



energy efficiency policy of Germany

Lena Tholen

The German "Energiewende" decision has had worldwide impact on discussions on energy efficiency. Implemented in 2011, it includes a package of different policies to transform the energy system and to further the support for energy efficiency measures and use of renewable energy sources in a large scale. German energy policy and its national strategies are embedded in the energy policy guidelines of the European Union. The federal government stands for further development of the EU's top runner approach. The goals are ambitious, and sector-specific policies and measures show the way towards a transformation of the energy system. Nevertheless, measures are partly not ambitious enough and there are policy gaps in some sectors.

The Federal Republic of Germany has already made substantial progress in implementing energy efficiency. Germany has been making huge contributions towards saving energy and reducing greenhouse gas emissions for many years. The German "Energiewende" decision has had worldwide impact on discussions on energy efficiency. It was implemented in 2011 and includes a package of different policies to transform the energy system and to further the support of energy efficiency measures and use of renewable energy sources in a large scale. The related policies and measures will be described briefly in this article. Furthermore, climate goals, action plans and concrete measures have also been formulated on European level. Some substantial measures of the EU will also be discussed in this article.

A strategic framework up to the year 2050 was proclaimed, in which primary energy consumption shall be reduced by 20% in 2020 and by 50% in 2050, based on 2008 figures. At the same time the electricity consumption shall be reduced by 10% in 2020 and by 25% in 2050. The rate of building refurbishment shall be doubled from 1% to 2%. In addition, a reduction of the energy demands for heating requirements by 20% until 2020 and by 80% in 2050 is planned. In the transport sector 10% of primary energy by 2020 and 40% by 2050 shall be reduced.

The Policy Framework

Energy consumption details of Germany for the past two decades are presented in Figure 1. In Germany the energy efficiency targets are widely accepted.

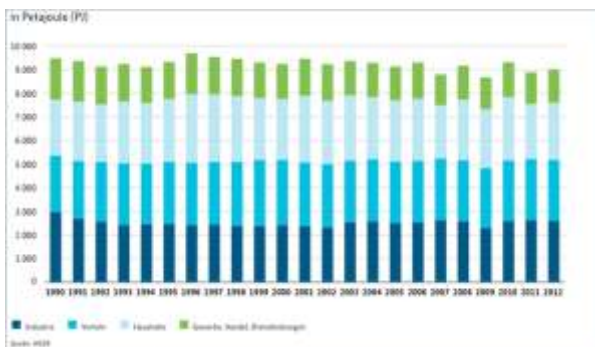


Figure 1: Energy Consumption in Germany
Source: AGEB

The country aims to promote energy efficiency and to move towards a sustainable energy supply. In 2007 the "integrated energy and climate policy package" was implemented to move the market towards energy efficiency and to support renewable energy sources. This package was developed further to an "energy concept for an environmentally sound, reliable and affordable power supply" in 2010. A strategic framework up to the year 2050 was proclaimed, in which primary energy consumption shall be reduced by 20% in 2020 and by 50% in 2050 (based on 2008). At the same time the electricity consumption shall be reduced by 10% in 2020 and by 25% in 2050. The rate of building refurbishment shall be doubled from 1% to 2%. In addition, a reduction of the energy demands for heating requirements by 20% until 2020 and by 80% in 2050 is planned. In the transport sector 10% of primary energy by 2020 and 40% by 2050 shall be reduced.

In 2011 the strategy was confirmed and extended by the above-mentioned "Energiewende". Additional measures were adopted to accelerate the transformation of the energy sector. On top of the nuclear power phase-out, the German government decided to strengthen green procurement, introduce tax incentives for energy efficient refurbishment and establish a climate and efficiency fund [1].

German energy policy and its national strategies are embedded in the energy policy guidelines of the European Union. With the energy concept, the energy efficiency plan and especially the Energy Efficiency Directive (EED), ambitious goals have been formulated, which have to be reached by all member states. The "20-20-20 targets" stipulate reduction of greenhouse gas emissions by 20% (based on 1990), increase of energy efficiency by 20% and a 20% renewable energy share. Furthermore, the Energy Efficiency Directive (2012/27/EU) regulates overall measures to increase energy efficiency and requires all member states to save at least 1.5% of energy per annum.

Product-specific regulations are already in place for more than 25 product groups. In parallel, energy labels are introduced for several product groups, from appliances to cars and even tyres. The mandatory labelling aims to inform consumers about energy efficiency and other



characteristics. The label with a scale from A+++ to G or green to red has been very successful. Whenever a product is labelled, the inefficient models seem to disappear from market rather quickly.

The European Level Policy

In Europe ambitious energy efficiency targets have already been set, which must be achieved by each member state. Key policy instruments are the Energy Performance of Buildings Directive (2010/31/EU), the Ecodesign Directive (2009/125/EC) and the Energy Labelling Directive (2010/30/EC). In view of the high potential in the building sector the Buildings Directive (EPBD) was implemented to increase the overall efficiency of buildings. The EPBD requires that all new buildings be built energy efficient. From 2021 almost all buildings have to be built on a zero-energy building level. Requirements were also set for existing buildings. Furthermore, energy performance certificates have been introduced to indicate the energy consumption of every single building.

The Ecodesign Directive sets standards for energy-related products. Minimum energy performance requirements remove inefficient models from the market. The standards are made more stringent on a regular basis. Product-specific regulations are already in place for more than 25 product groups. In parallel, energy labels are introduced for several product groups (from appliances to cars and even tyres). The mandatory labelling aims to inform consumers about energy efficiency and other characteristics. The label with a scale from A+++ to G or green to red has been very successful. Whenever a product is labelled, the inefficient models seem to disappear from market rather quickly.

The National Level Policy

To increase energy efficiency a mix of different measures has been implemented in Germany. In order to promote energy efficiency all political levels and economic sectors were addressed. The policies and measures include regulatory frameworks, financial incentives and information and advice programmes.

The federal government stands for further development of the EU's top runner approach. It aims

to increase the market penetration of resource- and energy-efficient technologies within a particular product group by combining minimum standards, energy efficiency labelling, eco-labels for the best available technologies and green procurement. Standards are covered by the Buildings Directive and the Ecodesign Directive. The Buildings Directive stipulates minimum standards for construction and refurbishment of buildings; the Ecodesign Directive establishes minimum requirements for energy-related products. In addition, the "EU Directive on the indication by labelling and standard product information of the consumption of energy and other resources by energy related products" has been implemented.

The national environmental label "Blue Angel", which was already introduced in 1978 and shows the country's long-term commitment towards environmental protection, is a successful example of effective labelling in Germany. The label is awarded to environmentally friendly products and services and has serious impact on consumer decisions.

Through the promotion programmes of the state-owned KfW bank, economic incentives in the form of either direct grants or low-interest loans for energy efficiency in buildings are available for single measures and comprehensive retrofits as well as for new construction. Incentives are granted only if minimum standards are exceeded. The level of incentives increases with the energy performance level achieved. The programme also promotes highly efficient cross-cutting technologies such as the replacement of inefficient and old equipment. Furthermore, there are several activities that aim at educating and motivating end-users as well as professionals. Individualized energy advice is available and subsidized for residential buildings and SMEs. In addition demonstration projects like low-energy houses are promoted.

In addition to these programmes for buildings and appliances, guidelines of the EU Energy Tax Directive have been implemented. Companies in the manufacturing sector can be relieved from the energy tax if the company contributes to the increase of energy efficiency, for example, if environmental management systems are introduced. Another programme is incentives for a climate-friendly production. Companies in the manufacturing sector may receive a grant for investment measures to increase energy efficiency in commercial and industrial production processes.



For households, the federal government encourages additional information and counselling services, including on-site consultation with several independent energy consultants, counselling of the consumer and the information platform "Energy Efficiency Initiative". As part of the "energy saving check", households with low income will receive advice and assistance to increase the energy efficiency. Also the "electricity saving initiative" provides free and open information about energy efficiency and energy saving potentials.

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Different programmes promote research and development activities. These projects develop highly efficient technologies, provide market research and analyse policy strategies.



Another area where energy efficiency is promoted is public procurement. Targets and timeframes have been published for the public sector. Several campaigns and communication activities have been launched and procurement guidelines have been published. There is also a broad scheme of measures available addressing public buildings. These include contracting and energy audits, building requirements, and funding and investment programmes.

To monitor the progress of implementation of the various measures regular monitoring reports are published. In addition, Germany is obliged to present the developments in a national action plan to the EU (National Energy Efficiency Action Plan). [2]

"bigEE - Your guide to energy efficiency in buildings" is a project by the Wuppertal Institute, which presents detailed information on how to increase energy efficiency and how policy can support this development. As part of the project, an international Internet-based knowledge platform was developed.

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"bigEE - Your guide to energy efficiency in buildings" is a project by the Wuppertal Institute, which presents detailed information on how to increase energy efficiency and how policy can support this development. As part of the project, the international Internet-based knowledge platform www.bigee.net was developed. Three comprehensive guides - for building design and technologies, for appliance energy efficiency and for policy implementation - present information on technology and policy. Apart from the information universally applicable for policy-makers and investors from all over the world, up to five partner countries will be addressed, starting with China, South Africa and India. bigEE engages in active dissemination of information relevant for policy-makers in the partner countries.

A central task of the website is collecting and updating information on the best available technologies (BAT) on a comparison basis, as well as compilation of possible energy-saving potentials (depending on different scenarios and market developments) and their net economic benefits, and demonstration of successfully implemented good practice policies.



Germany is already making good progress towards accelerating energy efficiency in different sectors. The goals are ambitious, and sector-specific policies and measures show the way towards a transformation of the energy system. The "Energiewende" decision combines different strategies to increase energy efficiency and to support renewable energies. The European Union has developed strict measures for buildings and appliances that need to be implemented by the German government. Nevertheless, measures are partly not ambitious enough and there are policy gaps in some sectors. There is a lack of stringent measures in the public sector and a lack of information campaigns and training opportunities for the construction and renovation of efficient homes. Other policy gaps pertain to financial incentives for the industry and for households and regulatory instruments in the transport sector. In addition, the speed of renovation could be more ambitious. [3] A website that determines the global potentials and measures and describes the potential is www.bigee.net. This online platform presents strategies, calculates technical potential and discusses policy packages from different countries.



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