

Promoting production and encouraging implementation of energy efficient lighting devices.

Prof Julian B Aizenberg,
Moscow VNISI

Transforming the Russian lighting market to promote the production and encourage the implementation of energy efficient lighting devices requires a number of initiatives, some of which I will present today. The stimulant initiatives should be carefully coordinated, integrated and must have some government support. It is important that energy efficient lighting devices are promoted not through forceful measures but through market incentives.

1. Firstly, the standards for energy efficient lighting and its installation must be addressed.

- 1 1.1 Current national norms and standards of building must be reassessed in view of the following:**
 - a. Illumination standards of lighting devices must be set depending on the type and function of the building or room in which they are installed. The same is the case for outdoor installations.**
 - b. A limit should be imposed on the use of lighting devices and lamps of low wattage, dependant on the average levels and quality of illumination required, and the annual workload of the device. As a rule, lighting devices below the following thresholds should not be used: less than 50 lm/W light efficiency, colour rendering index below 80, lifespan below 4,000 hours, $\cos \phi > 0.9$, rate of return < 2.5 years.**
 - c. A limit needs to be imposed on the use of lamps with a significant reduction in light flux over the working life. This is important as such lighting installations are designed with unnecessary excess power input to facilitate normal light flux towards the end of their working life.**
 - d. A ban must be imposed on the use of discharge lamps with electromagnetic ballasts which have high levels of power loss. The production of all lighting devices must transform to using electronic ballasts with losses of less than 10%.**
 - e. Rigid standards must be introduced on the operating mode of lighting devices (their maintenance and lamp replacement) in order to create extra opportunity for the reduction in the maintenance factor and increased lighting quality.**
 - f. Strict quality requirements must be set for lighting products. Current IEC documents impose these only on the safety parameters of devices. However, these requirements should be stretched to include the efficiency of devices, light efficacy, $\cos \phi$, power consumption, and changing characteristics throughout their usable life.**
 - g. The use of automatic control installations, which switch off when there are sufficient levels of external light or the room is empty, should be made compulsory.**

1.2 Market developments should be systematically monitored, including inquiries into compliance with new standards and measures and assessments of the levels of quality control. Quality control responsibilities should be limited to a small number of highly specialised licensed bodies. High levels of quality control should be imposed on CFLs and their manufacturers. A system of sanction and fines should be imposed for substandard produce.

1.3 Border controls should check for the import of properly licensed produce, with certification from recognized licensing bodies. The internal components of these devices should be similarly licensed.

1.4 Independent specialist boards of highly qualified experts should be set up to scrutinize major projects for the illumination of landmark buildings or standard mass produce installations, on the question of their energy efficiency and ecological soundness.

1.5 A symbol should be introduced to distinguish energy efficient produce which complies with all new standards.

2. The supply chains for components of energy efficient lighting devices must receive some support.

- 2.1 A network of contacts must be established with energy efficiency bodies in a range of front runner countries (such as Germany, the UK and China). These contacts can provide insights into energy saving requirements and ways of putting pressure on firms which produce sub-standard outputs.**
- 2.2 Scientific and technical assistance should be rendered to foreign suppliers of products and their components, with a view to increasing quality.**
- 2.3 The Moscow Light House should be recognized as a knowledge centre for energy savings in lighting installations, a centre for education and promotion of energy efficient lighting.**

3. Efficient lighting in households and public buildings in Moscow

- 3.1 A systematic monitoring programme of municipal buildings, schools and hospitals should be undertaken, which would seek to identify inefficient lighting installations and devise a programme for their replacement and upgrade in accordance with methods suggested by the auditing body.**
- 3.2 A credit system should be introduced to support the replacement of inefficient lighting devices; credit would be repaid from the savings made as a result of electricity savings.**
- 3.3 Some of the saved funds (no less than 50%) should be distributed to the staff of the retrofitted building.**
- 3.4 Pilot lighting retrofits should be undertaken in a number of city schools, hospitals, nurseries and universities. These projects should form the basis for best practice presentations to a range of stakeholders such as the facility staff, designers and architects from future potential projects.**
- 3.5 The pilot projects should be popularized via printed media (a book or brochure) presenting the energy efficient installations and their impacts.**
- 3.6 2020 targets should be set for the development of lighting in households and public buildings, with regard for a number of significant scientific achievements progressing these programmes during that time**

4. A general drive for the encouragement of increased energy efficiency in lighting installations.

4.1 The government must introduce a law covering following points.

- a. Firstly, all government buildings should be required to use CFL and T5 lamps within three years.**
- b. The producers of CFLs and ballast should be freed of VAT requirements.**
- c. The procurement of lighting services for public sector bodies should favour those firms which bid technologies compliant with the latest standards of energy efficiency, promise low costs and returns within three years.**
- d. Electricity providers must lower tariffs for users who promise energy savings of 30% as a result of switching to CFLs and T5 lamps.**
- e. A system of distribution of free energy saving lamps to OAPs and low income families should be established.**
- f. The government should guarantee low interest bank credits for fast return loans.**
- g. Some of the budget assigned to the development of new energy generation should be redirected to stimulating the production of CFLs with a view to reducing their market price and improving production technologies.**

- 4.2 Non-commercial partnerships should be established with firms specializing in project management, sales, engineering, energy supply and financial bodies for the supply of integrated high quality energy efficient lighting installations as required by a procuring authority.**
- 4.3 Small-medium enterprises should be established which could take on the challenges of increasing the energy efficiency credentials of lighting installations in public sector and residential buildings.**
- 4.4 A mechanism should be developed for the economic stimulation of public sector bodies to improve their energy efficiency.**
- 4.5 Sale of CFLs in credit should be set up where necessary.**
- 4.6 Sales initiatives should be organised, such as selling reduced price CFLs when multiple units are purchased.**
- 4.7 The scientific journal “Svetotechnika” should become a forum for discussion of programmes and initiatives to increase the energy efficiency of lighting devices.**

Therefore, main barriers for further transformation of current Russian market are :

- 1. Absent or insufficient volume of production of new equipment (CFL and T5 lamps and devices with them, automatic switches and controls);**
- 2. Low quality of imported products (Chinese make of CFL, electromagnetic ballasts and others);**
- 3. Out-of-date Regulations;**
- 4. No proper financial support from the government;**
- 5. Lack of information both for general public and technical staff on advantages of this new equipment.**

The suggestions presented are in no way an exhaustive list and more discussion is needed to explore potential opportunities in these directions.

THANK YOU
FOR YOUR ATTENTION

