

## **Energy efficiency as the focal point of national and international energy policy**

Nowadays, the question of how to permanently increase energy efficiency occupies national and international discussion like almost no other energy policy topic. In recent times, many States have set themselves very ambitious energy savings targets. Between 2005 and 2010, China is intending to improve energy efficiency by 20%. Numerous US States are discussing energy savings targets or have already introduced them. At its spring summit, the European Council decided to exploit the Community's energy saving potential, which is estimated at 20%, by means of suitable measures in the period up to 2020.

Germany, too, has set itself an exceedingly ambitious efficiency target. Energy productivity is to double by 2020 compared with the 1990 figure. Since more than half of this period has already elapsed, in plain English, this means that over the next 14 years, energy consumption per unit of gross domestic product (GDP) has to fall by 3.1% year on year.

Within the European Union, France and Italy, among others, have, in addition to Germany, laid down challenging savings targets. For these countries, as is also the case with Germany, the obligation set out in the EU Directive on energy end-use efficiency and energy services applies, whereby 9% of final energy must be saved by means of targeted measures over a nine-year period compared with a reference period.

Even if the goals of the Directive clearly fall short of the national targets mentioned, Germany and the other EU States are entering new territory at various points with the transposition of the Directive, and are confronted with considerable additional challenges, especially with regard to statistical and methodical considerations.

The National Energy Efficiency Action Plan summarises the results of the energy summit talks and various research studies which the Federal Ministry of Economic Affairs and Technology had

commissioned on energy savings which had already been achieved and on current economic potential savings.

Against this backdrop, the plan announced after Brussels takes into account the demand made by the Federal Ministry of Economic Affairs and Technology that all new energy saving measures must be subjected to a careful cost-benefit analysis in order to minimise the burden on citizens and the economy.

### **Targets under the Directive**

In accordance with the requirements of the EU Directive on energy end-use efficiency and energy services, Member States are to reduce energy consumption by a total of 9% in comparison with a reference period [in Germany: the average over the years 2001-2005] over a nine-year period. In the calculation, Member States are at liberty to give greater weight to savings in the electricity sector. For Germany, this means a target value of 833 Petajoules [PJ] or 1080 PJ if a greater, i.e. primary energy-related, saving is assumed in the electricity sector.

To be able to assess the strategy and specific efforts of the individual Member States in relation to energy savings at the earliest possible juncture, the Directive stipulates that three national action plans [2007, 2011 and 2014] be drawn up which are increasingly specific in terms of statistics, and that an intermediate target be laid down for the year 2010. As regards the Federal Republic of Germany, this target value is 135 PJ, or 173 PJ, where greater weighting is given to saving electricity, i.e. approximately 61% of the target value for 2016.

These targets shall primarily be achieved through the provision of energy services and energy efficiency measures by private industry, but also through measures initiated by the State. In this regard, consideration is also given to measures taken since 1991-1995 and which will continue to assist in saving energy in years to come. This applies, for instance, to buildings which have since been built in accordance with the more

stringent provisions of the Heat Insulation Order in force at the time or the current Energy Saving Order and which will therefore also have a lower energy requirement in future.

This action plan lists those measures which are already in place. This list provides evidence of the fact that the previous energy savings policy has already been very successful. According to estimates, savings measures of this nature contribute approximately 45% of the savings target, i.e. with a power coefficient of 1, in the region of 375 PJ, and with a power coefficient of 2.5, in the region of 486 PJ.

### **Measures for achieving these targets**

In addition to measures undertaken by the State, the Directive includes the contribution to savings made by providers of energy efficiency measures, energy distributors, distribution system operators and energy retailers, but also final customers/plants which have not hitherto been affected by the emissions trading system.

The aim of all the measures associated with the Directive is to improve energy end-use efficiency as well as develop and promote energy service markets. The following basic principles can be deduced from these measures as regards the structure and content of the action plan:

- Measures must be focused on (part) sectors and energy end uses with a high, absolute, final energy savings potential which can be realised economically
- The structure and expansion of the range of services concerned with the efficient use of heat, energy and lighting for final customers
- The expansion and creation of markets and increasing the sale of energy-efficient products, techniques and processes
- Strengthening the marketing proposal, including financing of energy-efficient products, techniques and processes

- The provision of qualified information, target group-oriented consultation and audits, as well as the development and stipulation of standards and norms which support the abovementioned activities, simplify their broad application and motivate the actors
- The utilisation of synergy effects by networking the market actors with regard to the drawing up and implementation of measures

The Federal German Government will transpose the Directive on energy end-use efficiency and energy services in cooperation with the market actors. Voluntary commitments on the part of the energy industry are preferred to regulatory law measures if they have an adequate degree of liability within the meaning of the Directive and their observance is supervised and managed by means of monitoring. The activities undertaken by trade and industry in achieving verifiable energy savings are collated and assessed by the responsible agency (agencies) still to be appointed as per Article 4(1)(4). In the course of the first three-year period, the Federal German Government will evaluate the voluntary activities announced.

In this action plan, the Federal German Government is presenting an initial assessment of the contribution made by State measures in achieving targets. The detailed appraisal of the specific contributions made by individual measures in achieving targets takes into account the extensive provisions of the Directive in terms of furnishing statistical proof of energy savings.

The following measures in particular are emphasised:

- A distinct tightening up of the energy requirements of buildings
- The consolidation and launch of different funding programmes in order to mobilise cost-effective potential efficiencies in the industrial, household, agriculture and forestry, trade, service and transport sectors
- Continuation of the CO<sub>2</sub> Building Redevelopment Programme and

extension of the circumstances in which funding is provided

- Increased investment in the energy efficiency of public buildings
- The procurement of energy-efficient products and services which form the basis of the Federal Government's procurement decisions
- The liberalisation of electricity metering is to be the precondition for the rapid circulation of smart metering
- Incentives to replace night-time electric storage heaters
- Energy saving contracting in the residential building sector
- Improving the energy consumption labelling of private cars
- Calling for the immediate stipulation of standards relating to equipment and products in the context of the transposition of the Eco-design Directive and the improvement in energy consumption labelling
- Embarking on a technology programme entitled "Climate protection and energy efficiency"
- Extending energy research in the sphere of improving energy efficiency in the building sector, in industry and in the trade, industrial and service sectors, among others

### **Special provisions of the Directive**

In addition to the establishment, assessment and description of the future options available to the State as regards energy saving measures, the Directive places numerous additional requirements on Member States. The Federal German Government also gives its view on this in this action plan.

First of all, the Directive is calling for the concrete implementation of the statistical evaluation of the energy savings achieved in relation to the next two action plans. The Commission will appoint a committee with the aim of determining a calculation model for the savings actually achieved. In this regard, two different

methods of calculation are combined, namely the Bottom-up method and the Top-down method. Bottom-up describes a method where the success of individual energy efficiency measures is calculated and assessed retrospectively.

In this case, it will depend on developing and applying statistical processes which satisfy the aim of the Directive in the least bureaucratic manner possible.

In addition, the EU Directive on energy end-use efficiency and energy services emphasises the exemplary role of the State as regards energy savings. All Member States must furnish proof of this exemplary function by naming specific measures. Within the framework of this action plan, the Federal German Government is currently pointing predominantly to measures at a Federal level, but wishes to supplement this further with the numerous measures available in the *Länder* and local authority districts following consultation with the latter.

Finally, the Directive calls on Member States to ensure that "final customers for electricity, natural gas, district heating and/or cooling and domestic hot water are provided with competitively-priced individual meters which accurately reflect the final customer's actual energy consumption and provide information on actual time of use." Even if these individual meters are available in Germany, taking into account technical opportunities currently available and the liberalisation of metering, the question nevertheless arises as to whether additional energy savings are possible through the targeted use of information and communication technologies in metering. The Federal Ministry of Economic Affairs and Technology, which is in overall charge in this respect, has started numerous initiatives in this regard.

### **Conclusion**

In the first instance, this Energy Efficiency Action Plan is based on the 9% savings target laid down in the EU Directive on energy end-use efficiency and energy services. In addition, it represents an important building block in the development of clearly greater, economical energy savings potential.

Through the scientific foundation, the demonstration of basic principles and the strict alignment with the principle of economic efficiency in assessing existing energy savings potential, the plan reflects the philosophy of German energy efficiency and the country's energy savings policy. In this way, it represents an important building block and a marker for policy initiatives in this field in the years ahead.