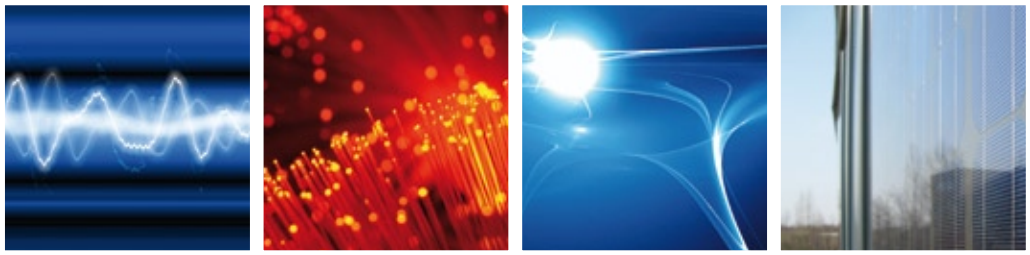
Intelligent Energy Europe



Promoting Energy Efficiency in Europe

Insights, Experiences and Lessons learnt from the National Energy Efficiency Action Plans

ENERGY EFFICIENCY WATCH

ECOFYS

Wuppertal Institute for Climate, Environment and Energy

Photo: Thomas J. Kiefer, Fotolia.de

Imprint

Brochure Presented by the Energy Efficiency Watch Project

Coordinated by EUFORES a.i.s.b.l.
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Based on the screening and in-depth analysis of
National Energy Efficiency Action Plans (NEEAPs)

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A common flag for Energy Efficiency – The Energy Efficiency Watch

"Europe is at a crucial point to define its energy future!
In today's world, Europe is facing rising oil and gas prices, threats to the security of energy supply and energy poverty as well as the already noticeable consequences of climate change.
Energy efficiency is the quickest, cheapest and most direct way to turn these challenges into real opportunities. With existing technologies, energy savings of up to 30% are already feasible. Improved application of energy efficiency could cut around 20% of greenhouse gas emissions in the EU. However, most EU Member States are still not making use of these enormous opportunities and are lacking clear implementation of energy efficiency measures on the ground. In 2006, we and other Members of the European Parliament and National Parliaments, founded the Energy Efficiency Watch Initiative to call for the promotion of energy efficiency and knowledge sharing of good policy in that field within Europe. The Energy Efficiency Watch project (EEW), coordinated by EUFORES, is the centrepiece of the initiative and we are happy to present its results.
We are convinced that the results of the EEW will contribute significantly to raising awareness of energy efficiency, enhancing a mutual learning process among EU Member States and helping Europe to reach its 2020 targets (20% Energy saved, 20% Energy from Renewable Energy, 20% Greenhouse gas reduction) which were affirmed by the European Heads of State and of Governments at the March 2007 Summit."

Mechtild Rothe, MEP, Vice-President of the European Parliament, President of EUFORES

Claude Turmes, MEP, Vice-President of EUFORES

Fiona Hall, MEP, Vice-President of EUFORES

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The Energy Efficiency Watch Project

The overall objective of the EEW Project is to promote energy efficiency across Europe by analysing Member States' national energy efficiency strategies and by highlighting good practice energy efficiency policies, instruments and activities.

The main source for this analysis were the National Energy Efficiency Action Plans (NEEAPs) pulished by EU Member States between 2007 and 2008.

According to the Directive on energy end-use efficiency and energy services (ESD, 2006/32/EC), Member States are called to set an indicative 9% reduction target in end-use energy consumption by 2016, to provide mechanisms, incentives and institutional, legal and financial frameworks to achieve this target and to create the conditions for the development and promotion of markets for energy services (Art. 1).

Within the project, all 27 NEEAPs were screened along the formal criteria of the ESD and the policy approach driven in each Member State to address energy saving potentials.

Based on the results of the screening, 12 NEEAPs were selected (Belgium, Bulgaria, Czech Republic, France, Germany, Hungary, Italy, Poland, Romania, Spain, Sweden, United Kingdom) for an in depth evaluation.

This evaluation focused on two main elements of the NEEAPs, the analysis of the relationship between energy savings potentials, the target calculated and the measures displayed to achieve the target, as well as on the level of innovativeness of measures and elements enclosed in the NEEAPs.
During the evaluation process, representatives of the energy efficiency industry and NGOs have been involved to include their specific perspectives on the NEEAPs. In that way, the evaluation process gathered both scientific analysis and stakeholder's input.

The evaluation results are presented in a condensed way in this brochure which shall provide advice and support for the redrafting of NEEAPs wherever improvement might be needed. The EEW evaluation of the NEEAPs is understood as a complementary contribution and additional dissemination channel to the evaluations done by the European Commission. The EEW is supported by Intelligent Energy Europe.

ENERGY EFFICIENCY WATCH

Photo: emmi, Fotolia.de

The role of the NEEAPs for Europe's way towards Energy Efficiency

EU Member States altogether are currently consuming 17 percent of the world's energy production. Consumption is mainly dependent on the level of industrial development and the size of the population.
The question of energy consumption is both a challenge and a chance:

- Rising energy prices, an increasing dependency on energy imports and the effects of climate change will have a negative impact, if consumption is not reduced.

- Consequent implementation of energy efficiency strategies will lead to higher international competitiveness of European industries, and new international markets will arise for advanced energy efficient technologies and energy services.

So far, in many EU Member States energy efficiency has not been on top of the political agenda, although the potentials for cost-effective savings are considerable. This picture is now changing, fostered significantly through EU legislative initiatives and political processes:
To identify potentials, all energy end use sectors must be analysed. Overall savings potentials are about half of our current consumption and, in addition, in a number of countries they are much above the average, i.e. there are low hanging fruit to be picked.
Despite the fact that the NEEAPs are very heterogeneous in structure and level of information provided, they enable international comparability and transparency of measures. Reflecting especially the specific conditions and experience for energy efficiency policies in old and new Member States, innovative approaches and good practice to address energy saving potentials are emphasised in the following ways:

1) Because they are comprehensive or combine several types of measures in sectors (information combined with funding)
2) Because they represent a "new" or consequent approach to address energy savings in one sector (e.g. dynamisation of standards, market-based approaches, procurement)
3) Because they specifically involve stakeholders in national policies (e.g. voluntary agreements with industry)

As plans, however, the NEEAPs enclose both measures being already implemented and measures to be implemented only in the future. Critical discussion in, and continuous efforts of, Member States are required to assure the implementation of policies as announced in the plans.

EU 27 technical energy savings potentials per sector in million toe

Source: ESD Potential Study

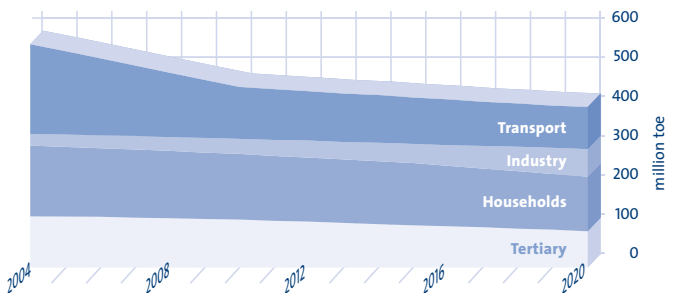

Photo: Lidy Poot, Fotolia.de

Good Practice examples from the NEEAPs

Provision of basic information

A major obstacle to energy efficiency is the lack of knowledge (on both energy efficient equipment & behaviour) among private households, companies or public authorities. Thus, a core strategy is to effectively provide each target group with specified information. According to ESD, Member States play an important role to assure the provision of information.

Consequently, many Member States such as Austria, Bulgaria, Cyprus, Germany, Romania, the UK, have announced or have already started cross-sectoral information and networking campaigns.

Good Practice:

The Austrian **klima:aktiv** campaign, as part of the national climate strategy, aims at supporting existing policy packages and sectoral measures through information, communication, networking and advice.
Klima:aktiv comprises 21 programmes on energy efficiency of buildings and appliances, renewable energy use and mobility management. Its broad scope is structured along two general lines:

- Traditional approach: basic information and initial advice for private households, public authorities and companies
- Innovative communicative approach: involvement of decision makers, producers and companies with relevant influence on investment decisions, e.g. master builders, plumbers, property developers and managers, manufacturers of (prefabricated) houses, and procurement operators.

The promotion of energy efficient technologies and lifestyles as well as the emphasis on quality assurance and network-based standard setting make klima:aktiv an outstanding information campaign in Europe. (http://www.klimaaktiv.at)

Good Practice:

The Irish **Power of One** campaign builds mainly on Education and Communication. The campaign focuses on

- Awareness on types and sources of energy, costs and environmental impacts
- Consumer information about the impact that inefficient energy use has on costs and the environment
- Individual responsibility and small changes in daily behaviour

An innovative approach is the presentation of examples: In the "Power of One Street" project, the energy efficiency of eight families from different geographical and social backgrounds is tracked. Every month, the participants were set a challenge to improve their energy efficiency. The savings measured were announced to the media.
Another sub-programme is the "Power of One at Work" initiative, encouraging employers and employees to be more energy efficient in the workplace. The initiative provides basic guidance on energy efficiency for employees, business owners and managers through an advertising campaign, a website and a toolkit for implementing a workplace energy awareness campaign at the local level. (http://www.powerofone.ie)

Photo: Tortenboxer, Fotolia.de

Energy Audits: Generating robust data for energy efficiency actions

Photo: waltart, Fotolia.de

Energy audits, especially when being combined with complementary advisory services, play an extraordinary role in supporting investment decisions. In the building sector for example, which is the most important sector in this context, audits provide the necessary energy information and data basis for efficiency-related investments.

Investors in different sectors with a clear need for independent data and information are through these audits brought together with certified consultants who provide a comprehensive analysis of the object to be modernised.

Additionally, audits are an important access to investors who might then consider additional activities and energy-saving investments beyond the standard.

Energy Performance certificates for all buildings (when constructed, sold or rented out) have become mandatory via the European Energy Performance of Buildings Directive (EPBD). In addition, most Member States reflect the need for a robust data base in their NEEAPs by subsidising voluntary energy audits especially in the building sector, e.g. Austria, Belgium, the Czech Republic, Denmark, Finland, Germany, Ireland, the Netherlands and the United Kingdom.

In some cases, energy audits even are (or will be in the future) mandatory for large energy consumers (Bulgaria) or for companies and private investors applying for subsidies or low interest loans (Austria, Germany). In Finland, subsidised energy audits for private service buildings were made a mandatory element in the energy conservation agreements of 1999.

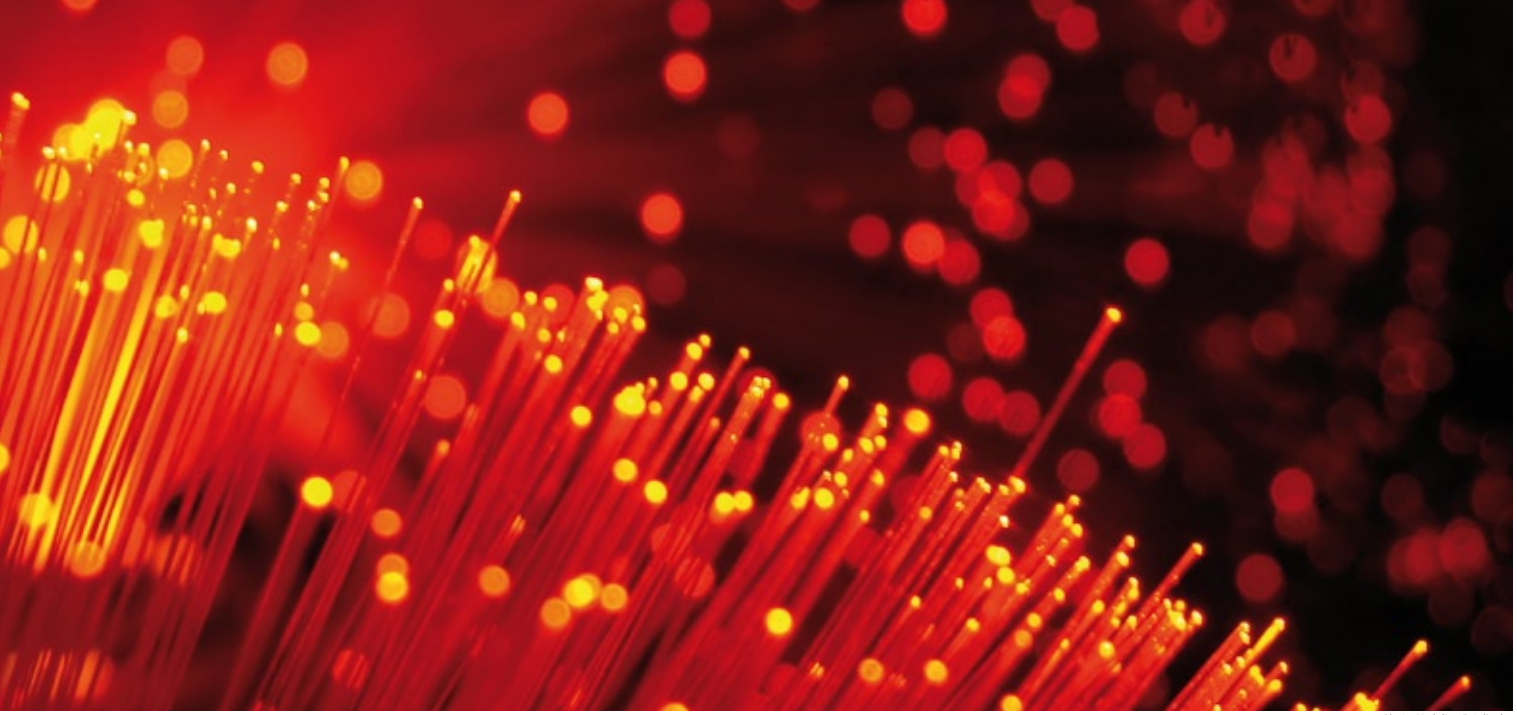

Photo: Nadolica, Fotolia.de

Energy efficient investments through financial incentives

Information and advice play an important role in making investors more sensible regarding energy efficient investment decisions. The impact of such "soft" measures is strengthened when combined with complementary financial incentives.

The spectrum of financial incentives for the industry and tertiary sector is quite broad throughout the EU Member States. They are offered as
- soft loans
- grants
- direct subsidy schemes
- tax reductions.

All these incentives aim at reducing (and sometimes compensating) the additional costs for energy efficient technologies or components compared to standard investments.

Prominent examples:

- Rebate in taxation for investments in energy efficiency (Belgium, France)
- The energy investment deduction (EID) provides a tax rule allowing additional deductions on taxable profits after investments in energy efficiency (Netherlands)
- The enhanced capital allowances (ECA) provide businesses in the tertiary sector with a first year 100% tax allowance on investments in designated energy efficient equipment (UK)

In many Member States, loan schemes, grants or direct subsidies are also offered to improve the energy performance of existing residential buildings and the electricity use in the private household sector.

Mostly, the focus lies on both the improvement of the building envelope and installations, or the use of renewable energies (mainly solar and biomass systems) and CHP (combined heat & power) systems.

Prominent examples:

- Implementing a scheme of direct subsidies for apartment buildings and (semi) detached houses (Finland)
- Issuance of extensive loan and credit based programmes (Austria, Germany), e.g. the expanded CO_2 Building Retrofit Programme of the KfW Bank (Germany)
- Establishment of Energy Savings Trusts in Denmark (http://www.elsparefonden.dk) and the (UK http://www.energysavingtrust.org.uk)
- In order to reduce electricity use in the residential sector, the non-residential sector and the tertiary sector, Italy plans the replacement of incandescent lamps by compact fluorescent lamps (CFL) through, inter alia, white certificate schemes, information programmes, and monetary incentives, resulting in savings of 4,800 GWh/year until 2016.

Photo: Holger Buse, Fotolia.de

Dynamisation of standards

Mandatory standards address new or existing buildings and electrical appliances. While the Energy Performance of Buildings Directive (EPBD) aims to promote improvements in the building sector, the Eco-design of Energy-using Products (EuP) Directive harmonises requirements concerning design and development of energy-using products.
Member States have developed a range of different approaches:

New buildings

- Tightening the energy requirements in the building regulation by 25-30% compared to 2006, i.e. approximately 25% to be reached until 2010 (Denmark)
- Ensuring an improvement in energy performance of homes and a revision of regulations leading to energy use reductions of 40% relative to current standards (Ireland)
- Improving energy efficiency standards: Since 2007 buildings are required to be 40% more efficient than the average level of 2002 (UK)
- Envisaging carbon neutral new homes by 2016 (UK)

Existing buildings

- Revision of national building regulation in 2010 with the aim of improving energy performance by 60% compared to current standards (Ireland)
- Introduction of a code for sustainable homes, ensuring that all homes funded by the government comply with a high energy standard level ("3 star level") (UK)

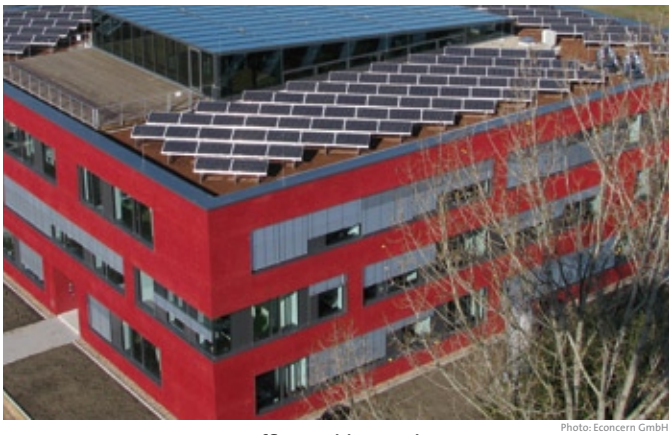

Photo: Econcern GmbH

Etrium – Econcern Passive Office Building, Cologne

Link of information and legal regulations for existing buildings (Denmark)

- Introduction of requirements pointing out that when major renovations take place, energy improvements specified in the energy label must be implemented
- Introduction of specific requirements in the building regulations regarding the replacement of roofs, windows, and oil and gas boilers as well as the change of heat supply
- Mandatory inspection scheme to target the quality assurance of heating systems

Photo: Van Holsteijn en Kemna, www.vhk.nl

Getting industry and service sectors involved

In order to promote energy efficiency in the industry and service sector, the most common approaches in NEEAPs are the provision of financial inventives and the establishment of voluntary agreements with market stakeholders.
Besides direct financing measures, some Member States allow rebates in taxation for investments in energy efficiency, as mentioned e.g. in the Belgian and French NEEAP. The energy tax in the Netherlands is a levy on energy consumption and covers all sectors. In the UK, the Enhanced Capital Allowances (ECA) scheme provides businesses in the tertiary sector a first year 100% tax allowance on designated energy efficient equipment investments. Relating to the latter, voluntary networking between governmental authorities and business representatives and the establishment of voluntary agreements are a common approach to get stakeholders involved in energy efficiency policies.

Financial incentives

- Companies which have signed the "energy conservation agreement" can get higher rates of subsidies for energy audits (Finland)
- An Energy Agreement Programme promotes energy management schemes in companies (Ireland)
- Combined strategies: establishing a climate change levy to reduce energy use in the industry and public sector – for those who commit to emission reductions or improved energy efficiency targets, this levy is reduced (UK, DK, SE)

Voluntary networking approaches

Example Ireland: The Irish Large Industry Energy Network (LIEN) is a well established networking and information programme for large industrial energy users. Having already been in operation for more than 10 years, it has engaged almost 100 of the largest energy users in ongoing relationships including site visits, workshops and annual performance reporting. LIEN members share information on energy saving technologies and techniques to maximise savings and maintain competitiveness.

Voluntary agreements

Several Member States, such as the Netherlands and Finland, have a long and successful tradition in concluding binding agreements. In the Dutch system of Long Term Agreements (LTA), the government committed a large number of sectors of the national industry to improving energy efficiency.
At present, there are several types of LTAs established with companies and organisations in the tertiary, transport and agricultural sectors.
The "second generation" LTA 2 requires the participating companies to draft an Energy Conservation Plan (ECP) in consultation with the relevant public institution. This ECP sets the energy efficiency goals of each company, linked to concrete measures planned and an implementation strategy.
Based on all ECPs in the sector, a sector objective is determined being set in a sectoral long-term plan (LTP).

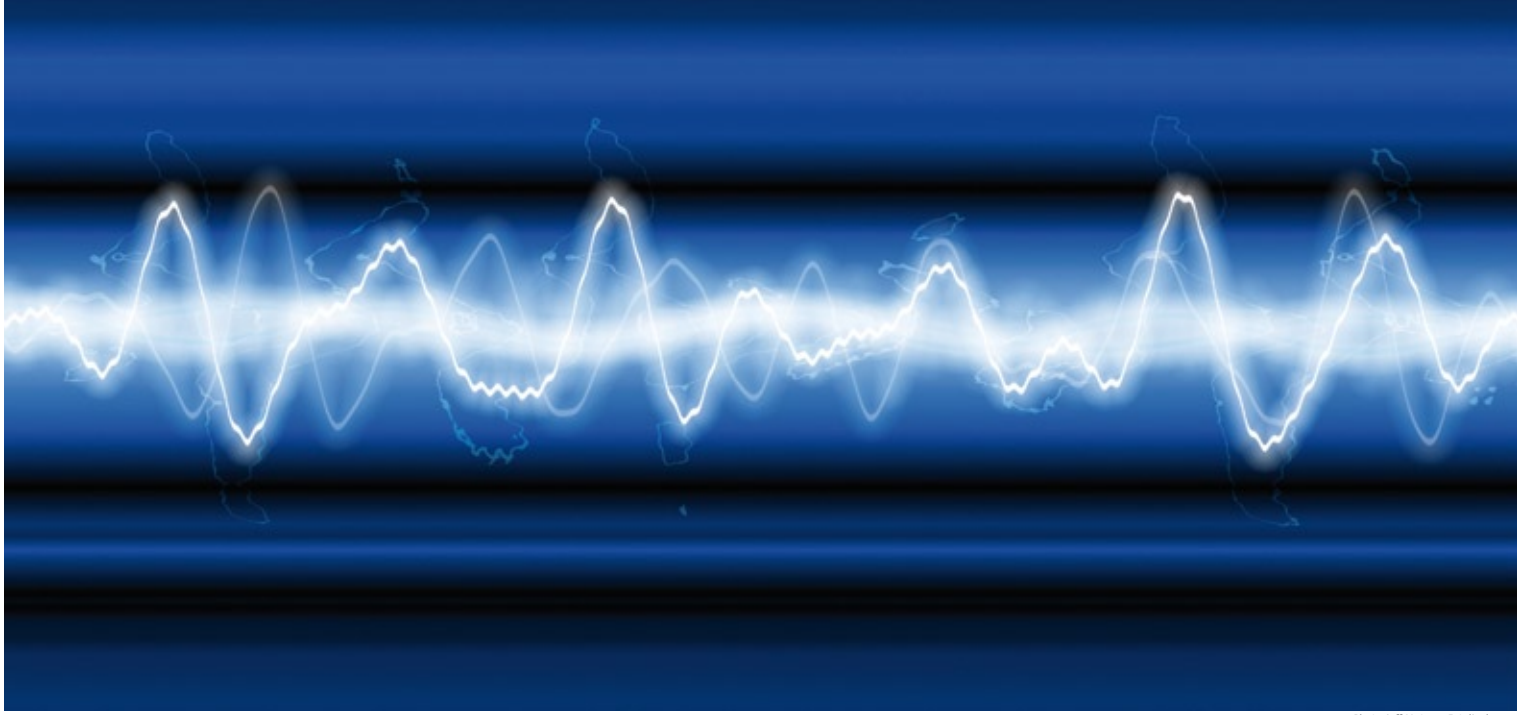

Photo: jeff Metzger, Fotolia.de

Market-based approaches

The Energy Services Directive calls for an important role of energy service companies (ESCOs) in achieving energy savings.
In the course of European integration, Member States had to liberalise their energy markets. Energy utilities could no longer retain customers by supplying electricity or gas only, so they offered new services such as advice, energy audits, maintenance and operation, property management, and equipment supply. Independent ESCOs offer such services, too, establishing contracts with their customers. They work project wise, i.e. they identify savings potentials, install the necessary equipment, operate the system, purchase fuel and electricity, and provide financing of the project. The payment is structured as a success fee, i.e. linked directly to achieving the energy savings. In Europe, ESCOs have been active mainly in the public sector, i.e. in public buildings, hospitals, and lighting projects. In such public lighting projects, for example, municipalities offered the lighting operation, including the supply of electricity up for tender.

Photo: Econcern GmbH

In most of the current Energy Efficiency Action Plans, activities of ESCOs play only a subordinate role. Suggested measures to foster the development of the ESCOs range from the creation and stimulation of framework conditions for energy services via the provision of energy services up to mandatory commitments imposed upon energy companies.

Some Member States, such as Italy and France, have developed White Certificate Schemes in which energy savings beyond a business as usual case receive certificates. Within these schemes, energy companies themselves are obliged to stronger commitments in energy efficient activities. Large electricity and gas distribution network companies (Italy) or energy supply companies (France) are legally obliged to prove a certain amount of energy savings either through own activities or the purchase of White Certificates from ESCOs.

An outstandingly innovative instrument is proposed in the NEEAP of the UK: in this plan, a carbon reduction commitment (CRC) is envisaged, which targets the introduction of a cap-and trade scheme for large public and commercial sector organisations.

Photo: Yali Shi, Fotolia.de

Transport Sector

Compared to other sectors, transport plays a subordinate role in the NEEAPs, although emissions are continuously rising in this sector. Several Member States (Denmark, Estonia, Germany) are already addressing the issue by separate transport development plans, indirectly linked to the ESD-process. These plans focus on:

1. Optimisation of energy use in vehicles
2. Optimisation of mobility management
3. Change of modal split

1. Examples for optimisation of energy use in vehicles

- Promotion of energy efficient vehicles through grants and subsidy schemes
- Introducing a labelling scheme for new cars (France, UK, Finland)
- Emission limits from 2009 on: 140 g CO_2/km for the average of new cars sold (Italy)
- Environmental taxation, either taxation of fuel oils (Bulgaria, Germany) or emission related road tax (Ireland, Germany, Italy, Netherlands, UK)

2. Examples for optimisation of mobility management

- Mandatory speed restrictions (Austria, Bulgaria, Finland, Italy, Netherlands)
- Promoting information technology in transport through the use of telematics in order to increase capacity utilisation and reduce traffic (Austria, Finland)
- Promotion of car sharing and car-pooling (Austria, Italy)
- Promoting mobility managements in public and private institutions (Austria, Spain, Poland) or travel centres (Finland)
- Improving goods and rail transport (Austria)

3. Examples for change of modal split

- Information campaigns (Germany, Ireland)
- Expansion of public transport (Austria, Cyprus, Finland)
- Improving transportation infrastructure by investing in rail infrastructure (Czech Republic, Finland, Romania)
- Strengthening the public transport system through the purchase of new, more energy efficient buses, the establishment of a school bus system and the introduction of bus lanes from 2007-2020 (Cyprus)
- Support of cycle transport and pedestrians (Austria, Finland, Germany)
- Promotion of teleworking (Malta)
- Changes of spatial and regional planning and residential housing development in order to avoid traffic or shift towards less emission intensive modes (Austria, Finland)
- Targeting the insurance industry: promoting the inclusion of a yearly public transport network card in the provision of car insurance packages (Austria)

Photo: Ayvengo, Fotolia.de

The public sector as a Role Model

Article 5 of the Energy Services Directive obligates Member States to outline the exemplary role of the public sector in their NEEAPs. Accordingly, most Member States have adopted public procurement programmes; furthermore there are some activities in the field of information and advice. On the latter, Malta designed a special form: so-called 'Green Leaders' will be assigned in each ministry. Coordinated by the 'Government Environmental Corporate Responsibility Office', their major activity is to commission an energy audit of at least one building belonging to each ministry. In most NEEAPs the requested improvement of the energy performance of public buildings is addressed by regulatory measures.

Photo: Econcern GmbH

Public procurement programmes

The design of public procurement programmes ranges from mandatory green public procurement programmes in Austria to less binding regulations like in Poland, where energy efficiency criteria have to be taken into consideration in public investments. In Cyprus, an action plan for green public procurement was set up including energy efficiency criteria for equipment, buildings and vehicles.

Binding targets

The UK has defined quantified requirements for 'Sustainable Operations on the Government Estate' with the aim to reduce its emissions by 30% by 2020.
Front runner the Netherlands: by 2010, 100% of national public procurement will include sustainable procurement criteria. For regional governments, a 50% target was set.

Regulatory measures

- The United Kingdom and the Netherlands aim at reaching carbon neutral or climate neutral central government buildings by 2012.
- Voluntary agreements and mandatory information measures for municipal buildings are currently in place in Finland; according to its NEEAP, Finland plans to include public sector buildings as well.
- Ireland underlines the exemplary role of the public sector with a large package of measures including green public procurement, a high-level working group to achieve a 33% energy saving target for the public sector, the requirement to produce annual reports on energy efficiency actions, and the documentation of the progress regarding this target.

Photo: Van Holsteijn en Kemna, www.vhk.nl

Conclusions

The National Energy Efficiency Action Plans (NEEAP) submitted by EU Member States in 2007 / 2008 display a synoptic overview of policy packages and measures for each sector. This first set of NEEAPs, although developed without any stringent framing or methodological specification, has already produced a number of remarkable results:

1. A mutual learning process on energy efficiency policy has been initiated, based on a compilation of possible approaches for energy efficiency measures. This information can serve as a source of inspiration for future sets of NEEAPs.

2. Aggregation of measures from single and isolated measures towards coherent policy packages is gaining momentum. Different types of measures (information, advice, financial incentives, networking and voluntary agreements, market-based instruments) are complementarily clustered. The "bundling" of different measures addressing the same target groups and end uses is a key condition for the implementation of successful energy efficiency policies.

3. The process of the NEEAPs was designed in a way that not only the demand, but also the supply side (regarding both energy efficient products and services) is targeted. Voluntary agreements and stakeholder networks provide a necessary basis for capacity building and standard setting in the respective sectors.

4. Structured gathering of practical experience regarding design and implementation of energy efficiency policies is spurred. Member States focus more on impact evaluation and quality assurance, making sure that measures comply with the expected results and information from independent sources is available.

Regarding the ambitious energy efficiency targets of the European Union, the ESD has to be seen as only one element of the European policy. When the scope of energy efficiency policy is opened from the relatively narrow focus of the ESD to the European Energy Action Plan and the International Climate Regime, the Member States have to make additional efforts in order to reach their commitments.

For this reason, the implementation of all measures announced in the National Energy Efficiency Action Plans is the key for the success of national policies. Furthermore, an enduring process of updating and strengthening the measures is needed in order to stimulate permanent innovation in a more energy efficient society.

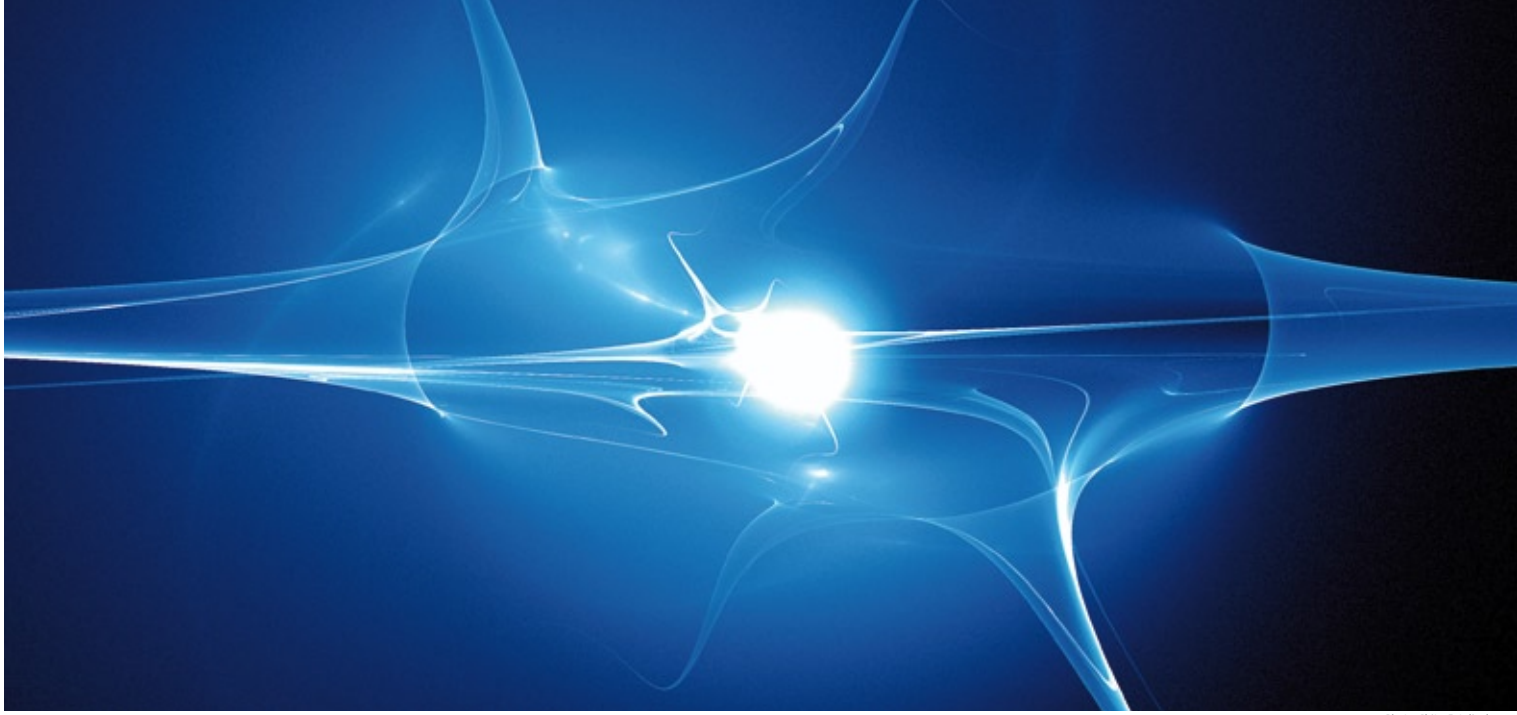

Photo: Chita, Fotolia.de

Energy savings targets of EU-Member States until 2016

Member State	Target for 2016
Austria	22,333 GWh
Belgium	30,366 GWh
Bulgaria	7,291 GWh
Cyprus	2,152 GWh
Czech Republic	19,842 GWh
Denmark	2,083 GWh
Estonia	2,125 GWh
Finland	17,800 GWh
France	139,560 GWh
Germany	231,389 GWh
Greece	16,410 GWh
Hungary	11,611 GWh
Ireland	13,117 GWh
Italy	126,327 GWh
Latvia	3,483 GWh
Lithuania	4,652 GWh
Luxemburg	1,582 GWh
Malta	378 GWh
Netherlands	51,190 GWh
Poland	53,333 GWh
Portugal	20,840 GWh
Romania	32,564 GWh
Slovakia	10,338 GWh
Slovenia	4,261 GWh
Spain	196,349 GWh
Sweden	41,100 GWh
UK	136,500 GWh
Total	**1,555,758 GWh**

Information:

Please find the NEEAPs and more information on Energy Efficiency at the European Commission, DG Transport and Energy website: http://ec.europa.eu/energy/efficiency/end-use_en.htm

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