DECEMBER 2022 / JANUARY 2023

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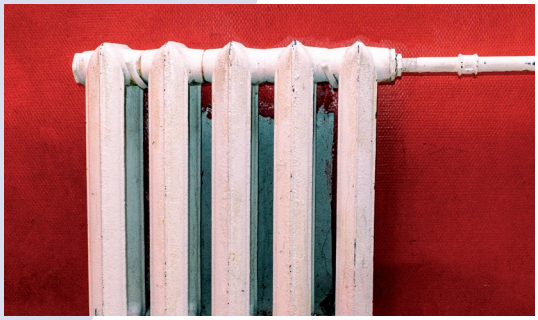
Energy-poor households offer significant potential for energy savings

Czech households on the energy poverty line can save up to 3.2 TWh per year on heating. However, the current system of ex-post support does not allow this potential to be used, as energy-poor households are usually unable to secure financing and project implementation before receiving the subsidy.

By adopting Directive 2012/27/EU of the European Parliament and of the Council on energy efficiency, and in particular under Article 7 of the Directive, the Czech Republic has committed itself to reducing energy consumption. An important measure to achieve this is financial support for increasing the energy performance of buildings through European and national funding. However, as the current subsidy titles are set up in such a way that part of the eligible investment costs are only reimbursed ex-post, a certain proportion of households fail to take advantage of this system. Energy-poor households generally do not have sufficient financial resources to carry out the required investment to be able to subsequently apply for subsidy reimbursement. As energy poverty stands and falls on the household's financial situation, households are often unable to obtain a bank loan or secure another source of financing.



Energy-poor households occupy a large proportion of buildings that are in a very poor thermal-technical condition. Nevertheless, the existing subsidy system fails to provide them with appropriate assistance and to ensure that the necessary austerity measures are implemented. SEVEn participated in the development of the study „Policies to decarbonise residential buildings in Central, →4

Tripartite agreement allows for the resale of receivables even with subsidised EPC projects

After handing over an Energy Performance Contracting (EPC) project, most Czech ESCOs recover the invested funds by selling the client's receivables to the bank so that they can invest in further projects. A new tripartite agreement between the bank, the EPC provider and the EPC client allows for the sale of receivables even for projects benefiting from an OPE subsidy, where this was not possible before. This will facilitate the financing of these combinations significantly, which will further support the growth in the number of comprehensive renovations of public buildings with today's much sought-after energy savings.

Energy Performance Contracting allows the client to save energy without having to draw on their own capital for investment. In a typical EPC project, the costs incurred for energy saving measures are repaid over the term of the contract (usually 8–12 years) directly from the costs saved by implementing these measures. The advantage of the EPC model for the client is a turnkey service, where the conceptual design, preparation, engineering, implementation and commissioning of the energy saving measures is handled by a single entity – the EPC provider. The EPC provider also assumes most of the risks associated with the implementation, including the guarantee of the amount of savings achieved. Despite the many advantages of the EPC model, only a small percentage of its potential is used in public buildings →4

ISSN 1213–5844 MK ČR E 13241

Editorial

Energy savings – three birds with one stone

For many months now, the combination of Russia's barbaric invasion of Ukraine, the worsening effects of climate change, and rising energy prices have been among the main topics of the media and news websites. Just as one of the collective causes of these problems is our overconsumption of fossil fuels, coupled with our dependence on undemocratic regimes, one of the solutions to these problems is also common – energy savings.

It is quite evident that energy savings are a useful tool to protect the budgets of households, but also a wide range of organizations, companies and institutions in the private and public sphere, whether their activities fall under the service or industrial sector. Energy savings are also a key tool for preventing climate change by reducing the amount of emissions released into the atmosphere.

It is not really surprising that energy savings are also an effective tool for ensuring energy security in the Czech Republic and the EU. And what is more – it is the Russian invasion of Ukraine that shows how effective energy savings can be. Fuel imports from Russia have clearly become a blackmail instrument for the Kremlin, which is why it is in the broadest interest of all of us to strive to reduce consumption in order to ensure energy self-sufficiency and, at the same time, not to send money unnecessarily to support the Russian army.

Surprisingly, even simple steps can do a great deal. According to SEVEn's calculations, published in April 2022 in cooperation with the Union of Modern Energy, the Passive House Centre and Ekowatt, we can reduce natural gas payments to Russia by 3 to 4 billion crowns a year by lowering heating temperatures by 2°C. By replacing one car trip a week with public transport, we can reduce payments to Russia by between 3 and 4 billion crowns a year. By taking one shower a week instead of a bath, we will not send CZK 400 million to Russia. And since April, these savings have grown even more as energy prices continue to rise…

In addition to „quick and easy" savings, however, we should encourage conceptual and long-term actions. One hundred thousand newly insulated family houses, for example, is equivalent to reducing payments to Russia by more than CZK 830 million a year. Besides, these savings are permanent and ensure long-term thermal comfort for the users of such properties. These savings include insulation of buildings, heating system renovations, Energy Performance Contracting (EPC), energy-efficient lighting, purchasing appliances in accordance with the highest class of energy label and many more. There are numerous options, and they all have common goals: to reduce our operating costs, to protect the climate, to not support the Russian military. The goals are beneficial both for individual consumers and for society as a whole.

Juraj Krivošík

Systematic support for savings will get us out of the crisis

Energy consumption cannot be significantly reduced in a month. Only the right strategy will get us out of the crisis. Jaroslav Maroušek, Chairman of the Board of SEVEn, The Energy Efficiency Center, commented on the current crisis in the energy sector, the role of savings in solving the crisis and the perception of savings in the Czech Republic.

Energy savings are discussed in the public space now more than ever. You have been working on energy savings professionally since the 1990s. How far have we come in terms of energy savings and their perception in the Czech Republic?

Historically, the Czech Republic has had a rather negative attitude towards energy savings. This is manifested in various ways. You may recall that when the European Union introduced the Energy Performance of Buildings Directive (EPBD), the then President Václav Klaus personally disparaged it and even lectured the responsible ministry official in a public debate about the excessive dirigisme of the European Commission, which allegedly did not correspond to the free market. Standards for energy efficiency in buildings are not only in Europe, but nowadays in practically all developed countries. In the Czech Republic, unfortunately, energy savings have been labelled a topic for green enthusiasts. The solution to the energy issue is based mainly on building energy sources, while savings are secondary.

Now it finally appears that this is not the way to keep going. This attitude is also reflected in the failure to meet the obligations arising from another piece of European legislation, the Energy Efficiency Directive (EED). While we have been relatively successful in meeting the targets of the other directives, in-

Jaroslav Maroušek is one of the most important figures in the field of energy efficiency in the Czech Republic. He is a long-time promoter and practitioner of the energy performance contracting (EPC), an energy service method. In 1990 he founded the company SEVEn (abbreviation for Centre for Efficient Use of Energy) and is the chairman of its board of directors. During his thirty years of experience in energy saving, he has been a member of the governing bodies of several energy companies in the Czech Republic and consulting organizations abroad (Poland, Bulgaria and Ukraine), a member of the Supervisory Board of the Association of Energy Managers, the Board of Directors of the Association of Energy Auditors and the Board of the ECEEE (European Council for Energy Efficient Economy). He has also worked as a consultant for the World Bank, or represented the Czech Republic as an expert in a UN expert commission. He is a member of the Energy Section of the Czech Chamber of Commerce, where he chairs the Energy Consumption Working Group and is a member of the Board of the Association of Energy Service Providers (APES).

cluding the requirements for the development of renewable energy sources, we have missed the savings targets by 20%, perhaps even 30%, over the past period. This has not yet been finally evaluated. In the last seven-year period, we were supposed to save about five percent of energy consumption, and in the next period the target will be even higher. However, there has been no significant change in the approach to savings so far and we have already experienced a slippage again. It is not improbable that we will face sanctions from the European Commission for failure to implement energy savings. However, this European directive allows Member States to impose higher requirements on energy companies and to oblige energy suppliers to achieve savings as well. The Czech Republic has not ventured into such a step, although the ministry officials had already prepared this option in the past but failed to push it through.

And now we have encountered a problem with the supply of gas and electricity on the European market, which has resulted in extremely high prices. The solution does not just lie in gradually replacing gas and oil supplies from Russia. No one can expect that prices can go back down to the levels of the past decade in the near future. In the short term, we are looking for a quick solution through new suppliers, but in the long term we need to focus on a new strategy that is not based on renewables only, but on a wider diversification of sources too, and, most importantly, on savings. When we carry out a detailed analysis of the use of the energy we fight so hard for, we find that almost two-thirds of the energy we extract or buy is wasted – usually as a waste heat – and only the rest can be used for our benefit. So are we really a highly evolved civilization?

How is the current crisis affecting energy-saving projects?

The demand for savings is clearly growing. We are currently working on several projects where over 30% of energy consumption is being saved or even more. It is a pity that the interest was not so great in previous decades, as we would be much further ahead.

Energy-saving technologies are constantly evolving and the paths to savings are also opening up in terms of economics – higher prices shorten paybacks. Nevertheless, the transformation towards a more efficient economy cannot be done just in one year. This winter, we simply have to really save where we can, without any grand strategy, within a limited scope. In the long term, however, we need to focus on strategic energy saving measures and prepare for further energy price fluctuations. Entrepreneurs often tell us: ‚We need a payback of three or four years maximum'. But you cannot achieve strategic changes with such a short payback; you have to look at the longer-term benefits. And, most importantly, it is not easy to properly value the benefits of savings. Energy use is embedded in almost all of our activities and the positive effects are more far-reaching.

High-quality and comprehensive energy-saving projects not only reduce energy consumption but also have other benefits. When a complex energy-saving project is successfully carried out, related benefits include newly renovated buildings, reduced maintenance costs, improved appearance of the entire facility, better lighting, implementation of energy management with impacts on maintaining proper hygiene requirements and therefore a quality working environment, etc. The full benefits are not easy to quantify and this fact makes it very difficult for managers to make the right decision on energy saving projects.

Highlighting all the benefits of energy savings is a task we should work on. It will take many years, but it is essential. Unfortunately, the Czech Republic is lagging behind a little in this respect, so let us hope that the current energy crisis will help us to change this.

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Tripartite agreement allows...

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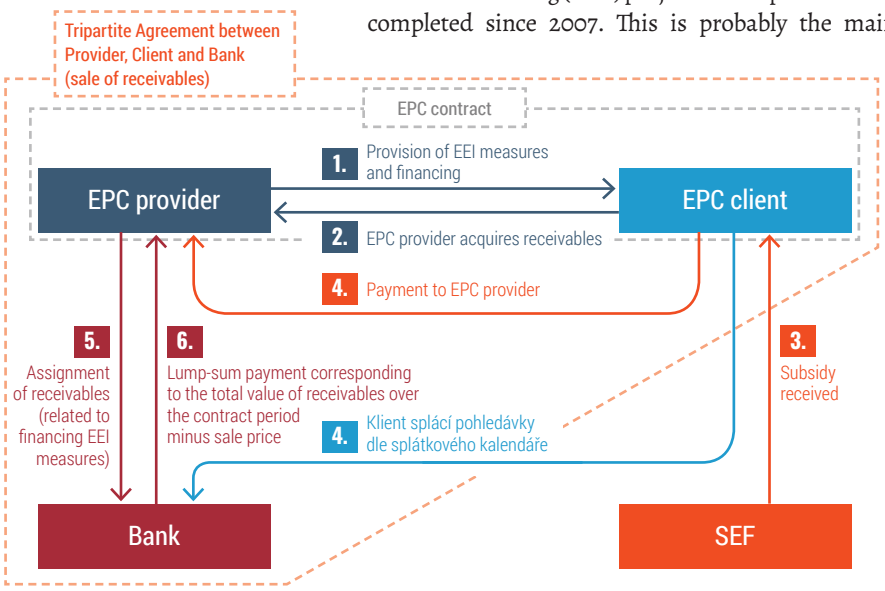
in the Czech Republic, mainly due to administrative barriers and demanding preparation requirements.

The sale of receivables from EPC projects has been a very successful system in the Czech Republic, which has been used to finance most of the Energy Performance Contracting (EPC) projects in the public sector completed since 2007. This is probably the main



SALE OF RECEIVABLES FROM PROJECTS COMBINING EPC WITH A SUBSIDY

factor why, unlike in many other EU countries, access to financing is considered easy here and is not identified as a barrier to the growth of the EPC market.

Often the EPC model includes financing as part of a comprehensive package of energy services, which means that the EPC provider initially invests in energy saving measures for the client using its own funds. Once the EPC project has been handed over, the provider sells the receivables to the bank, which allows it to eliminate the liabilities from its balance sheet and continue to invest in new projects. Another major advantage is that the EPC provider rids itself of the credit risk that the bank takes on by buying the receivables. Furthermore, the provider is only responsible for the technical performance of the project under the EPC contract.

The agreement on the future sale of receivables between the EPC provider and the bank is usually signed before the procurement procedure is launched and includes the discount rate at which the bank will buy the receivable after the EPC project is completed.

Until recently, however, the sale of receivables was not possible for projects that used subsidies from the Operational Programme Environment (OPE). This was because the subsidy programme, which always financed only part of the project, strictly required that the remaining part of the project price – the so-called partial payments – be paid within 10 days after the subsidy was granted. Yet each payment had to be accompanied by a bank statement proving that the client had paid the additional amount from their own account. However, this was not possible in the case of the sale of the receivables, where the contractor receives the additional payment from the bank that buys the receivable and not from the client.

Therefore, the effort was to find a way to meet the requirements of the subsidy programme while allowing the provider to relieve itself of many years of debt burden. After complex negotiations, a tripartite agreement was proposed between the bank, the EPC provider and the EPC client, which the subsidy provider would accept as a substitute for the required evidence of the client's reimbursement of additional costs.

This agreement commits the bank, the EPC provider and the EPC client to jointly arrange the sale of the receivable prior to the disbursement of the subsidy and to transfer the funds to the contractor no later than 10 days after the receipt of the subsidy, confirming that it is a payment representing the client's top-up. The agreement between the three parties was gradually negotiated and modified so that the subsidy provider, the State Environmental Fund (SEF), could accept it as a substitute for the client's reimbursement receipt. Subsequently, the SEF included the agreement in the rules for beneficiaries of the OPE subsidy. The agreement was tested on several projects and has become a standard part of the subsidy programme.

The fact that it is now also possible to sell receivables from EPC projects subsidised by OPE increases the interest in these projects on the part of providers. On the other hand, the possibility to obtain subsidies for EPC projects increases potential clients' interest in investing in savings.

You can read more about the sale of receivables in the Czech Republic and other European countries in the Case Studies of the European REFINE project on its website: https://refineproject.eu/refine-publications/

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Energy-poor households offer...

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Eastern and Southern EU: impact on energy poverty and mitigation strategies", which analysed the current state of energy poverty in 10 countries. It examined a set of indicators based on energy efficiency, social and economic factors, health and quality of life. According to the available sources, up to 20% of Czech households may be affected by (or may be on the verge of) energy poverty.

Bearing in mind that an average household needs approximately 110 kWh of gas per m² of living space per year for heating, the average area in the Czech Republic is 65.3 m² and there are 4.5 million households in the Czech Republic, the energy needs of energy-poor households can be as high as 6,464 GWh per year. If at least 50% energy consumption savings for each household are assumed after the implementation of energy saving measures, energy-poor households could potentially save up to 3,232 GWh (10.8 TJ) of energy consumption per year.

Ensuring the financing of energy-saving measures for buildings where households are affected by energy poverty will not only help these households to improve their living standards, ensure more stable thermal conditions or a healthier environment, but also has a high potential to contribute to the overall energy savings to which the Czech Republic has committed.

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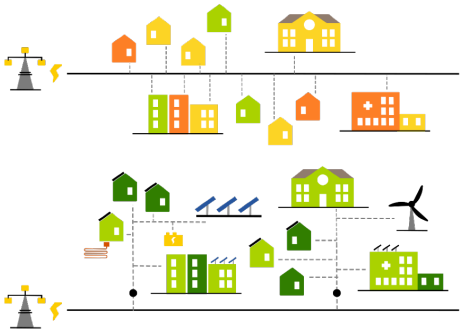
Innovations in energy services

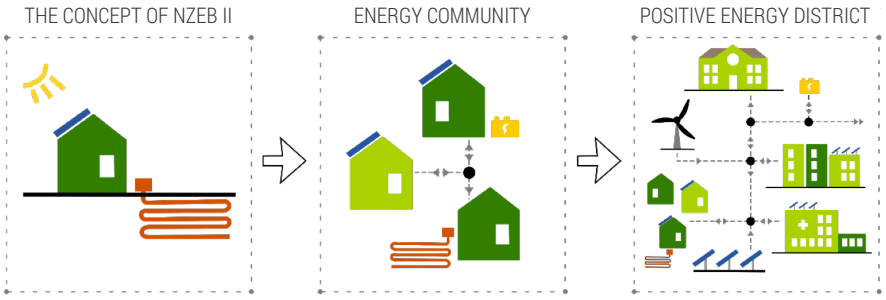


The energy sector is going through a turbulent period. Energy services must respond to the increasing demand for energy savings and energy measures, such as the EPC method – guaranteed energy services. In the Czech Republic, the EPC market is well developed, EPC providers have gained important experience and built up their know-how over the years, and the banking sector knows and accepts this form as well. However, this market will not escape innovations either.

The development of energy services will be influenced by the demand for flexibility of consumption in buildings. The focus will be on current demand and modification of common building use profiles will change. One example would be a building energy system that can use thermal or electrical energy storage, or a smart building system that can design and implement the deferral of energy consumption according to expected production.

Flexibility of buildings has a high potential especially for easier integration and use of renewable resources with higher generation volatility. With flexible management of building energy consumption, reductions in operating costs and reduction of greenhouse gas production can be achieved. The development of services must also take into account the involvement of energy communities, which are developing more and more rapidly.

SEVEn's ambition in developing Energy Efficiency Services (EES) is to expand the range of services offered to end customers, reduce energy costs and shorten the payback period for investments. The BungEES project focuses on the innovation of the EES concept and energy service model. Special attention is given to areas such as energy storage, production demand response, hybrid energy systems, e-mobility and the related change in energy distribution and production. Energy services will change. Moving away from the current focus mainly on passive energy measures, such as building envelope renovation or more efficient and energy-saving appliances, more attention will be paid to the integration of other energy sectors, especially the involvement of renewable energy sources and sources of heating and cooling. The integration of non-energy services, the use of modern technologies and the monetisation of non-energy benefits for energy efficiency will also be part of the new EES concept.



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The Litovel path to decarbonization of the conomy and transformation of the energy sector

At present, one third of the heat demands of the Litovel town is provided by two separate heat supply systems, annually more than 50 thousand GJ of heat. The energy source consists of natural gas and even though about half of the heat produced in this way is efficiently generated in gas cogeneration units, the system is not able to „absorb" the extreme gas prices, making the whole operation and prices for end customers more expensive.

Therefore, the Municipal Heating Company Litovel in cooperation with the town and the SEVEn company is launching a project to completely phase out the use of gas for heat production within 5 to 7 years. The future heat source will be – perhaps surprisingly – wastewater from the municipal wastewater treatment plant. This low-potential heat can be used with the help of industrial heat pumps.

The new energy centre with heat pumps with an output of approximately 2×2.5 MW will be costly in terms of investment but it will also enable further synergies. The two heat supply systems will be connected and, together with the wastewater treatment plant, an electrical microgrid will be created, allowing for mutually efficient sharing of electricity. The heat pumps will initially help to eliminate the heat production from the gas boilers, but will also gradually accumulate heat in a seasonal heat storage tank, which will allow to cover heat peaks during the heating season that would otherwise be provided by gas heat sources. The amount of heat available from the wastewater treatment plant is sufficient for the entire town if the rest of the town is connected to the central heating system in the future.

Heat production will be supplemented by electricity production from a new photovoltaic power plant. The buildings connected to the current heat supply systems alone can accommodate photovoltaics with a capacity exceeding 2 MW_p (more than 4,400 panels with a capacity of 455 kW_p), but the potential in the city is at least double that. Community energy will be used to do this – a new entity will be set up to enable interested parties to make shared investments, particularly in new rooftop photovoltaic plants and, in the future, other renewable energy sources.

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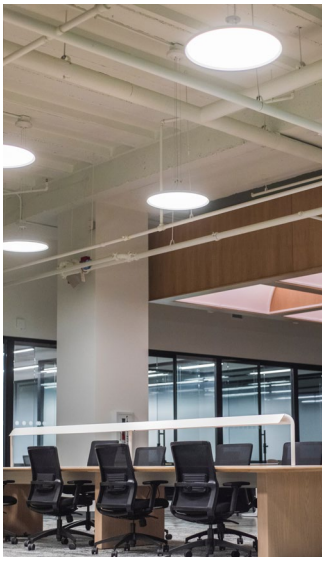

Updated workplace lighting requirements

In 2022, an update of the European standard EN 12464-1 was released, which sets the minimum hygiene limits for artificial lighting in work areas in Europe and also sets the minimum quality level. The current changes mainly affect three areas: adjustments to prescribed illuminance levels, updated lighting quality levels and the newly mentioned non visual light effects. In the Czech Republic, the standard is legally binding by a government decree.

In terms of illuminance requirements, the biggest change is the new mechanism to increase or decrease the minimum illuminance level if certain additional conditions are met (so-called modified illuminance). There is an increase in illuminance, e.g. when there is very little access to daylight, a visual work is critical or errors are expensive to rectify, or a decrease in illuminance when the task is performed for an unusual short time or with high contrast. The required illuminance levels are generally the same compared to the previous version of the standard, with only a few exceptions – e.g. the minimum illuminance of school classrooms has been increased from 300 lx to 500 lx. In a few cases, the structuring of task areas has been extended.

A novelty is the incorporation of lighting quality requirements. Lighting quality is indicated by the so-called cylindrical illuminance, which determines the „filling" of the room with light – i.e. sufficient presence of horizontal and vertical illuminance. The standard now prescribes minimum levels of cylindrical illuminance for each type of area. In relation to LEDs concentrating high brightness in a small area, the standard now adds a limitation on the maximum luminance of the optical parts of luminaires to reduce glare.

In addition to a number of partial modifications, the standard also mentions the findings on the non visual light effects on humans that have been known for several years. This simply refers to the effect of colour temperature on human activity at different times of the day. It can be expected that this part of the standard will be further developed in the future, including other follow-up requirements.

EXAMPLES OF ILLUMINANCE AND CYLINDRICAL ILLUMINANCE REQUIREMENTS FOR SELECTED AREAS

TYPE OF AREA	MINIMUM REQUIRED ILLUMINANCE	MODIFIED ILLUMINANCE	CYLINDRICAL ILLUMINANCE
Corridors, staircases, lifts	100 lx	150 lx	50 lx
Cloakrooms, social areas, waiting rooms	100 lx	300 lx	75 lx
Offices	500 lx	1000 lx	150 lx
Classrooms	500 lx	1000 lx	150 lx

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DoubleDecker will contribute to the transformation of the Czech construction industry

The Czech construction industry stands at a turning point. Lack of production capacity, disruption of supply chains and slow response to changes in technology and society are just some of the problems. If the sector is to retain its position in the economy, it must change.

The Czech construction industry is going to undergo a profound transformation. The sector has to deal with several challenges at the same time. It must replace missing workers in the sector and increase labor productivity. In the area of energy savings, the construction sector is the sector that will implement complex renovations – the key to increasing energy performance of buildings in the Czech Republic. The transformation will take place over the next 10 years and will lead to profound structural changes in the sector, to the decline of some professions, the abolition of some jobs and will result in the industrialization, automation of the sector and reduction in the individuality of buildings.

The DoubleDecker project is a follow-up to the Build-up-Skills (BUS) initiative and is based on a Europe-wide initiative to support the renovation wave in the Member States. It will create a strategic basis for the transformation of the construction industry in the Czech Republic and Slovakia. This transformation will take place in two basic stages, namely the preparation of a status-quo analysis led by the Association for the Development of Architecture and Building (ABF) (*Asociace pro rozvoj architektury a stavitelství*) and, in the second phase, the creation of a national roadmap led by SEVEn. The preparation of these strategic documents will take place over the following 18 months and will be completed in March 2024.

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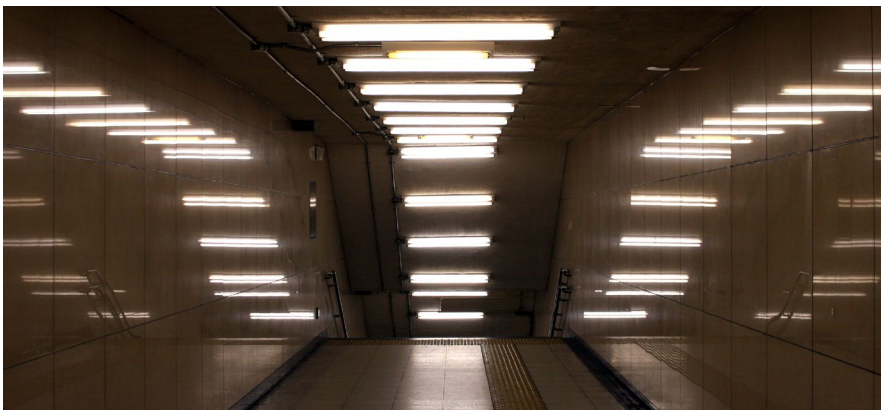
The end of linear and compact fluorescent lamps in Europe in 2023

In 2023, the European lighting market is going to undergo a significant change. The 2011/65/EU RoHS Directive will prohibit the placing of conventional T8 and T5 linear fluorescent lamps and compact fluorescent lamps on the market. We can therefore expect an increased demand for retrofit LED tubes and generally a higher rate of light systems modernisations.



In the European Union, there are two types of regulations that apply to light sources. The first one is Ecodesign, which focuses on the efficiency and quality of light sources. The other is the EU Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment, known as RoHS, which limits, among other things, the amount of mercury in light sources. And it is this directive that is driving the forthcoming phase-out of conventional linear fluorescent and compact fluorescent lamps in 2023.

The operation of fluorescent lamps is based on the electric current in mercury vapour and the subsequent conversion of ultraviolet radiation into visible light in a deposited layer of phosphor. Fluorescent lamps have been used successfully for decades but they require mercury to operate, which is toxic. Despite the high recycling rate of fluorescent lamps, a large amount of mercury is released into the environment and constitutes a significant pollutant. The RoHS Directive sets the maximum possible amount of mercury and time-based exemptions for different types of light sources.

Recent amendments to Directives 2022/276 and 2022/284 thus end the exemptions for the most common types of fluorescent lamps: T8 and T5 double-capped linear fluorescent lamps from 24 August 2023 and single-capped compact fluorescent lamps without integrated ballast (the so-called CFLni) from 24 February 2023.

The phase-out of T8 linear fluorescent lamps (conventional fluorescent lamps with a diameter of 26 mm) on the market was already scheduled for 2023 according to the Ecodesign regulation. However, the end of 16 mm diameter T5 linear fluorescent lamps, which are still relatively efficient, is a bit of a surprise even for many experts. Practically speaking, in some less demanding applications, fluorescent lamps can be replaced with the so-called LED tubes, while in other cases the entire lighting system must be upgraded to LED lighting. A rather dynamic shift to LEDs can be expected in the lighting market in 2023, as well as a greater demand for stock of linear and compact fluorescent lamps.

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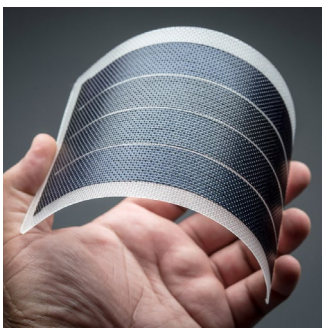
Largest installations of thin-film PV panels in the Czech Republic



A photovoltaic power station with an installed capacity of 517 kW_p will soon be put into operation on the roof of the well-known outlet shopping centre near the municipal waste incinerator in Malešice. The installation is unique because of its size and the technology used. Due to the load-bearing capacity of the roof, it is not possible to place standard PV panels on it with a supporting structure and load-bearing elements. Modern thin-film panels with a thickness of only 2 mm are an innovative solution. Installing standard panels would place a load of approximately 20 kg/m² on the roof. The thin-film panels require no supporting structure and weigh only 3.3 kg/m². They can be fixed to the roof surface with adhesives, screws or even magnets. The cells themselves are protected by a layer of flexible material used in aviation based on glass fibre reinforced plastic.

For the installation at the Prague Fashion Arena, panels from the Austrian manufacturer DAS Energy 11×6 with an output of 330 W_p were chosen. 1,638 panels glued to the waterproofing layer of the roof will be used to achieve an output of 517 kW_p. According to measurements, on hot summer days the temperature under the panels can reach up to 75 °C for short periods of time, which does not affect the long-term properties of the waterproofing. The power station is supported by the National Recovery Plan subsidy programme and is the largest installation of thin-film PV panels in the Czech Republic. The power station is expected to produce around 450 MWh of electricity annually with a guarantee of at least 85% of production after 40 years.

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Energy communities in Europe

Energy Communities (ECs) have been one of the most dynamic areas of the energy sector in recent years. They are developing all over Europe. It turns out that when the rules of collective self-consumption and state support are set appropriately, community energy entities develop rapidly and make a great contribution to increasing the sustainability of the energy sector. In this article, we provide insights into the specificities of energy community practice and regulation in Germany, Austria and France.

The European Directives 2018/2001 on the promotion of the use of energy from renewable sources (RED II) and 2019/944 on common rules for the internal electricity market (EMD) define new legal entities, energy communities, whose development will be a de facto prerequisite for meeting the EU's strategic goals for 2030 and 2050.

Energy communities represent a new milestone in the development of the energy sector. In Austria, for example, with a new legal framework as of 2021, it is possible for the first time for residents to not only produce, store and consume energy jointly, but also to sell energy outside their buildings or land owned. The new regulations define the two models of energy community outlined in the European guidelines: a locally limited „renewable energy community" (REC) and a „citizens energy community" („CEC") that is not geographically limited. For RECs, the location in the immediate neighbourhood is crucial. The connection of the participants' consumption and production systems via the high- or low-voltage distribution network in an area with the authorisation of only one network operator is essential. Since 2021, reduced network use charge rates for participating REC consumers apply. In contrast to REC, CEC are only allowed to generate, store, consume and sell electricity. Large companies and energy suppliers are practically excluded from participation in energy communities.

GRAND OPENING OF A CIVIC WIND PARK IN FRANCE
Foto @Énergie Partagée

The Renewable Energy Sources Act (*Erneuerbare-Energien-Gesetz* – EEG 2021) implements the RED II Directive into the German legislation, allowing individuals to generate energy for their own consumption. However, jointly operating self-consumers (prosumers) are not defined in the Act. Prospects for the establishment of Energy Communities (EC) with the legal form of a cooperative were opened up by the amendment of the Cooperative Act (*Genossenschaftsgesetzes*) in 2006, offering a legal framework for residents to cooperate.

One of the most beneficial ways of establishing an EC in Germany is through cooperation of residents, municipalities and municipal services in various

forms. In this case, the municipality can participate financially in the EC or support it in another way, for example through relations with the state administration. Many municipalities also make municipal roof areas available free of charge for civic energy projects. In some cases, municipalities themselves set up an EC upon a resolution of the municipal or city authority. The EC can also acquire a share in municipal services – some German communities own up to 25% of their municipality's municipal services. The establishment of an EC is also possible in cooperation with banks. State-owned banks are involved and, in some cases, commercial banks as well. Sometimes they also take over the dominant function for the initiation, implementation and management of the EC.

In France, the energy transition was first mentioned in the 2015-992 Law on Energy Transition for Green Growth (LTECV), which introduced unique incentives (called *participation bonuses*) in 2015 to encourage the financial participation of local residents in renewable energy projects. At present, the so-called citizen projects for the production of renewable energy (*projets citoyens de production d'énergie renouvelable*) are developing rapidly. The energy produced by the community's renewable resources can be shared among members or shareholders. On the other hand, the EC cannot own the distribution network. However, the amendment to the Energy and Climate Act specifies that public distribution network operators must work with communities to facilitate energy transfers within the community. Under current provisions, extended collective self-consumption can only function in the low-voltage grid. ECs generate revenue mainly by selling renewable electricity and benefit from feed-in tariff. To receive state financial support at the end of the project development phase, the participation of citizens and citizens' associations in the project implementation must represent at least 40% of the project company's capital.

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How is the Territorial Energy Concept implemented in the Olomouc Region?

The Olomouc Region has introduced Energy Management and calculated the potential of renewable energy sources within the Territory of the Region, states the Report on the implementation of the Territorial Energy Concept (TEC).

In mid-2022, a report on the implementation of the Olomouc Region's TEC was produced, which included a comprehensive evaluation of the Action plan from 2017 to 2021. In the past years, the Olomouc Region has, for example, established a working group involving representatives of the Regional Authority, Municipalities, the Confederation of Industry and Transport of the Czech Republic, major Energy and Industrial Companies, as well as representatives of other important groups. These regular annual meetings of entrepreneurs and Public Authorities on the implementation of the Olomouc Region's TEC are key to meeting the region's strategic objectives, while also serving as a platform for open discussion and providing highly valuable feedback from various scopes of activities.

A significant achievement is the introduction of a certified Energy Management System (EnMS) at the regional level. The system is applied in the Contributory Organisations of the Region and meets the standards of ČSN EN ISO 50 001. The whole process of EnMS implementation started in 2016 and was successfully completed in 2020 by obtaining the Certificate. The implementation of the system was a challenge for the region due to its scale, as it involved more than 150 regional organisations. However, the evaluation results so far show that the region can save a substantial part of energy consumption and therefore operating costs annually thanks to a functional EnMS. The Olomouc Region is a good example and inspiration for other public and private entities.

Another important step was the elaboration of four extensive studies to determine the potential for the use and development of renewable energy sources in the region. Specifically, these included the potential for the use of Photovoltaics, Biomass, Combined Heat and Power (CHP) and Heat Pumps. The results of the studies became a foundation for the design and implementation of further measures proposed in the Action Plan for the following period 2023 to 2028.

The Territorial Energy Concept (TEC) is a strategic document defined in Act No. 406/2000 Coll., on Energy Management. TEC sets out the objectives and principles of energy management in a given territory. TEC establishes the conditions for the economic management of energy in accordance with the needs of economic and social development, including environmental protection and prudent management of natural energy resources. It is elaborated for a period of 25 years and is based on the State Energy Policy. TEC is evaluated at least once every five years by means of the so-called Implementation Report, which, in addition to the evaluation itself, also contains requirements for any update of the TEC. SEVEn has developed or participated in the development of TEC for a number of regions (e.g. Olomouc, South Moravia, Vysočina) as well as the City of Prague and subsequently also in the evaluation of the implementation of TEC.

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The EPREL database is now also available to the public

One of the major innovations in the field of energy labelling from 2021 onwards is the obligation for manufacturers of household appliances and other devices to register their products on the European market and provide information about them in the EU product database EPREL. This database is used by market surveillance authorities for checking parameters and, most recently, the public part is also available.

The European product database EPREL covers a wide range of products that have an energy label. The database includes white goods (refrigerators, dishwashers, washing machines, etc.), light sources, televisions and displays, heat sources and water heaters, range hoods, hobs, tyres, air conditioners, and professional refrigeration products.

Its concept is based on a repository from where the energy class of products, information sheets and other quality parameters can be verified. The database contains two levels of access: the overall level is available to market surveillance authorities (the State Energy Inspectorate in the Czech Republic), which can, if necessary, trace products placed on the EU market. For the public, there is a section containing basic parameters of the products. The easiest access to the database is through the QR code on the new energy labels. You simply scan the QR code and check the product parameters (energy class, information sheet). Alternatively, the database can be searched directly, enabling easy comparison of appliances.

This is a large database, the equivalent of which already exists in many other countries around the world. Although its start was accompanied by problems and the database is still in the so-called beta phase for testing all functions, it can be expected to gradually overcome all childhood diseases and add more functions. Especially the opening of all functions to third parties promises a range of consumer applications benefiting from the unique pan-European market overview. One of the first such tools is the LABEL2020 project's „Efficiency Check", available at https://tool.label2020.eu/

EPREL database

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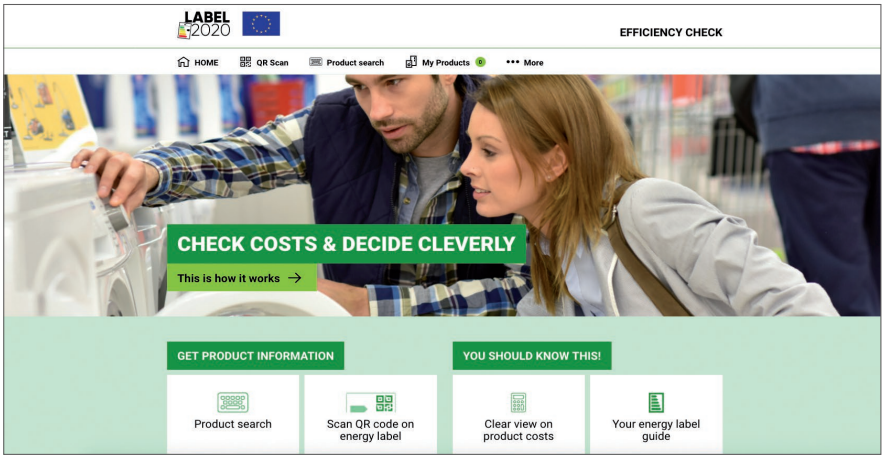
Find the most efficient appliances. A smart tool against rising household energy bills

A new tool for smartphones and web browsers allows users to easily search for products and compare electricity costs for home appliances, TVs, lighting and professional refrigeration products.

The „Efficiency Check" tool makes it very easy to compare the electricity costs of different products over the lifetime of the product. Adding the purchase price, it is possible to compare the total costs. This quickly shows which supposedly advantageous products may be even more expensive in the long run. By checking efficiency, the most efficient products currently available can be identified very quickly. In addition, a range of other information is available for each product model.

So if you want to compare products and costs on-the-spot, you can simply use the QR code on the energy label. By scanning the QR code using the LABEL2020 tool on your smartphone, you can instantly read the product information and compare the products with each other.

For more details and information also on specific products with an energy label: https://tool.label2020.eu/



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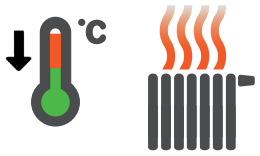
How to cut funding for the Russian war through energy savings

Every year the Czech Republic pays many billions of crowns to Russia for fossil fuels, which are then used by the Kremlin to finance their barbaric aggression against Ukraine. There are many ways we can reduce this amount. It's up to us.

Data: April 2022



BY LOWERING THE THERMOSTAT 2°C, WE WILL REDUCE PAYMENTS TO RUSSIA FOR NATURAL GAS BY BETWEEN CZK 3 AND 4 BILLION/YEAR

Reducing the target heating temperature by 2°C in households alone will reduce consumption by about 10–12%. We would therefore reduce the Czech Republic's annual consumption by about 2 TWh, which means a 2% reduction in the Czech Republic's total natural gas consumption, whereas in the past we imported 80–90% of natural gas from Russia.

BY REPLACING ONE CAR JOURNEY A WEEK WITH PUBLIC TRANSPORT, WE WILL REDUCE PAYMENTS TO RUSSIA BY CZK 3 TO 4 BILLION A YEAR.

We consume about 2 billion litres of petrol and about 6 billion litres of diesel in the Czech Republic every year. An average driver travels 10-15,000 kilometres a year. By shaving off 2,000 km, which can be equivalent to replacing one car journey per week with public transport, we can save about 150 litres of fuel per year. If at least half of drivers (3 million) save this amount of fuel, the total fuel consumption will be reduced by about 450 million litres (petrol and diesel combined). If half of this amount is supplied from Russia, the saving would be 1.9 million barrels of oil, which corresponds to about CZK 3–4 billion.

ONE SHOWER A WEEK INSTEAD OF A BATH – CZK 400 MILLION WILL NOT GO TO RUSSIA

The average shower consumes about 10 litres per minute and our showers take about 5 minutes. The average hot water consumption is about 50 litres. A filled bathtub uses approximately 120 litres of hot water. The difference is 70 litres of hot water. In addition to shorter showers, the use of energy efficient taps and shower heads reduces water and energy consumption. If at least half of the approximately 4 million people skip a bath or if everyone takes about half as many baths, approximately 0.24 TWh of natural gas can be saved. This means a decrease in payments to Russia of around CZK 400 million per year…

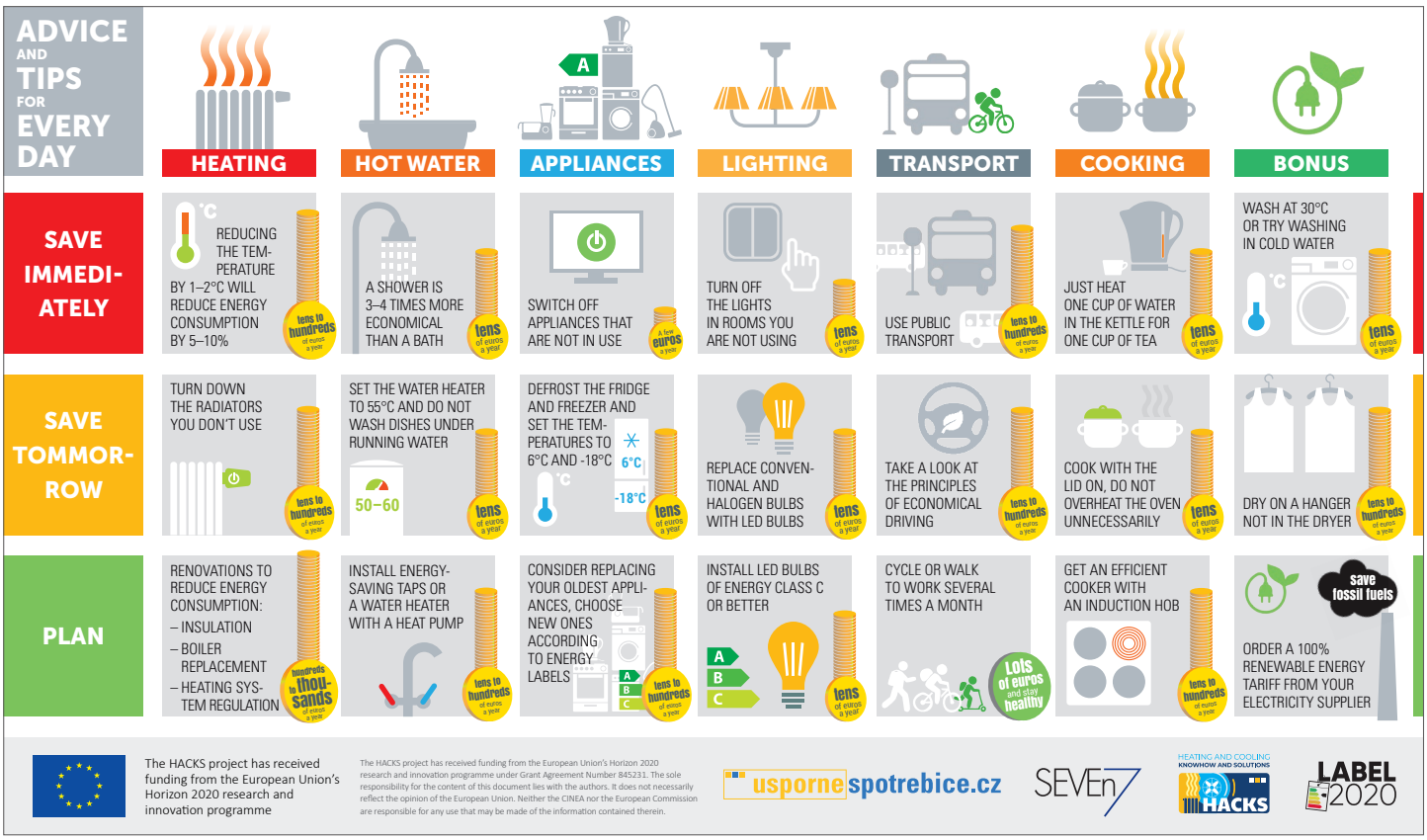
ONE HUNDRED THOUSAND NEWLY INSULATED HOMES EQUALS A REDUCTION IN PAYMENTS TO RUSSIA OF MORE THAN CZK 830 MILLION.

An uninsulated house built in the 1960s–1990s with gas heating consumes about 17.3 MWh of gas per year for heating. In contrast, if these houses were insulated in a standard way, gas consumption would be reduced by up to a third. If we managed to renovate 100,000 houses like this, we would reduce the consumption of natural gas by about 520,000 MWh per year. This would mean that, with a purchase price of natural gas on the exchange of CZK 1,600, gas worth more than CZK 830 million would not have to be purchased each year.

Source and further information

Energy savings – how to do it

Skyrocketing energy prices, climate change becoming a reality, Russia's barbaric invasion of Ukraine funded also by our consumption of fossil fuels... There are many reasons why reducing energy consumption makes sense. And fortunately, there are also many ways to implement it. In addition to conceptual solutions involving, for example, insulation, renovation of the heating system, or the use of renewable energy sources, virtually any household or organisation can reduce consumption quickly and with a minimum investment. The following infographics provide examples of such measures.



The HACKS project has received funding from the European Union's Horizon 2020 research and innovation programme

The HACKS project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement Number 845231. The sole responsibility for the content of this document lies with the authors. It does not necessarily reflect the opinion of the European Union. Neither the CINEA nor the European Commission are responsible for any use that may be made of the information contained therein.

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NEWS at SEVEn

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, e-mail: seven@svn.cz, internet: www.svn.cz. Graphic design Pavel Cindr. ISSN 2570-592X. MK ČR E 13241.

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