional light sources with LEDs

It was made calculation for an average home where 23 light sources were used. Even in the worst case of replacing compact and fluorescent lamps with LED analogs, the payback period of less than 3 years is obtained. Given the long lifetime of LED lamps (from 5 to 20 years) the payback period is not very high.
Unfortunately, there is a problem for consumers about the initial higher investment for LED products.

Conclusion

After analyzing the problems of replacing conventional light sources with LEDs, the following can be concluded:

1. There have been found two main problems in replacing conventional LED lighting (so-called retrofit lamps). These are: ignorance of most of the parameters of LED products by "ordinary" people; Price barrier of LED products compared to existing light sources.
2. Most manufacturers of LED products do not adequately represent the information on their packaging in order to be easily read by ordinary consumers. They include parameter data: nominal luminous flux; Color temperature; Modification of LEDs in lamp housing; Others. At the same time, there is no data on the analogy of the power of the LED product and the replaced light source and the color gradation of the light source.
3. The economic effect of replacing conventional light sources with LEDs is not well known to the average consumer. It is necessary to familiarize consumers with the energy savings that will be realized as well as the payback period for LED products.

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THANK YOU!

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