



WE AT SEVEN WISH YOU MUCH SUCCESS AND HAPPINESS IN THE NEW YEAR

Obligatory connection to district heating in practice

We have repeatedly encountered the opinion of some power engineers that arising from the Clean Air Act it is compulsory to assess the feasibility and cost-effectiveness of connecting buildings to the district heating system. Some towns have even directly incorporated this obligation into municipal ordinances and, in other cases, also determine that the feasibility is to be assessed by a person other than the investor – the municipal authority or energy auditor. Do these interpretations comply with the legal reality, and do such ordinances have any validity whatsoever? Let's have a close look at what exactly the Act says.

Act No. 86/2002, on air pollution (Article 3, paragraph 8), stipulates that "legal and natural entities are obliged, if it is technically feasible and economically acceptable for them, to use district heating, or alternative energy sources, for new buildings or when modifying existing buildings, if their operation is in conformity with this Act and the rules issued for its implementation. At the same time, they are obliged to verify the technical and economic feasibility of combined heat and power generation."

Does this mean that the building contractors are obliged to assess if the use of district heating and alternative energy sources is technically feasible and economically acceptable? No, the Act stipulates no such obligation!

The Act imposes upon building contractors the obligation to assess the feasibility of combined heat and electric power generation. It does not regulate the decision on possible actual construction of combined heat and power system – this is fully left up to the decision of the building contractor – investor. The obligation prescribed by law in this manner is legally and factually in order. But the situation in the case of using district heating and alternative energy sources is different.

The Act requires the use of district heating or alternative energy sources only in the event of this possibility being technically feasible and economically acceptable to building contractors. However, the Act does not specify the actual obligation to evaluate the feasibility of district heating. Thus, in practice it means that

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Amendments to legislation on electrical appliances labelling

Although electrical appliances labelling in the European Union has a 25-year history, common legislation for all member states was only applied in 1992. The Czech Republic adopted the necessary legislation in 2001 and it appeared that energy labels play an important role for orientation of customers buying electrical appliances. Nevertheless, owing to continuous technical progress, the necessity of updating and extending energy labels to other appliances has emerged, as well as that of modifying individual energy classes.

Energy labels should serve as a basic orientation tool for purchasing electrical appliances, and retailers have a statutory duty to display them directly on electrical appliances. According to energy labels, consumers can not only compare the retail price and other parameters of the appliance, but also estimate the operating costs over its service life. The main objective of this legislation is enhanced environmental protection by means of informed consumer decisions and pressure on producers to develop more energy-efficient models.

Refrigerators and freezers

Since the introduction of energy labelling, technical development has progressed rapidly and in some European countries cooling appliances (refrigerators, freezers and their combinations) in energy class A form up to 50% of the market, with the average being just over 20%. According to a survey in shops, this share in the Czech Republic exceeds 35%. Taken together, appliances of class A and B account for almost 90% of the market. As a result, there is a general consensus that the technical specification for these appliances needs to be revised since their

inclusion in class A does not necessarily mean that they are top-class appliances with the best parameters on the market. The problem, however, is disagreement on whether it is more suitable to introduce new energy classes defining even better energy parameters or to tighten up the existing classes A to G.

On June 3, 2003 the European Commission adopted Directive 2003/66/EC, introducing the use of energy classes A+ and A++ for refrigerators, freezers and their combinations. By June 30, 2004, EU member states, including the Czech Republic, will be obliged to transpose this directive into their national legislation and, no later than December 31, 2004 begin to use the new energy classes in practice. Pursuant to this directive, refrigerators and freezers in class A+ must have energy consumption at least 25% lower than appliances of class A.

In Czech shops we can already find appliances of class A+, but so far it concerns a marketing initiative of individual manufacturers.

However, we do not encounter products bearing a grade lower than "D", while in EU countries only sale of appliance of energy classes A to C is permitted.

Other appliances

Technological progress has not ceased in other areas either, hence, the EU has prepared other novelties. Energy certification of buildings,

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Guaranteed energy services

Ten years after the signing of the first contract on EPC (Energy Performance Contracting), the successful projects within which a supplier company has guaranteed financial benefits for a customer through saving measures can be counted in the dozens. Since the mid-1990s, besides these energy performance contracting projects (EPC) – mainly in the municipal energy sector – energy contracting (EC), energy outsourcing and facility management have begun to be implemented.

The substance of energy services with a guarantee, as the title itself indicates, is the provision of a guarantee for the services the contracting partner, the energy service company (ESCO), provides to the customer.

With regard to the fact that in connection with the aforementioned types of services Third Party Financing (TPF) is often talked about, customers' interest is limited to securing of financing. However, it appears that although the financing issue is obviously the biggest "enticement" for those interested in these services, customers' interest in the **provision of guaran-**

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Amendments to legislation on electrical appliances labelling

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i.e. labelling for new and reconstructed buildings, was examined in the previous issue of News at SEVEN (3/2003), while in the July issue (2/2003) we investigated the preparations for "labelling" the origin of electric power generation. Other measures under preparation include energy labels for personal automobiles, as well as for electric ovens and air-conditioning units.

Energy labelling of electric ovens is already compulsory in the Czech Republic, albeit in a different form. The energy labelling applied in the Czech Republic does not divide these appliances into energy classes but states the energy consumption necessary for heating up the oven's inside space to 200°C and for maintaining this temperature over one hour. Since June 2003 energy labelling has been obligatory in EU countries, but labels have the traditional form and specify ovens' energy classes. Following our accession to the EU, European legislation will override Czech and will also relate to this area. Therefore, energy labels on electric ovens will look different, containing the classical scale of energy classes from A to G.

Another innovation on the market will be the Energy Star logo, used for personal computers,



monitors, fax machines, scanners, copiers and printers, i.e. office and computer technology. The logo, originally introduced in the USA, will be borne by appliances with low operating and standby energy consumption.

Air-conditioning units postponed

Another change is being prepared for air-conditioning units, whose quantity and energy consumption on the European scale has been continuously growing. An EU Directive on labelling air-conditioning units was passed in March 2002 under the number 2002/31/EC and requires compulsory labelling from June 30, 2003. However, according to information published by the European Committee of Domestic Equipment Manufacturers (CECED), technical standards for classification of air-conditioning units are expected to be available no earlier than at the beginning of 2004. Hence, the European Commission will require labelling of air-conditioning units only after the standards have been published in the Official Journal of the European Communities.

Promotion of energy labels

To reiterate: the initial purpose of energy labels is environmental protection effected by promotion of energy-efficient appliances and creation of pressure on manufacturers to speed up the development of more efficient models. Use of energy labels on specified types of appliances is obligatory by operation of law. Despite

this, not all shops display labels on every appliance. Hence, those interested in more details can browse and download information and promotional materials relating to this topic at the internet address www.uspocespotrebice.cz.

Appliances compulsorily marked by energy labels in the Czech Republic:

- automatic washing machines,
- tumble driers,
- washing machines combined with driers,
- refrigerators, freezers and their combinations,
- dishwashers,
- electric ovens,
- electric water heaters,
- light sources.

New energy consumption labelling is being prepared in EU countries for:

- air-conditioning units,
- office technology,
- buildings,
- electric energy,
- automobiles.

Juraj Krivošík

For more details on energy labelling, visit the websites listed on the back cover page.

EU legislation on labelling:

www.europa.eu.int/scadplus/leg/en/lvb/l32004.htm

European Union financial support – programmes and funds II

In connection with the Czech Republic's impending accession to the European Union, widely discussed are the financial means that could facilitate the transformation of the Czech economy, environment and energy sector to comply with the conditions valid in the EU. In the previous issue of News at SEVEN (3/2003), we published an article on the new possibilities of gaining financial assistance from the European Union. Following up on this, we now

publish a table specifying the above-mentioned forms of support and listing the executive bodies coordinating this support for Czech entities.

As the table shows, almost 30% of the funds are available for 2004, therefore it is important, within the shortest time possible, to draw up the documentation for specific projects so that their implementation with the support of European funds is feasible.

Proposed allocations of structural aid for cohesion regions falling within Goal 1 from Structural Funds among Operating Programmes (OP) and the expected level of support gained from the Cohesion Fund for the Czech Republic (in 1999 prices, CZK million).

Programme Document	Share in OP	Rok 2004	Total	Executive body
OP Industry and business	15,0%	1 423	5 961	Ministry of Industry and Trade, Department of European Integration and Structural Funds
OP Infrastructure	13,5%	1 280	5 365	Ministry of the Environment, Department of Integrated Financing
OP Development of human resources	21,0%	1 992	8 345	Ministry of Labour and Social Affairs, Department of ESF Aid Management
OP Rural development and multifunctional agriculture	12,0%	1 138	4 769	Ministry of Agriculture, Department 4060 – OP Management Body
CROP	38,5 %	3 685	15 439	Ministry of Regional Development, Department of Regional Development Planning
OP in total	100,0%	9 517	39 878	Ministry of Finance, National Fund Department*
Cohesion Fund	100,0%	7 304	25 925	Ministry of Regional Development, Department of Cohesion Fund, Management

Source: Data from the EC and calculations of the Ministry of Regional Development, February 2003

* The National Fund at the Ministry of Finance will be encharged with receiving payments (and may return unjustifiably paid costs) from the European Commission and redistributing them to final recipients (through managing bodies of individual OPs and the Cohesion Fund).

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Acceleration of Czech electricity market opening

On August 6, 2003 an amendment to Act No. 458/2000 Coll., the Energy Act, pertaining to speeding up electricity market opening in the Czech Republic was passed.

The progress of the planned electricity market opening is indicated in the table below. In principle, it means accelerating the possibility of selecting a supplier for all consumers, apart from households. The Act's original version presumed opening up of the market in 2004 merely to customers annually consuming in excess of 9 GWh and in 2005 for those annually consuming more than 100 MWh.

In addition, in July 2003 the European Union adopted Directive 2003/54/EC, which orders the opening up of the market to all customers, with the exception of households, on July 1, 2004 and to all customers, including households, on July 1, 2007. An identical rule pertaining to natural gas consumption was approved in Directive 2003/55/EC. Hence, at the present time, the Government of the Czech Republic is preparing another amendment to the Energy Act in which these facts will be stipulated.

Planned progress of Czech electricity market opening according to the current Energy Act:

January 1st, 2004

All customers with continuous electricity consumption meter, excluding households

January 1st, 2005

All customers, excluding households

January 1st, 2006

All customers, including households

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Obligatory connection to district heating in practice

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only building contractors proving that a district heating or alternative energy source is feasible and acceptable to them are obliged to use it. By operation of law, other building contractors do not have any obligations in this respect.

We recommend that building contractors assess and evaluate the feasibility of all realistic energy supply possibilities prior to the commencement of construction: it not only concerns investments and operating costs, but also the quality of services, guarantee of the duration of the quotation and specific contractual provisions an energy supplier is able to offer, the risks relating to future market and energy

price development and, last but not least, the real, not only declared, environmental impact.

Nevertheless, if a building authority or municipal authority requires from you connection to a district heating or alternative energy source against your will, our advice is to first of all get in touch with a legal department of the municipal authority or the regional authority and, possibly, a lawyer's office.

(For more information, see News at SEVEN 2003/1 and 2003/2.)

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Guaranteed energy services

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tees pertaining to the energy system should not take a back seat. If the key contractual aspects of a future long-term relation are not clearly enough defined and specified, the advantage inherent in securing of financing can become a trap in terms of the long-term obligation to repay inadequate costs or profits of ESCOs.

The term EPC has been commonly used for projects in which an ESCO provides to its customer a contractual guarantee for its future costs relating to energy consumption. A contract on provision of energy services through the EPC method must stipulate the principle that under terms clearly and specifically defined in advance, i.e. with a defined manner and scope of a customer's operation, defined climatic or other "external" conditions, or presumed prices of all cost inputs, expected inflation and the like, **an ESCO guarantees for its customer annual costs** connected with energy consumption (for example, heat, electricity etc) at a specific level (in CZK/year). Alongside this value, an EPC contract defines a binding calculation method considering every change in the project's presumed input (reference) parameters.

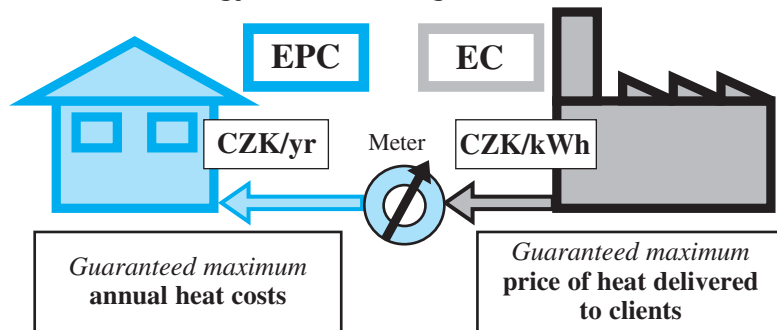
A different form of guarantee can be provided in the second basic group of projects, not dealing with and in no manner guaranteeing the energy consumption level for a customer but primarily focused on the necessities of modernisation and/or construction of a new energy source, most frequently of heat and electric power. A typical representative of this type of project is energy contracting, within which an ESCO provides a **guarantee for the price of energy supplied** to a customer. In the case of these projects, the principle of the so-called

two-component heat price is very often applied. The fixed component of the heat price includes all fixed costs connected with the construction and operation of the entire "project" (instalments on the investment, wage costs, maintenance costs, permanent fees, lease etc), while the customer pays this sum independent of the real heat consumption (an item in CZK/year). The customer is exposed to the risk that it will repay the entire investment even in the case that it is not fully used. The floating component of the heat price includes all cost inputs whose price cannot be affected by the ESCO (purchase of fuel or electric power, replenishing water, emission charges etc), while the level of these floating costs is directly dependent on the quantity of heat generated. If the principle of guaranteed heat price is to be complied with, the ESCO must set the **maximum level of the floating component of the heat price** (figure in CZK/GJ) while adhering to cost inputs defined in advance, i.e. practically a guarantee for specific costs for heat generation (figure in CZK/GJ). However, this guarantee is not provided by every project marked as energy contracting.

Both of the aforementioned basic methods of guaranteed energy services have their application. Essential and decisive for both customers' and ESCOs' satisfaction is consistent and unambiguous **definition of the guarantee** provided by the ESCO to the customer in the contract on guaranteed energy services.

The fundamental principles of the two basic models of guaranteed energy services (EPC and EC) are schematically depicted on the following picture.

Guaranteed energy services through the EPC and EC methods



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Are you interested in guarantees of the loans for energy efficiency and renewable energy sources projects?

In June issue of News at SEVEN we informed you about the preparation of a new financial mechanism for support of energy efficiency or renewable energy sources implementation projects. In the Czech Republic it is introduced by International Finance Corporation (IFC - a member of World Bank) and is called CEEF - Commercializing Energy Efficiency Finance. The first bank, which took part in this programme, is Česká Spořitelna with its own loan product FINESA - Financing Energy Saving Applications.

FINESA enables the clients to get finances for projects of the mentioned kind using IFC guarantee. "The goal of this program is to offer a simple access to financing the energy efficiency and green-house gases emissions reduction projects for those, who are interested in it. Entrepreneurs and other applicants will have higher security to provide finances when carrying out their projects," said Martin Dašek, a CEEF Programme Manager for Czech Republic, when introducing the programme.

The CEEF program takes the form of a guarantee which covers up to 50% of the FINESA loan value based on an assessment of the project's quality. The guarantee provided through the CEEF Program will put FINESA loan applicants in a better position, as they will not have to provide full security for the loan themselves. IFC also offers technical assistance through the CEEF program to help prepare eligible projects for financing and at the same time raise banks' capacity and ability to finance them.

FINESA loans, primarily focused on small and medium enterprises, range in size from CZK 2 million to around CZK 150 million. The repayment period is 5-7 years with the guarantee, although longer maturities can be agreed on an individual basis. Loans can be arranged at Česká spořitelna's Commercial Centers. ČS Leasing - a subsidiary of Česká spořitelna - is also involved in the loan guarantee program.

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Czech Solar League

On November 28, 2003, the first year of the Solar League, a solar technology equipment competition for municipalities, was ceremonially launched. The Solar League, organised by the League of Ecological Alternatives, has originated in response to the growing number of solar collectors installed. It aims to adjudge the "League Champion", i.e. the municipality with the highest proportion of solar collectors per inhabitant, in combination with the purposefulness of their use, maintenance level, promotion and the like.

In addition to a diploma, the League Champion, as well as other participants, will also attain the possibility of wider media presentation, thus gaining the opportunity for better promotion of their municipality nationwide among the Czech public.

-jk-

Contact: League of Ecological Alternatives,
www.solarniliga.cz www.lea.ecn.cz

Energy savings in the public sector

How can public administration contribute to environmental protection? By serving as an example while saving money!

How can the state and towns specifically contribute to environmental protection? Besides creating the respective laws and regulations, they can also apply energy efficiency criteria when purchasing and operating buildings and technologies.

Operation of property in public ownership, be it in the form of buildings, computer technology or electrical appliances, has significant environmental impacts. According to estimates, the public sector in European Union countries accounts for 5 – 10% of total energy consumption and its total "energy bill" is Euro 47 billion. Hence, reduction of energy consumption plays an important role here, too. On the one hand, it concerns the quantity and type of the energy purchased, on the other, the appliances consuming this energy. This has been revealed in a recently published study, "Public Procurement of Energy Saving Technologies in Europe – Harnessing the Power of the Public Purse", drawn up with support from the European Union's SAVE program.

When new appliances are purchased in the public sector, energy savings are often not taken into consideration. However, they represent a crucial tool for decreasing spiralling public sector costs and, at the same time, improving environmental protection.

The aforementioned study states that by 2020 public administration could potentially save up to 20% of its present bills for heat and electric power if appropriate attention were paid to energy efficiency when purchasing and servicing public buildings and equipment. Every European country has pledged to abate greenhouse gas emissions within the Kyoto protocol. This is among the ways of attaining the set goals.

One of the main advantages of public sector purchase of energy-efficient appliances is its significant impact on the market, in light of its position as a large customer. With purchase of energy-saving appliances and equipment in a large quantity and on a Europe-wide scale, the manufacturers of the devices in question could adapt themselves to these conditions and offer better terms to those buying in bulk. Increased sales often result in lower price, which can also be used to the benefit of the public sector and individual customers.

Personal computers can serve as an example. Use of computers and monitors account for up to 13% of the potential electric energy savings in the public sector. Approximately 600,000 computers with the value of one billion Euro are annually bought by the public sector in Europe. Greater demand for energy-efficient models would certainly be reflected in the catalogues of every manufacturer intending to meet this requirement.

How can this be brought about? A survey among public administration representatives in 18 European countries has revealed a number of reasons why this is not the case. They include lack of explicit policies and goals, ambiguous information, insufficient knowledge and motivation, antagonistic interests, inadequate financial and personnel background.

However, none of these barriers has a legis-

Reconstruction of lighting system of the nursery school in Prague-Bohnice

Since the beginning of the school year 2003/2004 children at the nursery school in Prague - Bohnice can play by light, whose low running costs and high quality is guaranteed by a reconstruction of lighting system and installation of modern and energy efficient technologies.

The nursery users at Poznaňská street have been paying approximately 85 000 CZK on electricity bill per year before the lighting reconstruction. But the incandescent light bulbs used before did not have the required light levels. The new lighting system saves approx. 5 000 CZK per year even with 5 times higher light level. The investment costs for the reconstruction will not be repaid by the energy savings, however, if the operator would have liked to reach similar light intensity with the previous lighting system, the annual costs would reach 500 000 CZK.

Hence, the latest technology comprising linear fluorescent lamps, electronic ballasts and, primarily, dimming technology was used for the relighting. The delivery of emergency lighting in case of power failure is a part of the project as well.

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From the user point of view the lighting reconstruction allowed minimum operational requirements, in particular only one switching on of the system in the morning and one switching off when leaving the place.

Particularly the electronic ballasts with linear dimming of the lights were used. Their usage allows the elimination of the emergence of the so called stroboscopic effect, which emerged when using inductors (older type of ballasts). They also do not load the grid by consumption of the idle energy and prolong the service life of the

light because there is an ideal electrodes warm-up time. In addition to that the service life of the light connected via this ballast is independent on the number of switching on. From the user point of view the lighting reconstruction allowed minimum operational requirements, in particular only one switching on of the system in the morning and one switching off when leaving the place. After that the system regulates the lighting level itself according to the daylight intensity getting in through the windows.

The advantage of the lamps used is their simple service and simple handling when changing the light sources. Owing to the materials used, the intervals between necessary cleaning of this type of luminaire have been prolonged to 36 months. The change of the lamps takes place once in 10 years. Another contribution of the project to the environmental protection is the small amount of mercury contained in fluorescent lamps.

The project was brought to life thanks to a sponsorship of Pražská energetika, a.s. SEVEN, The Energy Efficiency Center, o.p.s. helped to organize the project and provided specialized auspices for this project, as a part of the international programme ELI – Efficient Lighting Initiative. The design of project and the project itself was carried out by the company Beghelli – Elplast using the light sources of Osram brand.

Juraj Krivošik



More information:

<http://poradenstvi.pre.cz/ekologie/rekonstrukce.php>

lative nature. Moreover, public officials should not be interested in purchasing those technologies with the lowest capital costs, but those with the lowest total costs (both acquisition and operating) – in order, in the final analysis, to save taxpayers' money. Clear cost accounting and decentralised budget responsibility are helpful in this respect since they create incentives to save on total costs. Overall, the other mentioned barriers can be overcome through formulating clear policies, creating clear responsibilities and management structures, a better information level, education, a common procedure pertaining to public procurement, and use of implementation and financing instruments such as third-party financing, public internal performance contracting, and the shared savings approaches. These reward departments or communities of building users for sa-

ving energy by letting them keep part of the energy costs they saved.

All public sector institutions have the possibility to contribute to environmental protection and reduce their operating costs, from European Union institutions, through central governments to individual city and municipal councils. There are not many other areas in which it is possible for public administration bodies and institutions, including Czech ones, to explicitly serve as an example and show the right way.

-jk-

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Text of the study:

www.ecee.org/library_links/prost.lasso

NEWS FROM THE PRESS – Preparation of State Energy Policy

At the beginning of September 2003 a proposal of the State Energy Policy was developed by the Ministry of Industry and Trade (MIT) and given for public comments, as requested by the Environmental Impacts Assessments legislation. In this document, the MIT expects approximately 1,3% annual growth of electricity consumption by the year 2030. As a result of this, new coal power plants are expected to come on line within ten years and two new nuclear reactors should be finished between the years 2020 – 2030.

In its reaction, the Ministry of Environment (MoE) has prepared its own environmental impact assessment of the State Energy Policy, in which it stresses its own future goals for the Czech energy industry, such as:

- lowering per capita CO₂ emissions by the year 2020 to the current EU level (by 30%) and to continue in this trend by the year 2030,
- increase the share of renewable energy sources on primary energy usage to 6% by 2010 and to about 19% in 2030, and
- to lower the national energy intensity to 60 – 70% of the current level by the year 2030 at the latest.

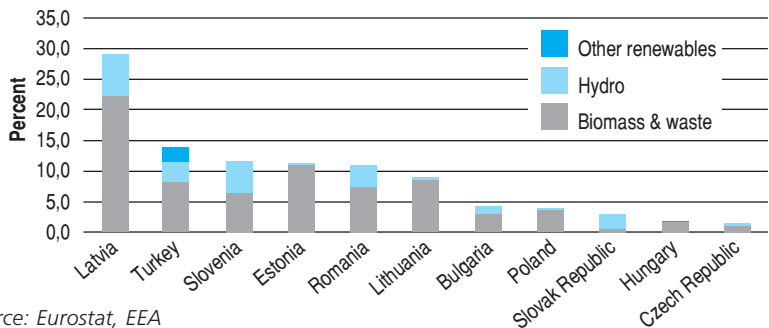
Source:

CIA News: www.cianews.cz

Ministry of Industry and Trade: www.mpo.cz

Ministry of Environment: www.env.cz

Renewable energy sources in EU candidate countries



Source: Eurostat, EEA

The diagram shows the share of energy generated from renewable sources in total final energy consumption in individual countries planning or striving for EU membership. It also displays the share of hydropower and biomass, which form the vast majority of commercially used renewable energy sources. In terms of the share of renewable sources in final energy consumption, the Czech Republic is in last place, behind Hungary and Slovakia.

Within the framework of various international commitments and domestic tasks, the mentioned countries aim to increase this share over the next few years following the example of the European Union, in most cases the target being a doubling of the current value by 2010.

In line with existing energy policy, the Czech Republic's goal is to raise this share from the 2001 level of 1.7% to 3 – 6% in 2010 and 4 – 8% by 2020. Slovakia, where in 2001 renewable sources had a 5.6% share in total ener-

gy consumption, presumes 165% growth by 2030 and a doubling or tripling of heat generation from renewable energy sources by 2010. Poland's objective is to increase this share from 4.5% in 2001 to 7.5% in 2010 and 14% in 2020, while Estonia aims at a 67% increase in their use by 2010. Hungary has pledged to generate 6% of electricity from renewable sources by 2012.

It goes without saying that further development of renewables will depend on the forms of support and the situation on energy markets. Individual countries have therefore introduced subsidies and loans, promote educational campaigns, grant tax allowances, or legislatively stipulate support for electric power from renewable sources in the form of fixed feed-in tariffs or the minimum share of purchased electricity. However, it will only be possible to assess the functionality and impacts of these measures at a future date. -jk-

Eco-efficiency analysis of domestic appliances using the example "Washing of clothes in private households"

What is the ratio between the energy consumption for manufacturing an appliance and the energy consumption needed for its operation? And does it actually pay off to buy a new, energy-efficient appliance in terms of the saved energy? Ina Rüdener, researcher from Germany's Öko-institute, explains.

"As can be seen from the graph (which shows the primary energy demand in one year), the vast majority of the energy that is needed during the lifetime of an appliance, in this case

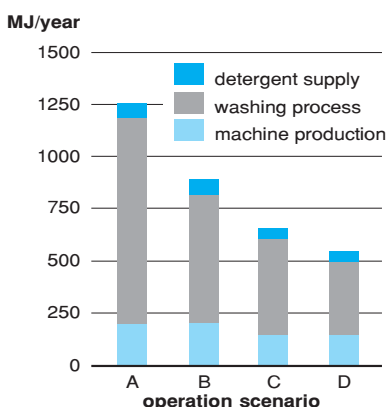
a washing machine, is used for its operation. Production of the appliance accounts for less than one-third of its total energy demand," Ina Rüdener explains.

This information is the result of a newly developed form of eco-efficiency analysis, which is a tool to compare both the ecological impact and the financial consequences of different alternatives to fulfilling consumers' needs. The eco-efficiency analysis is composed of an environmental assessment and an economic assessment that takes into account the life-cycle costs of the alternatives.

Life-cycle thinking means that all the environmental impacts that occur during the whole service life (production, use, disposal) of the washing machine are considered. The same is valid for the costs: not only the costs for buying an appliance but also those for operating it are taken into account. Here, all the environmental impacts and costs are then divided by the life span to give the annual results.

"The chart explains four scenarios of how private laundry can be done. Scenario A is an average washing machine used in an average way. Scenario B represents an energy-efficient washing machine used in an average way, while "C" means an average washing machine used in an optimised way. And, finally, Scenario D, the ideal one, means the usage of an energy-efficient washing machine in an optimised way," is how Rüdener explains her research.

Energy consumption during the appliance life-time



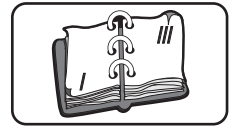
The average washing machine means a washing machine in stock at the present time in Germany with certain specific energy- and water-consumption parameters. The specific energy and water consumption of an efficient machine is lower than that of an average machine. The manner of usage determines how consumers operate the appliance. Optimised use means lower washing temperatures than on average and ideal loading.

"This study," Rüdener continues, "compares the environmental burden reduction potential of two different strategies to reduce environmental impacts in the field of private laundry and, at the same time, considers the financial consequences of these strategies for private households. One strategy follows a more technical approach, the other a behavioural one."

Both strategies lead to considerable reduction of adverse environmental impacts. Through the use of an efficient machine, 30% of energy can be saved, through optimised use patterns almost half of the energy demand (48%). A combination of optimised use of an efficient machine leads to energy consumption reductions of 56%. In conclusion, the efficient appliance saves more energy over its lifetime than is needed for its production, but it may not be profitable from the financial point of view, depending on actual circumstances. One interesting aspect is that the optimised use of a washing machine also prolongs its life span by five years, thus making it even more economical to use the washing machine in the "right" way. -jk-

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Conferences, exhibitions and presentations



January - March 2004

European Conference for Renewable Energy

January 17. – 21.

Berlin, Germany

Contact: Eufores, European Forum for Renewable Energy Sources, Renewable Energy House

eufores@eufores.org

www.eufores.org

Infotherma 2004

11th international exhibition of ecological and economical heating, energy saving and use of renewable energy sources

January 19. – 22.

Frýdlant nad Ostravicí – Sports and social complex by the Panorama Motel

Contact: Agentura Inforpres

bujakova@inforpres.cz

European Conference for Renewable Energy - 'Intelligent Policy Options'

January 19. – 21.

Berlin, Germany

Contact: EREC, European Renewable Energy Council

berlin2004@erec-renewables.org

www.erec-renewables.org/Berlin2004.htm

Aqua-therm Nitra 2004

6th international specialist heating, ventilation, air-conditioning, measurement, re-

gulation, sanitary and ecological technology trade fair

February 3. – 6.

AGROKOMPLEX Nitra, Slovakia

Contact: Progres Partners Advertising, spol. s r.o.

Info@ppa.cz

www.ppa.cz

District Heating Policy in Transition Economies

February 23. – 24.

Prague, Czech Republic

Contact: International Energy Agency, sally.wilkinson@iea.org

Energiesparmesse 2004

Energy savings trade fair, one of the largest fairs and exhibitions concerning energy efficiency and renewable energy sources worldwide

March 5. – 7. 3.

Wels, Austria

Contact: Welser Messe International GmbH office@esv.or.at

www.esv.or.at/aktuelles/WEST/index.htm

PRAGOTHERM/FRIGOTHERM 2004

31st international power engineering, heating, energy saving, sanitary technology, building equipment, insulation and ecology trade fair

March 17. – 19.

Prague, Czech Republic Holešovice Exhibition Grounds

Contact: Incheba Praha, a.s.

v.janous@incheba.cz

www.pragotherm.cz

For Habitat – Eco City 2004

11th housing, real estate, renovation and reconstruction trade fair

March 11. – 13.

Prague, Czech Republic

Letňany Exhibition Grounds

Contact: ABF, a.s.,

Forhabitat@abf.cz

www.forhabitat.cz/2004/

Intergas

13th international gas industry trade fair

March 17. – 19.

Prague, Czech Republic

Industrial Palace, Prague 7

Exhibition Grounds

Contact: Arrow Trade, Mirka Petříčková

expo@arrowtrade.cz

EEBW 2004: Energy Efficiency Business Week

9th international conference and exhibition

November 8. – 11.

Prague, Czech Republic

Prague Congress Centre

Contact: SEVEN, seven@svn.cz

Websites devoted to electrical appliances labelling:

WWW

Why buy electrical appliances in accordance with energy labels?

www.uspornespotrebice.cz

List of products sold in Europe classified in energy classes A+ and A++:

www.energy-plus.org

Energy labelling in APEC (Asia-Pacific Economic Cooperation) countries

www.apec-esis.org

European Union Energy Star programme:

energyefficiency.jrc.cec.eu.int/energystar/index.htm

European Committee of Domestic Equipment Manufacturers:

www.eced.org

Summary of international energy-labelling initiatives and programmes:

www.clasponline.org

Regulation No. 215 of the Ministry of Industry and Trade of the Czech Republic, stipulating details of energy labelling of electrical appliances and drawing up of technical documentation:

mvr.iol.cz/sbirka/2001/sb082-01.pdf

www.uspornespotrebice.cz/infodb/hl_menu.php?menu=info_1

Labelling of electric power origin according to its sources of generation:

www.electricitylabels.com/directive.html

List of International Energy Agency publications pertaining to energy labels:

www.iea.org/effi/index.htm

Labelling of electrical appliances in Central and Eastern European countries:

www.ceecap.org

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