News at SEVEn

ENERGY EFFICIENCY NEWS FROM THE CZECH REPUBLIC

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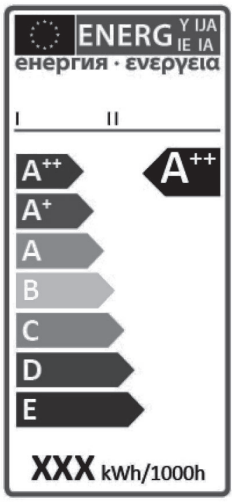


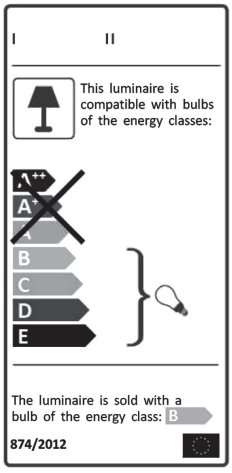
New energy labels for light sources

After energy labels of washing machines, fridges and dishwashers have been changed, several modifications will also be made to light sources. Following the Delegated Regulation No. 874/2012, there will be energy labels not only for non-directional light sources, but newly also for directional light sources and luminaires. Another adjustment will be two new energy classes A+ and A++.

The design of the new energy label for light sources resembles the new labels for fridges, washing machines etc. However, it includes much less information: only the name of producer, light source model, energy class on the scale from E to A++ and newly also energy consumption per 1000 hours of operation.

New energy classes A+ and A++ have been introduced especially thanks to the development of new light sources. The following table gives a brief overview of what light sources for households may be expected in the different classes.

A labelling novelty is the obligation to label luminaires, too. A label on a chandelier will thus inform us about energy performance of operation (with which light sources the luminaire may be combined) and what energy class the light source used on luminaire sale has. An example of such a label can be found in the picture. The energy label of luminaire will provide information on whether the luminaire contains light sources which cannot be replaced (typically LED).



The new labelling will substantially facilitate orientation in the energy performance of directional light sources (e.g. frequent reflector lamps in a soffit). The new labelling will also facilitate replacement with more economical light sources. In addition to the newly prepared legislation aiming at phasing-out of inefficient directional light sources (as in case of traditional lamps), the new legislation will be a major pillar for increasing energy efficiency.

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Energy class	Non-directional light sources	Directional light sources
A++	Currently no light sources, the best LED lamps in near future	Currently no light sources, the best LED lamps in near future
A+	The best CFLs, the best LED lamps available in the market	The best LED lamps available in the market
A	Average LED lamps, average to good CFLs, minimum energy class for non-clear light sources	Average LED lamps, average to good CFLs
B	Bad CFLs (usually design lamps or bulb-shaped CFL lamps), they may not be placed in the market since 2009	Bad CFLs, bad LED lamps, the best low voltage halogen lamps
C	Halogen lamps (mains voltage), minimum energy class for clear light sources	Average low voltage halogen lamps
D	Conventional halogen lamps, the best traditional lamps (they may not be placed in the market since 2012)	Bad low voltage halogen lamps, quality halogen lamps for mains voltage
E and lower	Typical traditional lamps (they may not be placed in the market since 2012)	Traditional directional lamps, bad halogen lamps for mains voltage

ENERGY PERFORMANCE CERTIFICATES OF BUILDINGS – MAIN CHANGES

The evaluation of energy performance of buildings is a topic which has currently received much attention among specialists as well as wide public. On 1 January 2013 the amendment to Act on Energy Management (and subsequently the Implementation Decree), which introduces several major changes in the field of energy efficient buildings, is to take effect. SEVEn has contributed to the preparation of the new Act and Decree on Energy Performance of Buildings especially by having provided calculations in the work group of the Czech Chamber of Commerce. The resulting calculations are a basis for setting reference values to evaluate energy performance of buildings.

Current status

Based on the implemented Energy Performance of Buildings Directive of the European Parliament and Council 2002/91/EC (EPBD I), construction documents (for building permit request) must include the energy performance certificate of building (EPC) since 1 January 2009. This legal obligation is stipulated by Decree No. 148/2007 Coll. and currently concerns only new buildings and renovated buildings over 1000 m^2 of floor area which will affect the energy performance of building. The energy performance of building is evaluated based on the calculation of the total annual energy supply in GJ, which is needed for heating, cooling, ventilation, hot water, and lighting.

A building is assessed using a balance evaluation – based on a standardized building use. The inclusion of a building in a certain energy performance class is done based on the value of specific energy...

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Energy efficiency in the Update of the Czech State Energy Policy

In July 2012 the Czech Ministry of Industry and Trade presented the updated version of the Czech State Energy Policy (SEP) with the outlook to 2040. How is the topic of energy efficiency and energy savings represented in this document? It seems it was given relatively ample space, but not beyond the framework of requirements set by the current and soon to be elaborated European legislation.

The second strategic priority of the SEP Update (right after the balanced mix of energy sources) is increasing energy efficiency and achieving energy savings in the economy as well as households. A vision linked to this is "to increase energy efficiency to the level of EU average and safeguard that energy savings are the main source to cover additional energy demand triggered by growth of economy and living standards of the population".

Partial targets which are to result in SEP fulfilment include energy efficient appliances and products in the first place. However, the targets practically only copy requirements which are currently set by legislation concerning especially energy labelling and eco-design, e.g.:

- "Promotion of a permanent transition to energy efficient products – growing requirements for minimum efficiency of sold products and consumer information (labelling and information in advertising), and
- Supervision of strict compliance with the introduced requirement for selected products, market launch of only those products which meet requirements for eco-design linked to energy consumption". (p. 43)

This is also accompanied by a requirement to intensify inspections by the State Energy Inspection concerning meeting the efficiency standards of energy facilities and electric appliances.

Energy performance of buildings with the following requirements is an important target:

- "To switch to low energy standard of new buildings or construction of buildings with nearly zero energy beginning 2020" (quoting requirements of Energy Performance of Buildings Directive)."
- "To safeguard strict compliance with requirements for energy performance when erecting new and renovating the existing buildings, to implement exemplary role of public buildings."
- "To use technologies in an economically efficient manner to insulate the existing buildings with respect for monument protection." (p. 44)

Other partial goals are efficient energy distribution and consumption management, support of energy audits and efficient energy conversion.

From the strategic point of view, the document requires that a 2020 National Energy Efficiency Action Plan be elaborated by mid 2013. This requirement is based on requirements of the Energy Efficiency Directive. The SEP Update more or less fully ignores energy services – they are mentioned only once against the backdrop of direct schemes as a requirement "to preferably channel support to EPC projects for financial guarantees with a high leverage, to project types with a high rate of repetition and possible economies of scale" (p. 80).

The State Energy Policy Update can be downloaded from **www.mpo.cz** (in Czech).

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STUDY TRIP OF UKRAINIAN ENERGY EXPERTS

From 23 to 26 July 2012, SEVEn organized a study trip of Ukrainian energy experts who acquainted themselves with the Czech experience with liberalisation of energy sector. The group consisted of representatives of major national institutes and energy enterprises – the Office of the Government, various departments of the Ministry of Energy, Energy Regulatory Authority, and companies safeguarding electricity transmission (Ukrenergo) and gas transportation (Naftogas).

The trip was organized within the European programme of Complementary technical assistance to the EU-funded Budget Support to Ukraine's energy strategy implementation, financed by the European Union.

The programme prepared for Ukrainian experts included both seminars on the given topic as well as visits to important institutes and entities operating in the Czech energy market.

Seminars within the study trip of Ukrainian experts to Prague, which were held in the premises of the European Commission Representation in the CR, focused on experience with the implementation of the second liberalisation package and with unbundling, for which the Ukraine currently prepares within the convergence of its energy policy with that of EU.

Seminar in the European house in Prague

Information on the liberalisation process of the Czech energy market from the perspective of public administration was provided to the participants of study trip by the representatives and experts with experience from the Ministry of Industry and Trade and Energy Regulatory Office, from the perspective of institutes responsible for transmission network by representatives of CEPS, a.s., and NET4GAS, s.r.o., and from the perspective of regional energy providers by representatives of PRE, CEZ, and Prazska plynarenska. These institutions were complemented by a presentation of the Power Exchange Central Europe (PXE). The introduced companies offered the participants of study trip a complex view of the Czech energy market after the implementation of European regulatory packages.

The Ukraine also has its Energy Regulatory Authority, which regulates energy transportation and distribution prices. However, all the business is done via state enterprise Energorynok ("energy market"), which is the only entity purchasing electricity from producers or importers and selling it further to providers. This year a draft law on "principles of functioning of electricity market" has been elaborated, and is now debated by parliamentary committees. Within the harmonisation of its legislation, the Ukraine intends to introduce "a 2nd energy package", which the European Union adopted around 10 years ago.

The most hotly debated aspect in the seminars was the method and efficiency of regulation when part of the price is subject to market effects. The regulated part of price consisting of a price for distribution, transmission, system services, support for electricity from RES, and decentralized production accounts for more than 50 %. In case of gas the situation is different – the regulated part of price represents around 22 %. The volatility of gas price is, however, limited by long-term contracts for gas supplies.

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DATA CENTRES IN PUBLIC PROCUREMENT

Data centres (DC) show a considerable potential of energy savings. Energy efficiency measures both within the given technologies and by optimising operation can help achieve energy savings of up to 60%.

Therefore, in September 2012 the PrimeEnergyIT project saw a round table to assess the possible use of available certification schemes for energy efficient data centres in the conditions of the Czech Republic and their possible use in public procurement. In addition to that, "Purchase instructions for energy efficient equipment for server rooms and data centres", which were elaborated within the project with the aim to re-introduce environmental and operating criteria to public procurement, were debated.

The participants agreed that development of a proprietary certification scheme is not of an asset for the Czech Republic. From the current schemes, the EU Code of Conduct or the Blue Angel (Der Blaue Engel) might be suitable. Implementation of energy efficiency criteria in the conditions of public procurement is possible within the governmental decision no. 465/2010, but creating a new product group or extending the existing one (office equipment) is very time consuming. Since 12/2011 5 product groups suggested earlier have waited for government submission.

Despite the fact that procurement methodology for data centres has not been elaborated yet, purchasers in public administration may request criteria of an eco-label, e.g. Blue Angel.

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www.efficient-datacenter.eu

Will nearly zero energy buildings be constructed in a good quality?

Legislation implementing EPBD II (Energy Performance of Buildings Directive II) on energy performance of buildings is currently being prepared in the Czech Republic, resulting in binding requirements for implementation of buildings with cost optimal, near zero energy performance. The implementation will be carried out to secure that new buildings used and owned by public authorities are nearly zero energy buildings after 31 December 2018 and that all new buildings are nearly zero energy buildings by 31 December 2020.

Will construction site staff really manage to implement quality requirements for construction of buildings in line with EPBD II?

The preparation of construction site staff for construction of buildings according to EPBD II is tackled by the newly launched project called The BUILD UP Skills Initiative Czech Republic. The project will create a training system for staff to safeguard that buildings erected according to EPBD II norm fulfil not only calculatory, but also factual requirements.

Target groups of the project will be the management of construction sites, site managers, foremen, construction site staff, and educational institutes. The BuildUp project has been embraced by a broad platform of organisations. Besides SEVEn the platform includes ENVIROS, Passive House Centre (CZ: Centrum pasivního domu), ABF Foundation, EkoWATT, CzGBC, Czech Association of Building Entrepreneurs (CZ: Svaz podnikatelů ve stavebnictví), Czech Chamber of Authorized Engineers and Technicians (CZ: ČKAIT), and the Czech Ministry of Industry and Trade.

According to specialists, current energy efficient buildings have major deficiencies in terms of quality of execution, and thus in terms of the resulting energy performance. The individual professions are not coordinated well and many workers do not realize the impact their work has on the resulting energy performance of building. These are the conclusions of the introductory workshop targeting specialist public interested in the area of training construction site staff towards nearly zero energy buildings. In the introductory workshop, specialist public could express their views on the current status of implementation of energy efficient buildings, quality of conducted work, and educational system.

The project aims at elaborating a National Educational Scheme for Civil Engineering Staff and implementing it in the current educational system which will help increase skills of construction site staff, and thus quality of the resulting buildings. The project also aims at creating a qualification platform which will safeguard that a balanced educational system is launched in view of EPBD II implementation. Other workshops for stakeholders will be held at regular intervals in 2012 and 2013.

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Inspection of air conditioning systems

Act No. 406/2000 Coll., on Energy Management, and its Implementation Decree No. 277/2007 Coll., on inspection of air conditioning systems, obliges owners and operators of buildings with air conditioning systems with nominal power input of drive of cooling source over 12 kW to safeguard a regular inspection of these systems every 4 years with effect from 1 January 2009, when the aforementioned Decree took effect.

This i.a. means that **the period for the first inspection will expire on 1 January 2013** – in other words, the inspection is to be conducted by the end of this year (2012). Failure to safeguard the inspection within statutory periods is considered a delict/administrative delict and may be fined by a sum totalling up to CZK 200,000.

According to the Decree, a device whose function is especially cooling is considered an air conditioning system. The value of 12 kW always applies to one device, and outputs of smaller devices, despite being part of one system, are not added.

The prescribed regular inspection pursuant to Decree No. 277/2007 Coll. includes the identification of air conditioning system, visual inspection of system, inspection of respective documentation, verification of maintenance status, and verification of system functionality. The inspection covers both the actual device, e.g. the air conditioning unit, and its measurement and regulation and operation, including compliance with requested microclimatic conditions in the air conditioned space. The inspection includes suggestions for improvement of system operation, functionality and efficiency, including alternative solution proposals (e.g. alternative cooling).

Air conditioning inspection pursuant to Decree No. 277/2007 is a tool which can detect major savings potential or clarify discrepancies in terms of specific consumption of building. This inspection cannot be perceived only as a burden for the building owner or operator.

In practice, we may for instance encounter with a case when air conditioning units with air flow regulation (regulation of ventilator revolutions) are installed to a building. However, contrary to the project, this regulation is not used in operation. Reduction of air flow means cutting ventilator revolutions on which the power input of ventilators depends by cube. The achieved energy savings are then considerable. Depending on electricity price operating savings in case of a building with transported air amount of 100,000m³/h may total as much as CZK 200,000 a year due to the intervention into regulation of air conditioning units.

Air conditioning systems may only be inspected by individuals pursuant to Section 10 of Act 406/2000 Coll. or individuals authorized pursuant to a special legal rule (Act No. 360/1992 Coll.) and tested by the Ministry of Industry and Trade in the field of energy efficiency use and suggested measures. The benefit and importance of inspections for operators of air conditioning systems is proven by a number of references.

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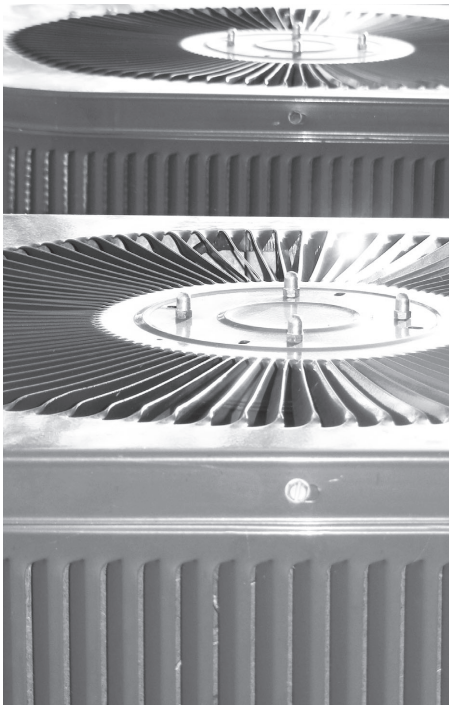

"Energy labelling of transformers" – novelty in the Czech market

Transformers connected to the systems of electricity transmission and distribution rank among electric appliances with the longest functional life cycle. They are permanently in operation all year round for fifteen, twenty and more years. When choosing a new transformer for these applications, it may thus be even more sensible than in case of electric motors to follow the principle of the total cost of ownership (TCO).

It was this group of distribution and power (performance) transformers which the European Commission has recently classified as electric appliances for which minimum requirements for energy efficiency are to be set for their sale in the joint EU market in future (within the Ecodesign Directive). Basically, these requirements are to take account of the fact that more efficient transformer types will eventually – despite a higher purchasing price for end users – result in savings in absolute terms due to lower transformation losses, and thus operating costs.

Today producers are obliged to state the level of transformation losses of every model. They are divided into two basic categories – **open circuit losses** (designated as "Po") and **short circuit losses** (designated as "Pk"). While open circuit losses are permanent and their total amount over a certain period of time practically results from the initial value declared by the producer (in watt), the aggregate amount of short circuit losses is to a great extent also affected by load over time (de facto by square). In practice, the customer learns these values, but very few producers are also able to inform the customer on the size of yearly losses to be expected. The stumbling block lies in the type of operation.

Generally, it applies that the value of open circuit losses should be more important upon choosing transformers which have a little load most of the time and whose nominal output tends to be used more only in peak loads. This is a typical example of HV/LV distribution transformers supplying electricity to households. And on the contrary, everywhere where transformer load will be permanently high, more attention should be given to short circuit losses. Here, industrial or power transformers, connecting electricity sources with high annual use, are a good example.

It is the latter type of applications which makes it possible today to often identify the growing economically efficient potential of energy savings due to a fast technological development and low customer awareness.

Therefore, SEVEn has launched a **new supporting instrument**, providing information on how a specific transformer type stands with regard to "label" values of Po and Pk and whether it has been chosen correctly for the given operation. The output is an "energy label" which enables a comparison of the given transformer type with the competition using energy classes and quantifies the annual losses to be expected in view of the operation type or by what amount they could be reduced if a transformer is replaced with a more suitable model.

Differences may be great, which is proven by the fact that a correct design may in practice achieve annual losses not exceeding 0.5–0.6 % of transferred energy a year. A wrong design may on the contrary result in losses totalling as much as 1–2 %. This relatively small difference becomes increasingly important if a transformer is designed for leading power from a biogas station where the price of transferred electricity is much lower than the market one and where a transformer may be in permanent operation even to 85 % of its (seeming) output, which is among others a proof of false dimensioning. Additional costs of a more efficient model may return in only several months.

If you are interested in cooperating on the identification of energy savings of a specific transformer type or application, contact responsible staff of SEVEn.

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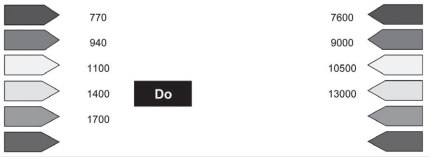
ENERGETICKÝ ŠTÍTEK TRANSFORMÁTORU

Výrobce a typ transformátoru (TR)		BEZ Bratislava a.s.	
Umístění TR (adresa příp. GPS souřadnice)		Kostelní ulice, Praha 6	
Napětí nakrátko u_K [%]		4%	
Jmenovité napětí transformátoru na VN - U_N [		22	
Jmenovitý výkon transformátoru - S [kVA]		1 250	
Ztráty naprázdno - P_0 [W]	1 350	Ztráty nakrátko - P_k [W]	13 500

OVĚŘENÍ SPRÁVNOSTI VOLBY TRANSFORMÁTORU Z HLEDISKA „ŠTÍTKOVÝCH" HODNOT ZTRÁT NAPRÁZDNO A NAKRÁTKO



OVĚŘENÍ SPRÁVNOSTI VOLBY TRANSFORMÁTORU Z POHLEDU VELIKOSTI ROČNÍCH ZTRÁT VZHLEDEM K ZATÍŽENÍ

Průměrné množství el. energie přenesené TR za rok - E [kWh/rok]	8 591 600
Průměrné zatížení TR - a (S * 8760 / E) [%]	78%
Roční vypočtená výše transformačních ztrát - Ert [kWh/rok]	90 540
Výše ztrát Ert jako % E	1,05%

Srovnání ztrát Ert instalovaného TR jako % E za pomoci klasifikace do energetických tříd:

A (≤ 0,6 %)	B (>0,6%≤ 0,7 %)	C (>0,7%≤ 0,8 %)	D (> 0,8%≤ 0,9 %)	E (>0,9%≤1,0 %)	F (>1,0%≤ 1,1 %)	G (> 1,1 %)
					F	

Instalovaný transformátor

POSOUZENÍ EKONOMICKÉ EFEKTIVITY NÁHRADY TR ZA ÚSPORNĚJŠÍ MODEL

Cena elektrické energie [Kč/kWh]			4,10
Transf. ztráty stávajícího TR ve fin. vyjádření [Kč/rok]			371 215
Parametry úspornějšího TR na úrovni ročních ztrát Ert v třídě "A":			
Jmenovitý výkon S [kVA]			*1 962*
Ztráty naprázdno P_0 [W] - max.	*1 300*	*Ztráty nakrátko P_k [W] - max.*	*16 500*
Roční vypočtená výše transformačních ztrát [kWh/rok]			*50 456*
Výše ztrát Ert jako % E			*0,59%*
Potenciál ročních úspor při záměně [Kč/rok]			164 345
Mezní investiční náklady instalace úspornějšího TR pro prostou návratnost 5 let			821 724
Datum vyhotovení			
Autor (jméno a příjmení):		SEVEn Energy sro.	

EPC method has seen a successful 2012

In 2012 the EPC method has seen many activities develop both on the part of specific implemented or prepared projects and strategic activities in the whole sector.

One of the first EPC projects in the field of public lighting in the Czech Republic is in the implementation stage. This area has been rather less developed so far, but represents a major savings potential. This concerns a project in Moravska Trebova, where more than 1,000 light points and around 20 distribution boards were refurbished in the town and a dispatching system for public lighting monitoring and management was installed. The investment in these measures totals around CZK 15 million with total annual cost savings of around 58 % of total energy consumption and operating costs. The project´s success has been proven by the fact that it won the 1st place in the competition for the Best EPC Project Preparation before Announcement in 2011.

Simultaneously, projects are being launched now which have been supported by the EFEKT scheme of the Ministry of Industry and Trade. The scheme co-finances initial feasibility analyses of energy saving measures using the EPC method (e.g. elaboration of a detailed status analysis and savings potential in the individual buildings and recommendation of buildings suitable for EPC project implementation). Analyses of supported projects (over 20 in 2012) are currently under way or have already been concluded. For buildings, in which EPC has been recommended as a suitable method, public tenders on EPC will be announced by the end of the year.

In addition to that, several strategic documents aiming at setting clear conditions and standard procedures for projects solved by the EPC method are being prepared. An updated sample EPC contract, basic principles of tender documents and a code of ethics of EPC will be prepared and released in the autumn 2012. These documents help set limits and "rules of the game" for the quickly developing EPC segment.

All the documents will be published on the website www.epc-ec.cz, which also undergoes a major update (both visual and contentwise). The new website will contain both a database of EPC projects and useful information on EPC, news and announcements of prepared events.

EPC seminars, which are now held almost regularly, have also seen a great success. The combination of a seminar held on 25th October 2012 and international conference held on 27th November 2012 was even given the patronage of the Czech Prime Minister Petr Nečas.

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Energy labels in shops – are they really available for customers?

In August 2012, the second round of inspections of energy labels, to which respective legislation on energy labelling of household appliances applies, for their correct placement on appliances took place in the Czech Republic within the Come on Labels project. The first round of inspections was carried out in early 2012 (see News from SEVEn 1/2012).

Energy labels provide customers with basic information on energy or water consumption of the respective appliance, enabling the customer to compare appliances in terms of their operating demand. Together with other data describing the appliance, e.g. information on dimensions or capacity, noise etc., they enable the customer to make a complex evaluation of qualitative characteristics of the given appliance and to focus on other relevant indicators besides price and brand.

The conducted inspection focused on the correct placement of labels on appliances, on label design and information provided by internet shops where usually not the whole label, but only individual label data are available for the customer. The monitored appliances were as follows: cooling appliances, wine storage appliances (wine refrigerators), televisions, washing machines, dishwashers, air conditioning units, electric ovens, and tumble driers. The inspection was conducted in electronic superstores, in small shops specialized in electronics and household appliances, in kitchen studios and furniture shops, in hypermarkets and internet shops. In this round the total of 26 shops were visited and 8,822 appliances checked.

The results have shown that cooling appliances, washing machines and dishwashers belong to the best labelled appliances – like in the first inspection round (72–82 % of appliances were labelled correctly), while air conditioning units and wine refrigerators belong to the worst labelled appliances (2 % and 7 %). Televisions and electric ovens have also shown a relatively low level of correct labelling (45 % and 19 %). The best results were thus achieved by the most usual (white) household appliances which have also been subject to energy labelling the longest. The worst results were achieved by appliances which are only finding their way to households (air conditioning, wine refrigerators) or those for which energy labels have been introduced only recently (televisions).

Furthermore, it has turned out that appliances tend to have the best labelling in shops of large chains, and in specialized shops. The necessary data are also provided by most e-shops. Unlabelled appliances prevail in hypermarkets, while in kitchen studios appliances are practically not labelled at all. The labelling level corresponds with the seller´s focus. Where electric appliances are the main business article, the labelling level is relatively good (up to 75 %); where appliances only complement other products – kitchen studios –, the level is low (3 %). In total, the level of correct labelling is similar compared to the sample from the 1st inspection round (42 % in the 1st round, 37 % in the second) – e.g. accounting for not even 50 %.

The results of inspections which have been conducted in the Come on Labels project have been submitted to national market supervision authorities as well as the actual businesses to improve the situation. The project organizers have also prepared training materials for shop assistants, offering them an overview of why and how energy labels are to be correctly displayed on products.

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Electric motors and their efficiency

Electric motors are the most important type of electric appliance in production processes. The systems in which these motors are operated represent around 70 % of energy consumption in industry. These systems include a wide range of electric appliances such as drives, pumps or ventilators. The way revolutions are regulated is thus important for energy efficiency. The annual energy consumption of electric motors exceeds 1,000 TWh in the EU (in 2005), which equals to the production of hundreds of millions of CO_2 emissions and other pollutants.

Therefore, Regulation No. 640/2009/EC, specifying requirements for energy efficiency of motors launched in the EU market was adopted within the Ecodesign Directive in July 2009. The requirements are based on the international norm IEC 60034-30:2008, which defines efficiency categories for electric motors (with performance range from 0.75 to 375 kW) – IE1 (standard), IE2 (high), and IE3 (premium).

The European Commission Regulation stipulates requirements for the Ecodesign of motors to be launched in the market and put into operation, including cases when motors are built in other products excluding some applications. The Regulation defines minimum energy efficiency classes (on levels IE2 and IE3) based on motor output and number of poles which must be gradually adhered to by producers.

Electric motors must thus comply with efficiency class IE2 as a minimum beginning July 2011. From January 2015 motors with nominal output of 7.5–375 kW must comply with efficiency class IE3 or class IE2 and be equipped with a continuous regulation of revolutions. From January 2017 all motors in the defined output range (e.g. 0.75–375 kW) must comply with criterion IE3 or criterion IE2 and be simultaneously equipped with a continuous regulation of revolutions.

The purchasing price of more efficient motors is higher than that of less efficient motors; the total of achieved savings will, however, exceed it in view of the usual life cycle and use in operation. The costs of the whole life cycle of IE3 or IE2 class motors may be lower by several percent compared to class IE1 with average annual motor use for at least 1,000 hours. This effect is even more marked in case of smaller motors (with units of kilowatt of mechanic output).

Another international norm was adopted in 2010 – IEC 60034-31:2010, introducing a super premium energy class IE4. Synchronous motors in this class achieve a very high (relative) efficiency compared to the asynchronous ones (with output of around 1 kW these motors manage to achieve an 88 % efficiency, in case of 3 kW they already exceed the 90 % threshold). It is these new motor types which can eventually play a decisive role in substantially reducing the total energy demand of electric drives in all segments of economy.

Detailed information on Ecodesign requirements for electric motors and other appliances can be found in publication Overview of Ecodesign Directive Implementation (CZ: Přehled implementace směrnice o ekodesignu), which can be downloaded for free at: www.svn.cz/cs/informacni-materialy-k-dispozici (in Czech).

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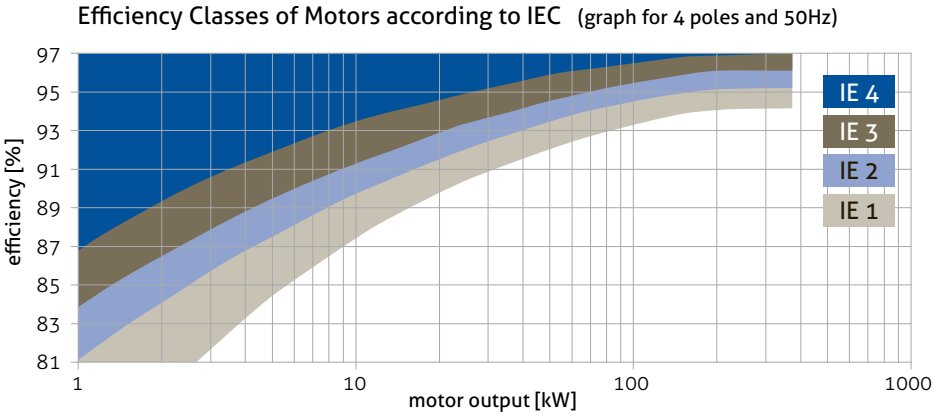
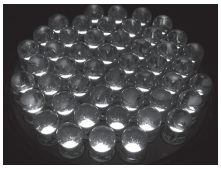


Public procurement of LED lighting in the European Union



Light emitting diodes (LEDs) are a promising emerging technology with high energy saving potential. Given the rapid development of LEDs, public authorities have an opportunity to act as frontrunners and to enhance market transformation towards high efficient lighting systems. However, at the same time, it represents a challenge for public authorities to establish a baseline for the performance of LED lamps and to define criteria for their public purchase.

Joint Research Centre of the European Commission in cooperation with the European Commission's Photonic Unit (DG Information Society and Media) prepared a study on the public procurement of LED lighting in European Union member states. The report provides a detailed overview of the current status and future plans of Green Public Procurement (GPP) LED lighting activities in EU-27.

The main conclusions of the study are that in many countries, LEDs (and lighting in general) are still not among the priority product groups covered by the respective Green Public Procurement documents (so far some form of LED requirements has been adopted in 11 of the 27 EU Member States). However, all EU Member States have good practices for the use of LEDs.

As to the study, the specifications for LED lighting pertain to both indoor and outdoor lighting; specifications for outdoor LED lighting are less common. The specifications for LEDs mostly include lifetime of the lamps, lumen efficacy, colour rendering and power factor. However, the specifications tend to vary in the level of stringency (e.g. in different countries, the required lifetime varies from 15 000 to 35 000 hours for indoor lighting and 35 000 to 65 000 hours for outdoor lighting, required lumen efficacy varies from 25 to 55 lm/W for indoor and 40–80 lm/W for outdoor lighting). The dimming function offers further potential for savings and therefore it is foreseeable that capability of dimming, and compatibility with the main dimmers available on the market will be part of the upcoming specifications.

Only a few countries have so far covered traffic lights, even though replacement of incandescent traffic lights by LEDs can be considered as one of the cases with high replicability potential offering high and certain energy savings.

In the same time the study points out that that there are countries (or organisations), which still specifically omit LEDs from their public procurement specification documents, because they believe that LED technology is still too immature to be included in public tender requirements.

Nevertheless, the future of lighting seems to be in LEDs. Public organisations play an important role as frontrunners in introducing the coming technology and enhancing market transformation. However, the report concludes that they still remain cautious towards this technology and will include it in their GPP plans only gradually (especially for outdoor lighting systems).

The final report before publishing is available at **www.buy-smart.info/novinky/zelene-nakupovani-osvetleni-na-bazi-led-v-eu-27**.

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« ENERGY PERFORMANCE CERTIFICATES

» cont. from p.1

consumption in kWh/m².year for the given building use. The EPC consists of a protocol and a graph showing the inclusion of building in an energy efficiency class A–G (very energy efficient – not energy efficient), and energy provided for individual uses (heating, warming up water etc.) is expressed as a percentage from the total energy supply for the building. Newly built and renovated buildings must have the energy class A–C (very energy efficient – suitable).

Status to be expected as of 1 January 2013

The amended Energy Performance of Buildings Directive 2010/31/EU (EPBD II), which replaces EPBD I, keeps the same scope of the original directive, describing some requirements in greater detail. The issuance of EPC will thus not be obligatory only in case of new buildings and renovated buildings with floor area exceeding 1,000 m², as it has been since 2009. This obligation will newly also concern buildings used by public authorities with an area exceeding 500 m² (from 1 July 2013) and with an area over 250 m² (from 1 July 2015). Moreover, the EPC will be necessary when selling the whole building or its complete part (both from 1 January 2013), on building rental (also from 1 January 2013) or rental of a complete building part (from 1 January 2016).

Additionally, EPBD II has introduced a new term, a nearly zero energy building. The obligation to elaborate an EPC will also apply to this type of buildings, but their implementation date is scaled according to the size of floor area of the property and its ownership – for buildings used by public authorities with area exceeding 1500 m² (from 1 January 2016), with area exceeding 350 m² (from 1 January 2017), and with area below 350 m² (from 1 January 2018). In case of other new buildings, this obligation is set for buildings with area over 1,500 m² (from 1 January 2018), with area over 350 m² (from 1 January 2019), and with area below 350 m² (from 1 January 2020).

The threshold for energy efficiency classes of a building for the total energy supply, partial energy supplies, total primary energy, and an overall heat transfer coefficient will be newly set based on required energy performance values of a reference building. The evaluated building will be thus newly compared with the calculated reference building instead of table values in kWh/m².year for the given building use. Requirements for category C fulfilment will thus completely differ from the currently valid ones.

The EPC will continue to consist of a protocol and a graph. The certificate graph will be the same for a new building, a nearly zero energy building, a larger change of existing building up to and over 70 % of the total area of building envelope, both for sale and rental of building. Newly, the graph will include a photograph of the evaluated building and recommended measures to cut energy demand. This will predominantly concern the existing buildings. The requirement for new buildings will be to fulfil A–C requirement.

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SEVEn

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