# News at SEVEn

## Energy efficiency news from the Czech Republic and EU



volume 26 number 1/19 November 2019

## Decarbonisation: Cities are taking the initiative

*More and more cities all over the world are adhering to an active climate policy. While countries and their governments seem unable to reduce greenhouse gas emissions in time, cities and municipalities have the potential to do so and have a number of effective instruments at their disposal. But the task is not an easy one. Increasing energy efficiency and introducing renewable energy sources and smart networks solutions, including the growing importance of prosumers, are the keys to success.*

In its November 2018 report, the Intergovernmental Panel on Climate Change (IPCC), an official team of scientists, presented the impacts of climate change at temperature increases of 1.5° and 2°C. However, a new study reveals that even a 2°C increase can lead to significant and potentially dangerous climate changes. Therefore, reaching 1.5°C warming would be much safer.

This is a very ambitious goal. To achieve it, it is necessary to become „carbon neutral", i.e. to completely stop $CO_2$ emissions by 2050. Discussions on the need to decarbonise the global economy have been going on for over 30 years. During this time, global $CO_2$ emissions have increased by more than half. The efforts by national governments to decarbonise have not been successful so far. That is why cities are becoming more and more active and concerned about this issue.

Municipalities have great potential to do more in climate policy » continued on page 6

## A new ecodesign of light sources

*Ecodesign, i.e. the process of designing products and appliances with regard to functionality and low consumption, also pertains to light sources, ballasts and luminaires. The ecodesign regulation relating to light sources has gone through a lengthy and difficult consultation process. An updated version will be published in autumn 2019 and will come into effect on 1 September 2021. What will be the most important changes?*

The first is regulatory simplification. Originally, there were several ecodesign regulations pertaining to light sources. These regulations, which laid down different ways of determining energy efficiency for different light sources, will be replaced with a single document. This new regulation offers a unified way of setting minimum efficiency based on the » continued on page 8

## Energy services will reduce energy consumption at the Academy of Fine Arts by more than 30%

*Savings measures will be implemented in four buildings of the Academy of Fine Arts (AVU) in Prague as part of the energy performance contracting (EPC) project. A contract with a selected energy service provider was signed at the end of 2018, while the installation of energy-saving measures began in May 2019. The cost of energy services will be gradually repaid by annual cost savings over the 10-year EPC contract between 2020 and 2029. The EPC provider guarantees the contractual annual amount of savings and must fully compensate any deficit.*

The AVU buildings selected for the implementation of energy-saving measures within the EPC project are protected buildings, and therefore the planned reconstruction of the building envelope had to be discussed with the National Heritage Institute. The client sought to reduce its energy consumption both by technological measures and possibly by replacing obsolete technologies with new ones. Based on the approval of » continued on page 2

ISSN 1213–5844 MK ČR E 13241

# Czech energy management shows we have not reached our ceiling yet

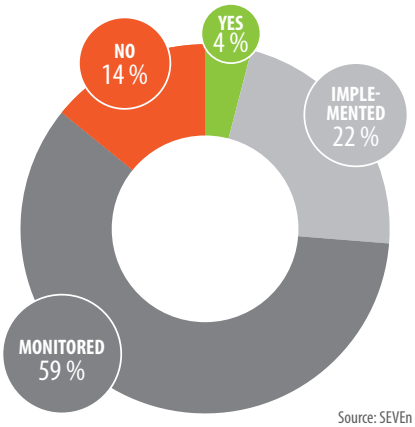
*The implementation of energy management (EM) in Czech municipalities is only halfway complete. In total, 26% of participating municipalities have either introduced EM or are seeking to implement it under ČSN EN ISO 50001, while 60% have applied at least some form of EM whose outcome is so far impossible to assess. The remaining 14% are not considering any form of energy management. In practice, the EM label may relate to a wide range of measures, from simply formal ones with no significant effect on energy savings, to energy-efficient tailor-made solutions that take into account local conditions without the need to undergo the whole certification procedure. All in all, implementing EM remains a laborious task for many municipalities, one that is beyond their capacities, particularly as far as certified EM goes.*

At present, energy management is clearly defined. The Czech Republic has seen its full implementation mainly at the level of buildings, premises or whole industrial complexes. However, the situation with municipalities is different. Many them claim that they have already introduced energy management. But a closer look reveals that only superficial measures have been applied without accurate measurement and data assessment and with no specific objectives or established processes. Often there is no one in a local authority specifically tasked to deal with the EM system, nor have external specialists been appointed.

### Energy management in figures

Most cities and towns are tackling the issue of EM, at least to some extent. While it is true that only 4% of municipalities have achieved the certified ČSN EN ISO 50001 system, 22% are in the process of EM implementation. In total, it is more than a quarter. Almost two-thirds of municipalities (59%) have been addressing the issue of EM, at least partially, although they do not aspire to meet the standards. The remaining 14% state that they are not currently addressing the issue of energy management.

Only 4% of participating municipalities have implemented EM certified according to the ČSN EN ISO 50001 standard, while another 22% are in the process of implementation. It follows that one quarter of municipalities can prove their level of EM according to the standard. By contrast, 14% of municipalities state they do not address the issue of energy management at all. Most of the remaining municipalities lie somewhere in between; 59% claim that they apply some form of EM but are not seeking to meet the standards. The outcomes of the questionnaire survey carried out by SEVEn suggest that most Czech municipalities with more than 10,000 inhabitants (86%) have implemented some form of energy management. However, while a lot of municipalities declare that they have implemented EM, a closer examination suggests that they do not cover EM in full. There is a substantial difference between the way municipalities understand EM and energy as such. Often a municipality states that they have implemented energy management, but at the same time they collect data and other relevant specifications less carefully than other municipalities which claim that they have not implemented EM at all. Another common phenomenon in the answers is confusing energy consumption savings with energy costs savings. Respondents often state that they implement EM, but their next replies reveal that they focus only on finances and are oblivious to the physical volume of savings.




Source: SEVEn

**Have you implemented the energy management system?**

- Yes, and at the same time we have established the system certification according to ČSN EN ISO 50 001
- At present we are implementing the system according to ČSN EN ISO 50 001
- Our energy savings have been monitored but not according to ČSN EN ISO 50 001
- The issue of energy management is not currently addressed

At present, the interest of municipalities in energy management has increased significantly. The EFEKT programme called by the Ministry of Industry and Trade resulted in 25 specific subsidies between 2008 and 2017 directly aimed at the implementation of energy management. However, the number of supported municipalities is lower, because some municipalities were more active and successfully applied for the subsidy more than once (Kopřivnice, Opava). Nevertheless, regardless of its form, municipalities are demonstrating their interest in energy savings. **Yet for many municipalities, implementation of EM remains quite laborious and beyond their capacities, particularly in the case of certified EM.**

@ Jiří Karásek, Ladislav Kaločai, ladislav.kalocai@svn.cz

# Energy services will reduce energy consumption...

» continued from previous page 1

the National Heritage Institute, building modifications, repair or replacement of windows and roof insulation on two buildings and other technical measures will be carried out:

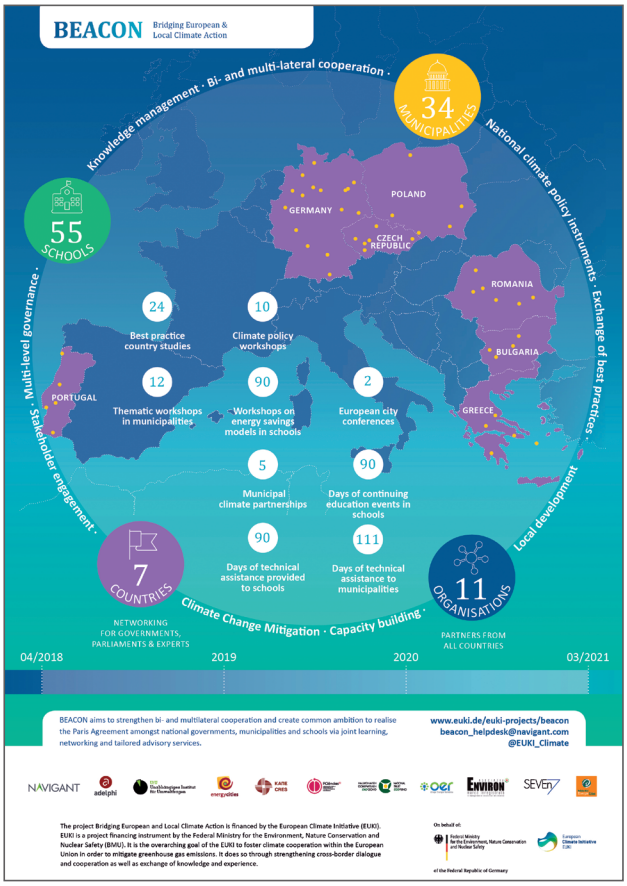
- A new monitoring and control system common to all four buildings will be installed in the main building, whereas a measurement and regulation system will be installed in each building separately.
- Most of the savings will result from building modifications (especially renovation of construction fillings) and cost-effective lighting measures (replacement of selected sources with energy-saving LED sources).
- A specific feature of this EPC project is the installation of an air-conditioning unit in the Modern Gallery of the AVU, which allows for precise temperature and humidity stabilisation in some rooms (heating, ventilation, and air-conditioning system – HVAC). Such stabilisation is necessary to preserve the paintings in the gallery.

The initial negotiations and preparation of the project started in autumn 2017. The public procurement notice was launched at the beginning of 2018 and the procurement procedure was conducted in a negotiated procedure with publication. Achieving a minimum of 30% savings was technically challenging, which

» continued on next page

# Support for local climate measures

*Established in 2017, the European Climate Initiative (EUKI) offers new opportunities to support local climate measures. It is a financial tool of the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU), aimed at strengthening European cooperation in the field of climate protection and reduction of greenhouse gas emissions. The initiative focuses mainly on countries in Central and Eastern Europe.*




Negotiation and mutual communication between municipalities and local actors has great potential to increase energy efficiency and reduce greenhouse gas emissions. Schools and other educational institutions may play a pivotal role in this; not only can they reduce their own energy consumption, but they can educate and train future generations to be more environmentally friendly.

Under the EUKI Initiative, SEVEn has been coordinating national activities relating to a project called Bridging European and Local Climate Actions (BEACON). This three-year project aims to support climate change mitigation while facilitating the exchange of experience among governments, municipalities and schools of all participating European countries. Five Czech municipalities, together with 29 other municipalities from Poland, Romania, Greece, Portugal and Germany, are in charge of defining measures contributing to the fight against climate change.

Participating municipalities will acquire tailor-made advisory services according to their needs. These services and on-site trainings will enable the municipalities to successfully implement best practices in their local environment and to acquire technical skills which will further help them develop and improve measures to reduce greenhouse gas emissions. Schools from participating municipalities were given the opportunity to take part in specialised trainings for teachers and gained access to new teaching materials. What's more, they can share their experience in the field of environmental education with schools in Germany; and teachers from selected schools will get a unique opportunity to go on a study trip to Germany. All in all, the BEACON project will make the target municipalities much more attractive.

Thanks to a successful project implementation the participants can become pioneers and key drivers of total decarbonisation and processes of social transformation towards awareness raising and involving the general public in climate change mitigation activities.

@ Natálie Anisimova, Václav Šebek, vaclav.sebek@svn.cz

» continued from previous page

was why despite four energy service providers participating in the review, only two submitted a preliminary tender. After three rounds of negotiations in which tenderers gradually improved their tenders, they were invited to submit a final tender.

Both submitted final tenders had a similar score after the evaluation, although their content differed. While one tender had lower savings at lower costs, the second tender had higher savings at higher cost. After the final evaluation of the final tenders, ENESA's tender with higher savings won. This will allow the client to achieve even greater savings after the end of the contract, as most saving measures have a lifetime longer than the 10-year length of the contract.

An application for financial support from the State Environmental Fund (SEF) was submitted during the procurement procedure. The expected subsidy was included in the tender dossier so that the contracting authority could request a minimum of 30% savings on the current consumption. For this reason, the project was discontinued after the qualification requirements for the quarter year were evaluated and the client awaited confirmation of the subsidy amount from the SEF.

The winning tender guarantees the client energy savings of 38% and cost savings of over CZK 3 million per year. In particular, the service provider will achieve these savings by reducing heat consumption by 2,500 GJ and electricity consumption by almost 400 MWh per year. It will further reduce water, natural gas and some other operating costs. The cost will be in part covered by the SEF subsidy. The total cost of the service includes regular energy management throughout the term of the contract.

This EPC project will also provide feedback on the European rules for technical quality criteria for energy efficiency projects developed under the QualitEE project receiving funding from the European Union's Horizon 2020 research and innovation programme (» www.qualitee.eu).

@ Jana Szomolányiová, jana.szomolanyiova@svn.cz

# New energy labels in a nutshell

*In March 2019 the European Commission approved a new format and visual identity of energy labels for six groups of products: dishwashers, washing machines and washer dryers, refrigerators and wine refrigerators, lighting fixtures, electronic displays including TV displays and monitors, digital information displays, and refrigerating appliances with a direct selling function. In response to technological development in the field of appliances, this new and upgraded format of energy labels will appear in shops on 1 March 2021.*

Commercial refrigerators used in shops and vending machines are becoming a new product group in the „family" of labelled appliances. In addition, a common novelty for all energy labels will be a QR code which can be scanned by an ordinary smartphone in case consumers want to gain more official (non-commercial) information. Producers insert data into EPREL, an EU database which was opened this year as well.

In relation to the innovative appearance of the product, energy labels will state not only electricity consumption but also other information with intuitive pictograms so the products can be compared and consumers will have access to information about water consumption for each washing cycle, storage capacity, noise level, etc.

Getting back to the original A-G scale of energy classes is another renewed innovation. This system was established in 1995. As opposed to the current state, labels will show only those of energy classes which can be introduced to the market, i.e. meeting the requirements for minimum energy efficiency.

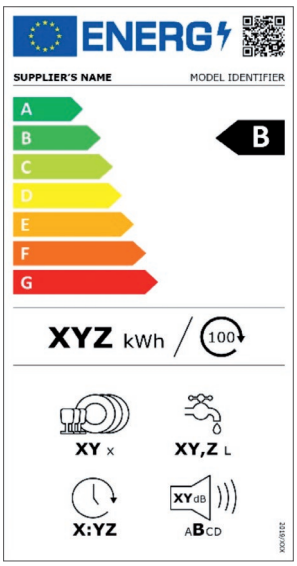
To make the compliance monitoring more efficient and effective, the (EPREL) database for product registration was created. Manufacturers and importers have to register their products in EPREL as well as detailed technical documentation necessary for compliance monitoring. Key information is centrally available to surveillance authorities. This database will enable consumers and traders to access the energy labels and key information about products and will facilitate digitalisation and accessibility to energy labels.

As regards the new energy labels, internal estimates of the European Commission about the overall annual energy savings until 2030 are 38 TWh, which corresponds to the annual consumption of electricity in Hungary. Moreover, the measures in the field of ecodesign now also involve requirements for repairability and recyclability of appliances, e.g. availability of spare parts, easy replacement and access of professional repair shops to information about repair and maintenance.

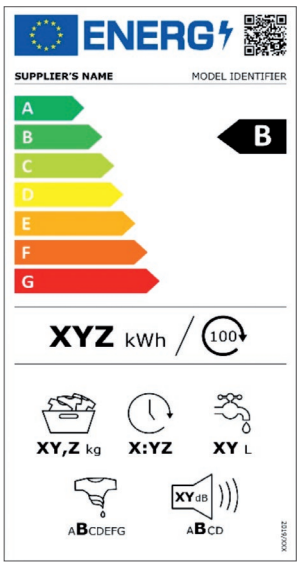
From 1 March 2021, new labels will start to be used in shops and on the internet all over Europe. Therefore, in 2021 a special information campaign will be launched throughout the EU. SEVEn will help organise the campaign in the Czech Republic.

More information at » https://europa.eu/rapid/press-release_MEMO-19-1596_en.htm

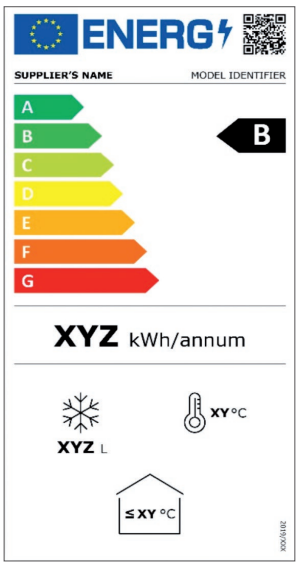
@ Juraj Krivošík, juraj.krivosik@svn.cz



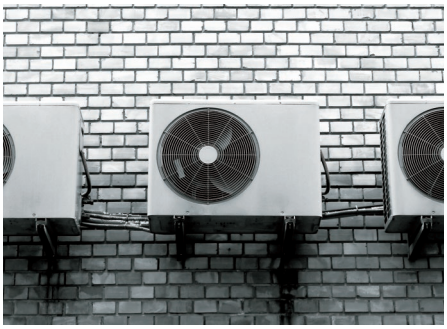

Dishwashers




Washing machines




Commercial refrigerators



# More efficient boilers, heaters and air-conditioning

That many household appliances are subject to labelling obligations is hardly new. It is an efficient measure enabling customers to quickly compare various appliances based on energy efficiency, i.e. also based on economic efficiency of operation. For a couple of years, certain building services have been subject to labelling as well, e.g. boilers, water heaters and air-conditioning systems. It is a very important tool, as these appliances are a significant part of our energy consumption (boilers and water heaters make up 43% of primary energy usage in the EU). Despite the obligation to label this group of appliances, general awareness of the possibilities relating to energy savings is very poor and the savings potential remains considerable; almost half of EU water heaters were installed before 1992 and their energy efficiency is 60% or lower.

A new European project called HACKS aims to increase the share of energy efficient boilers, water heaters and air-conditioning systems and is intended to actively offer customers a comparison of various appliances on the internet. The comparison will be based on the energy efficiency of the appliances and will include additional interactive information and instructions. In addition, the project will focus on the least energy-intensive possibilities of heating and cooling regulation as well as on hot water consumption, window shading, fans, thermostats, water-saving shower heads, etc. Finally, the HACKS project will consider involving other relevant groups and will seek active cooperation with manufacturers, sellers, installation companies, etc. All project updates can be checked at » www.uspornespotrebice.cz.

@ Michal Staša, michal.stasa@svn.cz

# Eliminating circumvention of energy efficiency standards to improve market surveillance

*The manipulation of test results and circumvention of regulations have been receiving a lot of attention lately following the Volkswagen emissions scandal (known as dieselgate) but also in relation to other EU legislation. In the wake of the scandal, the ANTICSS project was launched to define and analyse „circumvention" in relation to EU legislation regarding ecodesign, energy labels and relevant harmonised standards. ANTICSS stands for ANTI Circumvention of Standards for better market Surveillance.*

„We expect the ANTICSS project to increase general awareness about circumvention of regulations," said Kathrin Graulich, the project coordinator from the Oeko-Institut in Germany. „We also believe that the project will contribute to more effective enforcement of EU legislation, which should improve compliance with the legislation. In addition, the ANTICSS project should increase the trust of all market players, including consumers, in ecodesign and energy labels."

The project gathers and documents information on specific cases of circumvention of energy efficiency requirements and will deal with the possible relationship between circumvention of regulations and so-called „smart" products with specialised integrated software. The project will also set a clear definition of circumvention of regulations so that it can be distinguished from other practices. This will facilitate detection of repeated circumvention and ambiguous communication with the public as well as with specialists.

In addition, independent laboratories will test selected categories of products. The tests will detect „whether" and „to what extent" circumvention of regulation can result in undesirable modifications of one of the most important indicators stated for particular products, i.e. energy consumption.

The ANTICSS project will culminate in practical recommendations for market surveillance authorities, test labs, legislators and standardisation bodies. The recommendations will be focused on how to improve ways of detecting and eliminating circumvention of regulations in the future. At the same time, these recommendations will be aimed at facilitating communication across all relevant parties, taking mainly consumers into consideration.

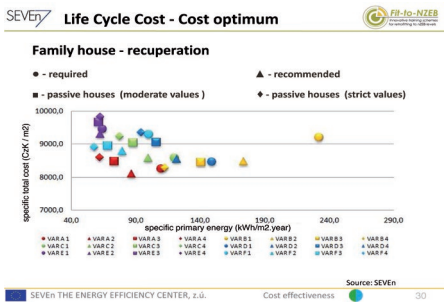
The ANTICSS project team consists of 19 organisations from eight EU Member States: research institutes, market surveillance authorities, energy agencies, standardisation bodies, a university, an ENGO (environmental non-governmental organisation) and independent testing institutes. The Czech Republic has two such organisations: SEVEn and the State Energy Inspectorate of the Czech Republic.

More information at » www.anti-circumvention.eu/

@ Juraj Krivošík, juraj.krivosik@svn.cz

# New training materials on energy savings

*From 2020 onwards, only nearly Zero Energy Buildings (nZEBs) will be allowed to be built in the Czech Republic. But the potential for energy savings among existing buildings and their retrofits is much bigger, as it is assumed that in 2050 existing buildings will still make up approximately 75% of the building stock. While new buildings achieve nearly zero energy consumption (from units up to lower tens of kWh/m² per year), the energy consumption of existing buildings before retrofitting can achieve up to several hundred kWh/m² per year. Therefore, when possible to achieve over 60% energy savings, it is desirable to carry out Deep Energy Retrofits (DER) of existing buildings. How can such savings be achieved? The answer can be found in the extensive educational materials created under the Fit-to-NZEB project.*




Example of a slide from the training materials

The international Fit-to-NZEB project focuses on the increase of specialised knowledge and practical skills in the field of deep energy retrofits of buildings and nZEBs. Study programmes for three different levels of education were established under the project, namely for professional high schools, technical universities and institutions providing vocational lifelong learning. The essentials of the study programmes consist of 17 topics elaborated and divided into 22 extensive presentations counting in total 1,311 slides. The materials cover the issues of deep energy retrofits of buildings, from basics of building physics to ecology and sustainable development. Eleven organisations from eight countries (including the Czech Republic) participated in the development of the training materials.

The training materials were implemented into the study programmes of technical universities by the Department of Construction Management and Economics at the Faculty of Civil Engineering, Czech Technical University in Prague. The pilot trainings designed for lifelong learning of construction workers were provided by SEVEn, The Energy Efficiency Centre in its training centre. Universities and professional high schools have shown their interest in the training materials as well. The training materials can be obtained for free after signature of Memorandum of Understanding for non-commercial education purposes. The document can be obtained upon request at jan.veleba@svn.cz. More information about the project is available at » www.fit-to-nzeb.com.

@ Jan Veleba, jan.veleba@svn.cz

# As many as 60% of Armenian municipalities are addressing the issue of energy management

*Armenia is currently in the process of transforming municipalities and regions into new local administrative units. This transformation is followed by an increasing level of poverty affecting mainly rural areas. These structural changes result in the need to establish cooperation within civil society. One major topic has been energy supply, price and savings. Therefore, many regional information activities aimed at energy savings have been taking place since 2018.*

Intensive trainings of Armenian municipalities took place in March 2019. The trainings focused on energy savings, implementation of energy management and cooperation with non-governmental organisations. The goal was to support the introduction of energy savings at the municipal level. Until now, energy in Armenia principally dealt with issues like security of electric supply and frequent blackouts. However, with regard to the increase in electricity prices the issue of energy savings is becoming a highly topical one in the region. In total, 17 regions and 11 non-governmental organisations took part in two intensive two-day workshops whose core objective was to launch collaboration between organisations who would share experience.

Communication of energy savings and energy management, and conclusion of cooperation agreements between municipalities and the non-governmental sector, were the key topics. The workshops involved practical exercises during which the municipalities defined their potential partners for collaboration and action plans aimed at energy savings. The comparison of plans resulted in very interesting and indeed feasible activities thanks to which the energy performance of Armenian municipalities will significantly increase.

The project will continue with the selection of around 20 smaller projects leading to energy savings or the implementation of action plans and related activities (the budget must not exceed EUR 1,500). The projects will be evaluated according to the level of energy poverty reduction, energy savings and replicability in other regions. The entire project will continue until the end of 2019.

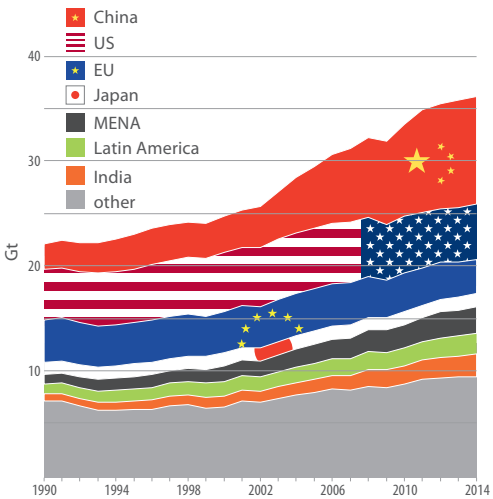
@ Jiří Karásek, jiri.karasek@svn.cz

# Decarbonisation: Cities are taking the initiative

» continued from page 1

than national governments because they are closer to people. Moreover, it is municipalities that will feel the negative impacts of climate change like heatwaves, drought and floods. The administrative structure of municipalities is less complex than at the national level, making it easier for them to implement any policy at the local level. In addition, unlike the state they usually do not have to deal with industry lobbyists, at least not directly. Municipalities are richer than other areas; more and more population is concentrated in cities, but at the same time a substantial portion of $CO_2$ emissions are produced within their area. City-dwellers have noticed other negative effects of the traditional carbon economy, such as traffic-related air pollution.

**Global $CO_2$ emissions [Gt]**




Note: 1992 – the first IPCC conference in Rio de Janeiro, 1998 – Kyoto Protocol signed, 2008–2009 – Global economic recession.

In recent years, a number of initiatives bringing together cities have begun adhering to an active climate policy, the Covenant of Mayors being probably the major one. To participate in the initiative, cities have to carry out emission inventories and are obliged to commit to the reduction of emissions. Finally, cities must implement an action plan on how such a reduction can be achieved – the so-called SECAP (Sustainable Energy and Climate Action Plan). Another and even more exclusive initiative is a cluster of the biggest, richest and most progressive C40 global megalopolises. The main condition for membership in this initiative is a population exceeding three million and a progressive climate policy in the form of the commitment to achieve complete decarbonisation. In response to the IPCC report of November 2018, the climate emergency initiative received particular attention. To demonstrate the seriousness of the situation, dozens of cities (especially in the West) have declared a climate emergency. This is another climate-oriented act that defines decarbonisation objectives and aims to inform and engage the public.

It is a very bold commitment to decarbonise by 2050. To meet this objective, major changes will be required to production and energy consumption as well as to economic and administrative rules. A rapid development of renewables, increase of energy standards of buildings, introduction of carbon-free transport and other measures will require huge investments but will also bring economic opportunities for entrepreneurs and employees. To complete this long-term project, political guidance and social consensus will be necessary.

In the years to come, we will see partial or total decarbonisation which will bring major changes in the field of local energy and hugely impact all areas of economic and social life. As the consequences of climate change cannot be entirely avoided, we can expect a rather turbulent half-century.

@ Václav Šebek, vaclav.sebek@svn.cz

# EICDA – An American way to reduce greenhouse gas emissions?

*The United States is introducing a new law to reduce greenhouse gas emissions, which should be simple, effective and revenue neutral.*

Essentially, the EICDA Act (Energy Innovation and Carbon Dividend Act) intends to impose a fee on all fossil fuels and allocate the net revenue to all US citizens and residents. The draft bill was introduced at the end of 2018 in both houses of Congress and presently is being discussed by committees. The draft bill has gained the support of both political parties and so its adoption looks promising.

**These are the key elements of the draft bill:**

1. **Carbon fee:** Will be imposed on all fossil fuels and other greenhouse gases. The initial fee should be USD 15 per 1 tonne of $CO_2$ and each following year this amount is to be increased by USD 10 until the level of emission falls under 10% of the initial value of 2015. The carbon fee will be imposed on all products that emit certain greenhouse gases. The fee will be collected directly where the emissions are produced or at the point where they first enter the economy. The only exemptions will be for agriculture (farmers will get back their fees for petrol and diesel used for agriculture production; other emissions from biological processes are not covered by the Act) and the US army.

2. **Carbon dividend:** The net revenue from fees will be returned monthly pro rata to US citizens and residents (½ payment per child under 19 years old). The fees will be collected by the Department of the Treasury, which will also establish the Carbon Fees Trust Fund for the allocation. The administrative costs must not exceed 8% of the revenue in the first five years and 2% in the following years.

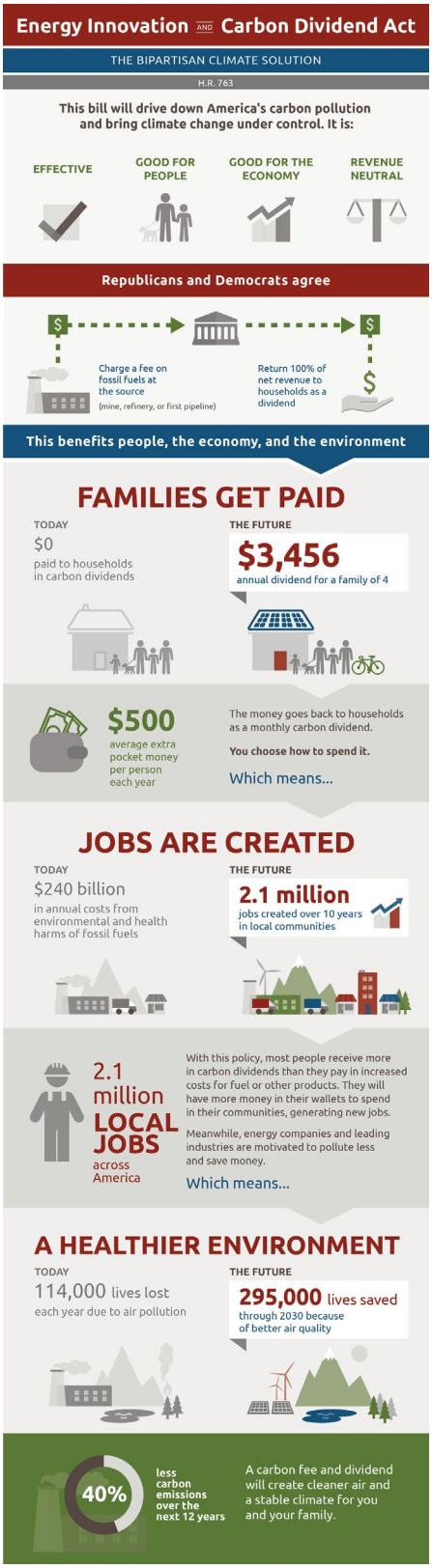
3. **Carbon tariff:** Imported products with a substantial carbon footprint will be subject to a tariff provided they are imported from countries not collecting fees for carbon footprint. On the other hand, exported products will receive a refund. This balance will erase price benefits of imported products that do not take account of emissions. At the same time, this carbon tariff will endorse the introduction of carbon taxation in all countries.

4. **Adapting existing legislation pertaining to air protection:** Provisions which could possibly duplicate the measures aimed at reducing greenhouse gas emissions after the introduction of this Act will be suspended or modified. If the objectives of the Act are not achieved in 10 years, such suspended legal provisions will be reintroduced. These objectives have been defined as follows: reduce emissions by 5% per annum (with reference to the starting year 2016) during 2025–2034 and by 2.5% per annum during 2035–2050.

The fee will cause a rise in the prices of fossil fuels and products leading to greenhouse gas emissions. Each USD 10 per 1 tonne of $CO_2$ will result in a rise in the price of petrol by 11 cents per gallon and by almost 1 cent per kWh of electricity from coal. The net revenue will be returned to households, so the fee cannot be considered as a tax. Market mechanisms should ensure that manufacturers start using less energy-intensive and less polluting products and procedures.

The supporters of the Act present the following expected benefits:

- **Creating new job opportunities** (over 2 million jobs in 10 years' time)
- **Engagement of the private sector** and its capital in the development of clean technologies
- **Reduction of American carbon emissions** by one third within 10 years and by 90% by 2050 (in comparison with 2015)
- **Improvement of US population health** (prevention of 13,000 premature pollution-related deaths a year)




The critics, on the other hand, are afraid of negative impacts caused by adjustments of current Clean Air Act.

Selected sources of information: » http://energyinnovationact.org/ » https://teddeutch.house.gov/uploadedfiles/energy_innovation_and_carbon_dividend_act_-_one_pager.pdf

@ Bohuslav Málek, bohuslav.malek@svn.cz

# Quality lighting will save operating costs in the future

*With lighting refurbishment it is necessary to consider operating costs savings as well as the quality of new LED luminaires. Unfortunately, the lighting market still offers many low-quality products resulting in significant increases to future operating costs.*

Today, light-emitting diodes (LEDs) are the only right choice for lighting retrofit. LED luminaires have many advantages over traditional lighting. First and foremost, their consumption is much lower, as are their operating costs. They also have a much longer lifetime, which reduces maintenance costs. Then there is the often-discussed possibility of human centric lighting changing its colour temperature according to the time of day. Most LED luminaires have achieved a quite satisfactory cost-benefit ratio. And finally, LEDs give a lot of freedom to designers.

Table: Selected minimum recommended technical criteria for LED lamps and luminaires

| | | |
|---|---|---|
| Efficacy | LED tubes | ≥ 150 lm/W |
| | Small LED luminaires < 2,500 lm | ≥ 120 lm/W |
| | LED luminaires > 2,500 lm | ≥ 135 lm/W |
| | Non-directional LED bulbs | ≥ 120 lm/W |
| | Directional LED bulbs | ≥ 100 lm/W |
| Lifespan | LED tubes | ≥ 35 000 h |
| | Small LED luminaires < 2,500 lm | ≥ 40 000 h |
| | LED luminaires > 2,500 lm | ≥ 50 000 h |

LEDs have caused a revolution in lighting in recent years. But this revolutionary change has also brought about a market with a wide range of approaches and levels of quality. Poor-quality LED luminaires may have several undesirable characteristics, like a noticeable and irritating flicker caused by a failure or a clearly visible less luminance. Furthermore, poor quality LEDs may cause glare or may have different colour temperatures in one lighting fixture, high consumption, disagreeable light or may stop working in a relatively short period. All these unpleasant features eventually lead to a repair of the entire luminaire or more frequent replacement. If a failure happens after the warranty period, your repair costs will increase.

At present, the issue is not about what technology should be chosen but how to choose quality LED luminaires that guarantee low consumption and a long lifespan. Clearly, a competitive market with relatively new LED lighting does not offer any certainty. Yet, there are several guidelines which should be followed when selecting an LED luminaire. Then purchasing poor quality LED luminaires can be avoided.

The international non-profit initiative Premiumlight Pro has proposed a set of criteria for indoor lighting. These criteria could lead to the improvement of required quality and increase of savings. Here are some of the technical and organisational criteria: A minimum qualification of a supply company is recommended, e.g. minimum number of similar projects that have been carried out in recent years. Furthermore, it is recommended to mention that lighting must be designed according to an applicable technical standard; a standard for indoor lighting is mandatory on the Czech market. Finally, calculation of the costs for the entire lifecycle is recommended, not only stipulation of the return on investment. There are several recommended technical criteria; the selected ones are specified in the table below. A complete list of all criteria when looking for quality can be found at » www.premiumlight.cz.

@ Michal Staša, michal.stasa@svn.cz

# A new ecodesign of light sources

» continued from page 1

efficacy of the light source and several other parameters. This will put an end to the current and fairly complex search for the right regulation for a given light source.

One of the most fiercely debated changes was the increase of minimum efficiency for T8 linear fluorescent lamps, with the view being that LEDs are their only available alternatives on the market. T8 linear fluorescent lamps remain one of the most frequently used light sources in services and industry. LED replacements, the so-called LED tubes, are not always the most convenient variant as problems caused by emitting light at differing distribution may occur as well as legal problems caused by a light source different from the luminaire which was not constructed for a LED light source. A final compromise puts off the termination of production of T8 linear fluorescent lamps to 1 September 2023. The regulation will not significantly influence more modern T5 linear fluorescent lamps.

Compared to the current level of minimum efficiency, the requirements for small halogen bulbs (G9, G4, GY6.35) have increased. From 1 September 2023 onwards, these light sources will have to be replaced with LEDs (as the current LED replacements are still imperfect). R7s halogen linear light sources are an exception and can be used in the future. Minimum parameters for functionality and efficiency of organic light emitting diodes (OLED) and of induction lamps have been newly included in the regulation. Another novelty is the setting of maximum parameters for stroboscopic effect and flicker.

In many respects, the original European Commission proposal on ecodesign regulation was stricter. The list of exceptions has been extended by stage lighting and the requirement for replaceability of light sources and ballasts in luminaires has also been loosened – upon a satisfying technical explanation non-replaceability can now be accepted.

@ Michal Staša, michal.stasa@svn.cz

News at SEVEn *is produced in English and Czech by SEVEn, The Energy Efficiency Center. SEVEn strives to promote energy efficiency in order to support economic development and protect the environment. The newsletter informs about current energy efficiency events and developments in the Czech Republic and EU and welcomes outside submissions. SEVEn is located at Americká 17, 120 00 Praha 2, Czech Republic. Editor: Jiří Karásek (jiri.karasek@svn.cz), Juraj Krivošík (juraj.krivosik@svn.cz). Phone: + 420 224 252 115, + 420 224 247 552, fax: + 420 224 247 597, e-mail: seven@svn.cz, internet: www.svn.cz. Graphic design Pavel Cindr. ISSN 2570-592X. MK ČR E 13241.*

SEVEn THE ENERGY EFFICIENCY CENTER, z. ú.

PRE EKOPROUD *The Prague office consumes PREKO certified energy which originates by 100% from renewable electricity sources.*

ISO 9001 LL-C (Certification) ISO 14001 LL-C (Certification) *SEVEn holds the ČSN EN ISO 9001:2008 and 14001:2004 certificates issued by LL-C (Certification).*

Ecolabel *Printed on recycled paper.*