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Sustainable Energy for Sustainable Development

The German Contributions



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“The initiative ‘Sustainable Energy for All’ emphasises that development has to take place within the ecological limits of our planet. This means that the expansion of the world’s energy supply must be climate-friendly – based on renewables and greater energy efficiency. That is where the future lies! This is the signal that the international community must send.”

A stylized, handwritten signature in black ink, consisting of a large, looped initial 'P' followed by a series of fluid, connected strokes.

Peter Altmaier
Federal Minister for the Environment,
Nature Conservation and Nuclear Safety



“The Sustainable Energy for All initiative of the United Nations’ Secretary General is an excellent instrument to address energy scarcity in a sustainable way. We are supporting the initiative, especially with a view to fostering the relations between access to energy, energy efficiency and renewable energies. As a reliable partner in the field of climate protection and poverty alleviation, the BMZ is set to double its contributions for energy access and renewables to 3.6 billion euros by 2030.”

A handwritten signature in black ink, consisting of two distinct, stylized parts.

Dirk Niebel
Federal Minister for Economic
Cooperation and Development

The challenges

Around the world 1.3 billion people lack access to electricity; 2.7 billion have no access to modern and healthy forms of cooking. This has implications for health, for the environment and for the outlook for human development. The way out of poverty is inextricably linked to having access to sustainable energy.

Meanwhile, greenhouse gas emissions from fossil fuels are contributing to global warming. A radical, global move towards sustainable energy and more energy efficiency must be part of the most important options for countering climate change.

It is therefore only right and just that industrialised countries pursue energy and climate policies which serve the goal of global sustainability.

The German government has responded to this challenge with a comprehensive modernisation project, the so-called “Energiewende” (the transformation of energy system or switch to sustainable energy). The starting point is Germany’s entry into a new era of energy use on the domestic front, but the transformation also includes providing support for a similar transition in the regional and global contexts. Renewable energy sources and energy-efficient technologies are helping to make it possible for all people to have access to sustainable energy. They prevent carbon lock-in and defuse the competition surrounding the allocation and distribution of increasingly scarce and expensive fossil fuels.

Energy security is, in addition, closely linked to water and food security. Limited water resources may be a severe constraint for developing energy production. By way of example, increased water consumption and land use for energy production can lead to the water and land resources available for agriculture being



Improved cooking stoves can save up to 40-60 percent of firewood compared to traditional three-stone-fires.

restricted, resulting in more severe food insecurity. The addition of two billion more people to the global population in the next two decades will increase the demand for energy and also for food and water, calling for delaborated, synchronised solutions interlinking the three areas.

Hence, energy policies and the design of energy schemes have to take water and land constraints into account in order to ensure feasibility, sustainability and coherence with other policy objectives.

Tackling these interconnected challenges that we face will require a fundamental change in economic, political and cultural processes with governments, the private sector and civil society all taking concerted action.

“We know enough about the need for sustainable energy. Now it is time to act.”

(Ban Ki-moon, Sustainable Energy for All – Global Action Agenda, 2012)



Solar energy plays an increasing role in developing countries' energy strategies.

The Sustainable Energy for All initiative

It was against this backdrop that UN Secretary-General Ban Ki-moon launched the Sustainable Energy for All, or SE4All initiative. Its aim is to mobilise the international community to take action. The initiative defines a set of three goals for 2030:

- ▶ ensure universal access to a modern energy supply;
- ▶ double the rate of improvement in energy efficiency; and
- ▶ double the share of renewable energy in the global energy mix.

The German government welcomes the initiative and its goals and is committed to promoting its implementation within Germany as well as at the international level. Sustainable Energy for All is completely in keeping with the German government's diverse strategies and activities.

“Energy is the golden thread that connects economic growth, increased social equity, and an environment that allows the world to thrive. Development is not possible without energy, and sustainable development is not possible without sustainable energy.”
(Sustainable Energy for All – Global Action Agenda, 2012)

Achieving the goals of the initiative at home - transforming the German energy system

Germany's support for the Sustainable Energy for All initiative is not confined to the international level: with its 2011 Energy Concept, the German government introduced guidelines for an environmentally sound, reliable and affordable energy supply for Germany.

Germany's long-term overall strategy for the period up to 2050 reflects our decision to commit fully to the age of renewable energy and energy efficiency. By transforming the German energy system (a process referred to in German as the 'Energiewende', or energy revolution) we intend to halve primary energy consumption by 2050, with the remaining energy consumption being supplied by renewables as far as possible and greenhouse gas emissions being reduced by 80 to 95 percent by 2050 compared to the 1990 baseline.



Operator gathering measurement data in a modern 500 kilowatt biogas plant in Germany.



In Germany, turbines with the world's highest capacity are constructed in state-of-the-art wind parks.

This transformation includes the following elements:

- ▶ our aim to reach a 30 percent renewable energy share in gross final energy consumption in Germany by 2030, and a share of 50 percent in gross electricity consumption by 2030;
- ▶ further sector-specific targets for reducing energy consumption in the field of electricity, buildings and transport by 2050;
- ▶ 180 pieces of legislation and measures, including the phase-out of civil nuclear power by 2022 at the latest;
- ▶ a comprehensive monitoring programme to measure our progress;
- ▶ an inter-ministerial steering committee for strategic planning.

To date, Germany has reduced its CO₂ emissions by a quarter compared with the 1990 baseline, increased the share of renewables in its electricity generation mix from less than 1 percent to over 20 percent in 2011, and decoupled economic growth from primary energy consumption.

Promoting the implementation of the goals at the international level

The three goals of the Sustainable Energy for All initiative should not be considered in isolation. They are mutually dependent and reinforcing.

For decades now, the German government has been working and campaigning for access to energy and the development of sustainable energy systems in order to bring about global improvements in people's living conditions. The battle against global warming and the struggle to safeguard the basis for the future survival of all people have become increasingly important in this context.

Within the framework of the Sustainable energy for All initiative, the German government has announced its intention of significantly increasing its involvement in this field.

The contribution by German development policy to the SE4All goal of "providing universal access to modern energy services"

Germany is currently supporting bilateral energy projects in more than 60 development cooperation partner countries. Even more emphasis is to be placed on addressing global energy poverty in the future.

The Federal Ministry for Economic Cooperation and Development (BMZ) has set itself the goal of supporting its partner countries in their efforts to facilitate access to modern energy, electricity from renewable sources and sustainable energy for cooking and heating for an additional 100 million people up to 2030.

Germany is a pioneer in the field of renewables and is a global advocate for promoting regenerative sources of energy. This goal is to be achieved by means of a significant increase in German contributions for development cooperation in the three target areas, namely renewables, energy efficiency and access to energy.

The implementing organisations of German development cooperation have many years of experience in implementing projects to improve access to energy. Their expertise, international presence and implementing strengths are therefore in increasing demand from both partner countries and other bilateral and multilateral donors, as shown by the example of the multinational partnership Energising Development:

The **Energising Development Partnership** is a shining example of how various stakeholders can contribute most effectively to providing energy access: Germany has joined forces with the Netherlands, Norway, Ireland, United Kingdom, others have shown interest to promote sustainable access to modern energy services in around 20 developing countries in Africa, Asia and Latin America. So far more than 8.5 million people in developing countries have gained access to electricity and clean cooking technologies. The Energising Development Partnership has recently been extended and aims to reach 11 million people by 2014.

The BMZ is also involved in international initiatives for energy access. For example, Germany is one of the driving forces behind the European Union Energy Initiative (EUEI), a joint initiative by the EU Commission and its Member States, the aim of which is to contribute to the achievement of the Millennium Development Goals by improving energy supply in developing countries.



Energy-efficient cooking stoves do not only improve overall living conditions and reduce greenhouse gas emissions, they also contribute to the creation of jobs and markets.

The Africa-EU Energy Partnership, which the BMZ co-chairs and has been a major force in shaping, is a cooperation partnership established with the aim of enabling an additional 100 million people in Africa to have access to sustainable energy services by 2020. This too is a further step in the implementation of the SE4All goals. Another aim of the Partnership is to expand the generation of energy from renewable resources in Africa, raising hydropower generation by 10,000 megawatts and wind energy generation by 5,000 megawatts.

The BMZ is a founding member and supporter of the Global Alliance for Clean Cookstoves. The Alliance was set up in 2010 by the United Nations Foundation with the goal of promoting the global use of clean energy for cooking. So far the Alliance's programme is being implemented in 12 countries. The goal is that by 2020 there will be 100 million more households using improving cooking technologies.

German contributions to promoting renewable energies and energy efficiency in developing and emerging countries

The use of renewables and harnessing the potential to increase energy efficiency are elementary components of the SE4All initiative.

With the SE4All goal of doubling the share of renewables in the global energy mix by 2030, the UN Secretary-General has laid the foundation stone for an ambitious global switch to renewable energy. Energy efficiency measures in the energy sector are regarded as the most effective way of reducing greenhouse gas emissions and lowering energy costs. Greater efficiency means that the need to generate energy or import it at high costs is obviated. This is an important factor, since many countries are dependent on energy imports, for which they need to find high levels of foreign exchange. In many developing countries and emerging economies there is still considerable potential to save energy.

At the bilateral level, the German government is involved in cooperation in a number of partner countries.

The work of the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) in the energy sector focuses on renewables and on energy efficiency, with a broad range of activities involving a number of different partner countries. The partner countries include the major emerging economies as well as developing countries and Least Developed Countries (LDCs).



Germany supports the development of renewable energy in over 50 partner countries.

Making an impact by implementing sustainable energy projects for climate change mitigation on the ground - the International Climate Initiative

The Federal Environment Ministry's International Climate Initiative (ICI) has been financing climate and biodiversity projects in developing and newly industrialising countries, as well as in countries in transition since 2008. To date, the ICI has funded more than 280 projects concerned with greenhouse gas reduction, forest and biodiversity conservation and adaptation to climate change, with a total project volume of 2.2 billion euros (including co-finance). One important focus with regard to mitigation is energy efficiency and renewable energy. Moreover, the ICI is initiating an increasing number of projects to support the development of national and regional sustainable development strategies along with financing mechanisms which help to mobilise public and private sector funding for climate change mitigation and adaptation.



25,000 Solar Roofs for Mexico – a project implemented under the German International Climate Initiative.

Examples of successful projects under the International Climate Initiative:

Promoting renewable energy – 25,000 solar roofs for Mexico

‘25,000 solar roofs for Mexico’ is the goal set by a project funded by the ICI. Nationwide, the state-owned housing finance company Infonavit provides ‘green mortgages’ to private households to make the initial costs of solar collectors affordable. The project is advising Infonavit in rolling out the programme. The main work involves developing capacity in the buildings sector, fleshing out the details of the loans and developing an information campaign to publicise the programme nationwide. This will enable households to reduce their CO₂ emissions by around 11,000 tonnes each year.

In this way, the project is contributing to the implementation of Mexico’s climate change mitigation strategy. At the same time, it is strengthening local production and service competencies in the field of solar energy and enabling the low-income sectors of society to access a pioneering technology.

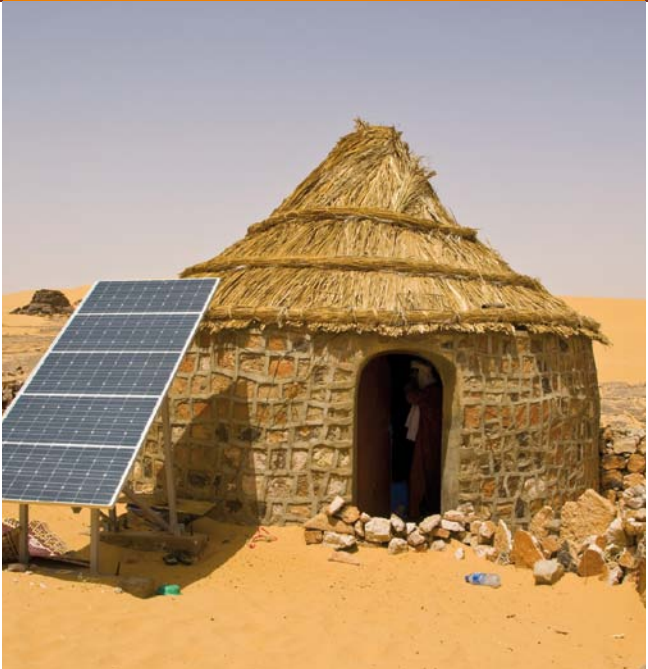
Enhancing energy efficiency – energy efficient refrigerants in South Africa’s supermarkets

An ICI project is supporting South Africa’s largest supermarket chain Pick’n Pay in replacing its inefficient air conditioning and refrigeration systems that use fluorinated, ozone-depleting refrigerants with modern, low-energy systems that run on natural refrigerants. The success can be clearly measured: there are two demonstration supermarkets. One of them uses 17 percent less energy than conventional supermarkets, the other 24 percent less. Consumption of refrigerants is also decreasing, which in turn is significantly lowering greenhouse gas emissions.

Lower energy consumption means lower costs for Pick’n Pay. This has led the supermarket chain to use natural refrigerants in all its new supermarkets. In this way, the project is demonstrating that switching to natural refrigerants and modern, low-energy technology is feasible and makes economic sense.



Pick’n Pay switched to energy-efficient refrigeration systems.



Traditional house with a solar panel in the Sahara Desert, Algeria.

In addition, the BMU and BMZ recently launched the **Deutsche Klimatechnologie-Initiative (DKTI)**. Its objective is to disseminate mitigation technologies in developing and emerging economies, as well as in economies in transition. Private sector involvement is seen as crucial for the effective transformation to low carbon energy systems. Hence, private sector mobilisation is part of the DKTI concept. With its commitment to renewable energy and energy efficiency and more than 500 million euros allocated to projects in five partner countries in 2011, DKTI is making an important contribution to achieving the goals of the Sustainable Energy for All initiative.

The BMZ is engaged in the energy sector in more than 60 countries, with energy as a priority area of cooperation in 17 of them. Germany is continuously seeking to advance the development of renewables through its Financial and Technical Cooperation in these countries.

Successful projects under German development cooperation

Micro hydro power in Rwanda

Per capita energy consumption in Rwanda is one of the lowest in the world. Less than 12 percent of the population has access to electricity, in rural areas about 1 percent. While larger enterprises work mainly with expensive diesel generators, most of the smaller businesses in rural areas have no power supply at all.

The EnDev Partnership is engaged in the Private Sector Participation Hydro Project, the aim of which is to develop a private hydropower sector in Rwanda by identifying, preparing and supporting private firms in connection with the construction and operation of micro hydropower plants (MHPPs). By the end of the project these enterprises should have the capacity to



German engineers installing small hydro power plants contributing to rural electrification.

work independently, building and operating MHPPs and local electricity grids to supply rural and peri-urban areas with electricity.

In the context of the Private Sector Participation Hydro Project support was provided for the grid-connected MHPP at Murunda (96 kW), which is the first power plant ever developed and operated by a private company in Rwanda. Two more MHPPs (500 kW and 438 kW) are under construction.

The project is simultaneously addressing the policy level, supporting the Ministry of Infrastructure and other stakeholders in integrating a sustainable energy strategy into participatory development processes.



The Sustainable Energy for All initiative is well in keeping with German strategies in terms of sustainable energy for sustainable development and climate change mitigation.



Solar Panels are particularly suitable for a sustainable energy supply in remote areas.

India: transforming the energy sector in a newly industrialising country

The energy intensity in the Indian economy is about five times as high as the energy intensity in Germany, in other words: India uses five times as much energy as Germany to manufacture the same quantity of goods. German development cooperation is focusing above all on working with the government to develop standards and norms, and to implement the national strategy for energy efficiency, which is set to trigger more than one billion euros in investments over the next three years. Industrial companies, power station operators and property owners are receiving support in relation to implementing energy efficiency measures and energy efficiency experts are being trained. These measures are complemented by the introduction of efficient power station technology and efforts to increase the savings potential on the supply side. A credit line has been set up in collaboration with the National Housing Bank (NHB), to offer home owners loans if they buy properties in energy-efficient buildings.

Enhancing carbon finance for sustainable energy – the CDM/JI Initiative

The Clean Development Mechanism (CDM) and Joint Implementation (JI) are two instruments that were introduced under the Kyoto Protocol as a way of helping to reduce greenhouse gas emissions and promote sustainable development. The BMU has been supporting the implementation of the CDM and JI through its CDM/JI Initiative since 2008. Today, the focus of activities is increasingly on boosting the participation of Least Developed Countries in the CDM. The initiative works, inter alia, by creating enabling legal and financial environments and by supporting the development of particularly sustainable and promising projects. With these activities, we are seeking – in line with the intentions set out in the SE4All Global Action Agenda – to leverage private funds to implement energy projects. In that way, we will be contributing both to reducing emissions and to promoting sustainable development and better access to energy.

Germany's engagement in global processes

The German government has initiated three important global processes in order to bring about a global transition towards renewable energy. The “renewables2004” conference in 2004 in Bonn marked the launch of a series of successful **international renewable energy conferences (IREC)**, characterised in particular by the consistent involvement of the private sector and NGOs. As a member of the policy network **REN21**, which was launched following the conference, the German government is working and campaigning for the development of renewables markets.

To promote the energy revolution on a global level, Germany initiated the founding of the **International Renewable Energy Agency (IRENA)**. In addition to contributing to its core budget (USD 1.8 million), the BMU also provided USD 4 million in funding in 2012 for IRENA's Innovation and Technology Centre (IITC) in Bonn. With analyses, advisory and networking activities, IRENA supports its roughly 100 Member States in creating an enabling environment that is conducive to the expansion of renewable energy. The Agency is the voice of renewable energy in international debates and campaigned vigorously for renewables to be included as one of the SE4All goals. IITC is working on a roadmap for SE4All that examines the elements necessary to operationalise the renewables target, including a time path, financial planning, and sector-specific and country details. In addition, the BMU is supporting a special IRENA programme for SE4All, which is concerned with capacity building in West Africa and the Pacific, to promote the expansion of renewables in these regions through measures directed specifically at policy makers, financial institutions, entrepreneurs and energy planners.

By initiating the Bonn Conference (2011) and the resource platform on **“The Water Energy and Food Security Nexus – Solutions for the Green Economy”**, the German government has contributed to a better understanding of the interlinkages between energy, water and food security. The conference underscored in particular that taking water and land constraints into account is an important pre-condition for improving access to energy in an effective and sustainable way.

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