



Energy Efficiency

Renewable Energy

Energy Access



Energising Sustainable Development

GTZ - your partner for energy solutions

Our Organisation

The Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH is an international cooperation enterprise for sustainable development with worldwide operations. It provides viable, forward-looking solutions for political, economic, ecological and social development in a globalised world. Working under difficult conditions, GTZ promotes complex reforms and change processes. Its corporate objective is to improve people's living conditions on a sustainable basis.

GTZ is a federal enterprise based in Eschborn near Frankfurt am Main. It was founded in 1975 as a company under private law. The German Federal Ministry for Economic Cooperation and Development (BMZ) is its major client. The company also operates on behalf of other German ministries, partner-country governments and international clients, such as the European Commission, the United Nations and the World Bank, as well as on behalf of private enterprises. GTZ works on a public-benefit basis.

GTZ – Worldwide Operations

In almost 130 countries of Africa, Asia, Latin America, the Eastern European countries in transition and the New Independent States (NIS), GTZ employs some 9,300 staff; around 8,200 of these are national personnel in partner countries. GTZ maintains its own offices in 67 countries.

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Development needs Energy

Key Factor Energy

Development needs energy. The reliable and efficient provision of modern energy services is a central part of the global fight against poverty. A quarter of the world's population has no access to electricity: about 2.4 billion people have to rely on wood, charcoal, or other plant matter.

Securing an energy supply is a necessary precondition for economic development- whether in agriculture, the manufacturing industry or the service sector. To an increasing extent, imports of energy sources such as gas and oil are forcing many countries to spend their limited foreign currency resources. In addition, fossil energy sources, and in particular oil and gas, are not evenly distributed around the world. This state of affairs holds considerable potential for conflict ("fight for oil"). The burning of fossil fuels is accelerating global climate change and restricting the decision-making freedom of future generations.

Objectives of German Technical Cooperation in the Energy Sector

One of the declared aims of German Technical Cooperation (TC) is that more people should be supplied with energy obtained on an ecologically sustainable basis so that their living conditions and opportunities in life can be improved.

In programmatic terms, the activities of GTZ in the energy sector are part and parcel of the overriding objectives of German development cooperation and the sector policy guidelines: to reduce poverty, secure peace and ensure justice in globalisation, including the objectives of the Millennium Development Goals.

Objectives in the energy sector:

- Satisfy basic energy needs in order to improve living conditions
- Safeguard ecologically, economically and socially sustainable economic development
- Strengthen technological performance capability in the energy sector
- Reduce dependence on imported energy sources

German Technical Cooperation supports its partner countries in formulating the necessary energy policy framework. In particular, it is committed to the use of renewable forms of energy, more efficient methods of energy generation, more rational use of energy by producers and consumers, and greater access to energy services.

Shaping Energy Policy

In many emerging and developing countries, the role of the state has been transformed as a result of sector reforms and liberalisation. New tasks have emerged for the state to develop market-conforming regulatory mechanisms, such as the establishment of conditions for fair competition. The stipulation of clear energy policy framework conditions is a vital part of orienting the energy sector towards a viable future.

German Technical Cooperation assists partner institutions with the definition of political, legal and regulatory frameworks. For example, GTZ experts together with the partner institutions are elaborating basic political and legal conditions which will enable the use of renewable energies to become established. In addition, GTZ is supporting more than 20 partner countries with the implementation of the Framework Convention on Climate Change and the Kyoto Protocol (Clean Development Mechanism).

Paving the Way for Renewable Energy

The prospects for renewable energy are good when energy policy is increasingly ecologically oriented. With oil and gas prices rocketing, renewable energies are more than just an “environmental sound” solution but are also a cost-effective option in the long-run. But still the dissemination of renewable energy is impeded by a multiplicity of factors: high capital investment requirements, difficulty of access to small-scale loans, and customs and tax policy favouring fossil fuels are just a few examples of the obstacles.

GTZ has a large number of projects demonstrating its commitment to paving the way for renewable forms of energy and opening markets that are served by the private sector. Its activities range from the promotion of grid-coupled electricity generation from wind power in Colombia through the use of decentralised mini hydro-power in Nepal, Indonesia and Tibet to the use of renewable energy to improve rural energy supplies and safeguard basic energy provision to households, for example by means of more efficient stoves.

Increasing Energy Efficiency

In emergent and developing countries the subject of energy and resource efficiency is acquiring ever greater importance. In developing and emergent countries there is enormous potential in the areas of electricity supply, trade and industry, transportation, households and public institutions for increasing energy and resource efficiency in ways that are technically achievable and cost-effective. Efficiency measures bring with them a range of advantages including cost savings, increased security of supply, increased productivity, increased business competitiveness and reduced ecological damage.

GTZ provides a comprehensive range of capacity development and advisory measures for furthering energy and resource efficiency both at project level and through the creation of appropriate general conditions. The effective and sustainable implementation of efficiency measures requires an integrated multi-level and multi-actor approach. Governments and municipalities, public institutions and associations and private-sector companies all need to be involved.

GTZ's involvement in promoting renewable energy and energy efficiency in EU's southern and eastern neighbours

As pillars of sustainable energy supply, the issues of energy efficiency and renewable energies are on the agenda of Germany's European Union Presidency and also an integral element of its development policy. Commissioned by the German Federal Ministry for Economic Cooperation and Development (BMZ), GTZ is currently running more than 60 energy projects throughout the world, and can boast long-standing experience in the fields of energy efficiency and renewable energy.

For the EU's Southern and Eastern Neighbours, energy efficiency and renewable energy are above all crucial to sustainable development, combating climate change, achieving energy security and promoting economic development. For instance, more use of renewable energy could make a major contribution to lessening these countries' dependence on fossil fuels. With oil and gas prices rocketing, this would help save foreign exchange while simultaneously reducing the strain on the environment. On the supply side, energy efficiency includes issues such as generation and transmission. For example, losses in grid transmission may be huge, sometimes amounting to up to half of what a country actually generates. Aspects like transport, households, industry and the building sector need to be addressed on the demand side.

GTZ offers its support to the EU's Southern and Eastern Neighbours in the transformation of their energy industries and the development of a sustainable energy supply. Examples of areas that GTZ is already active in are given below.

Tunisia – Promoting renewable energies and rational energy use

Tunisia is a country that relies heavily on fuel imports. Energy consumption is rising constantly as economic improvement continues. Current energy supply is extremely cost-intensive and highly detrimental to the climate. On the other hand, the country has an enormous potential for wind and solar energy resources.

GTZ is pursuing a two-pronged strategy in Tunisia: getting energy consumers and energy producers to rely more on renewable energies while simultaneously supporting a more rational use of energy. On behalf of BMZ and together with Tunisia's National Energy Management Agency (ANME), GTZ is promoting energy efficiency and the use of renewable energies by providing policy advice and technical and organisational development support.

ANME focuses on the use of wind, biogas and solar water heaters. GTZ aims to create an enabling environment for renewable energy development and improve ANME's cooperation with relevant government institutions, the private sector and energy consumers, with emphasis being given to wind energy. GTZ is supporting ANME, the national power utility STEG and the private sector in developing grid-connected wind-based power generation. Activities here include assisting the tendering process for wind parks and helping the Tunisian government to attract private investment in wind power projects.

Morocco – Creating legal framework conditions for renewable energies and energy efficiency

Morocco, another Maghreb country with a high wind potential, is North Africa's largest energy importer, relying on imports for more than 90 percent of its energy demand. While hydropower has

been developed to a certain extent, the country's wind power potential remains largely untapped. In fact, wind measurements carried out by GTZ in cooperation with the Moroccan Centre de Developpement des Energies Renouvelables (CDER) on the Atlantic Coast and in the north-east of the country identified the Tetouan region, near Tangiers, as one of the windiest places on earth.

GTZ's TERNA wind energy programme detected further promising locations for wind farms in the south of the country. TERNA and the Moroccan power utility Office Nationale d'Electricité (ONE) trained local experts with the aim of enabling a team of specialists to assess and exploit the available wind potential in Morocco. Two wind farms have since been built in the Tetouan region, and further farms are under construction there and in the south of the country. GTZ is also involved in raising energy efficiency in Morocco.

A rapidly increasing energy demand owing to demographic and economic growth on the one hand and a huge potential for the use of renewable energies, notably solar energy, is characteristic of the countries of the Southern Mediterranean region in general. But while climate conditions are favourable for solar thermal systems, high prices and a lack of technologies adapted to the region's specific needs pose barriers.

SOLATERM – promoting solar thermal applications in the Mediterranean Region

SOLATERM combines the technical know-how of EU research institutions with the specific regional experience and knowledge of Southern Mediterranean partners on the use of solar energy. Energy agencies and administrations focusing on the political framework conditions complete the network of partners from Algeria, Cyprus, Egypt, Germany, Greece, Jordan, Lebanon, Malta, Morocco, the Palestinian Territories, Spain, Syria, and Tunisia.

SOLATERM aims at the widespread application of a new generation of solar systems for hot water, heating and cooling in the Southern Mediterranean partner countries. Its approach includes the transfer of solar thermal technology know-how and the adaptation of new technologies to the specific needs of the Southern Mediterranean countries, promoting cost-effective solutions and supporting political determination in the region to develop renewable energies.

SOLATERM is financed by the EU's 6th Framework Programme for Research and Development and coordinated by GTZ.

Extracts from GTZ's new publication "Energising Sustainable Development – Concepts and Projects":

Energy efficiency – A crucial pillar of sustainable development world-wide

By Marian Rzepka, GTZ

Energy demand is growing in developing and emerging countries as industrialisation progresses and populations grow. These countries bear a huge potential to raise energy efficiency – an issue where technical cooperation can have a huge impact.

It's high time that something is done. After years of debating the pros and cons of using conventional and renewable energy, the issue of energy efficiency is becoming increasingly important. The European Commission has estimated that the inefficient use of energy is going to cause additional annual costs of up to 100 billion € for the EU alone up to 2020.

But in emerging and developing countries too, pressure is growing to enhance energy efficiency levels both on the producer and consumer side. High dependence on fossil fuels that are expensive to obtain is aggravating the socio-economic situation in many of these countries. Also, the inefficient use of fossil fuels is taking a heavy toll on the environment. As economic growth and production capacities increase in several countries, the strain on the ecosystems is growing, with the negative impacts of accelerated industrialisation threatening to jeopardise economic success and ruin prospects for further development.

Efficiency means more than saving

Energy efficiency is often equated with saving energy. Actually, the term refers to the energy utilisation ratio – the more of the energy fed into a system is really used for the purpose it has been designed for, the higher the energy utilisation degree will be. So energy efficiency is a lot more than mere energy saving. For example, it encompasses retrofitting power stations so that more electricity can be generated with every ton of hard coal, or

electrical modernising of transmission lines or reducing losses in district heating systems. Energy efficiency also means providing energy services that require a minimum of energy. Good heat insulation will reduce the specific thermal energy demand of a house. Energy saving lamps require just a fifth of the energy that conventional bulbs consume but have the same luminous power, and even among the fluorescent tubes that are widely used in offices and public buildings, efficiency will range from 15 to 60 percent depending on the technology employed.

In Germany, energy efficiency has already been introduced in several areas. This has been supported by corresponding new laws and guidelines such as the regulations on energy saving or the Energy Consumption Labelling Directive (ECLD). Also in response to increasing international competitive pressure, industry has successfully implemented energy efficiency programmes. Households are offered qualified advice and can acquire a wide range of energy-optimised products such as refrigerators, television, telecommunications equipment and other electrically-powered appliances. Low-interest loans are available for energy-relevant investment. While initial steps have been taken, Germany is still far from having exhausted all options to raise energy efficiency. Much still remains to be done in the transport and construction sector as well as in energy generating and transmission.

Finally the European Commission has responded, too, by recently presenting an extensive Energy Efficiency Action Plan. The implementation of the measures it provides for is hoped to result in a 20 percent reduction in energy demand in the EU by 2020. Energy efficiency is also going to be a focal topic of Germany's Presidency of the EU and G8 Presidency in 2007.

Laws alone are not enough

However, the situation is different in the emerging and developing countries. Steadily growing populations and the need to catch up in terms of development are causing higher rates of growth in energy consumption than in most of the OECD countries; bearing in mind that total energy consumption is still lower than that of developed countries. Industrialisation

correlates with changes in consumer behaviour and greater traffic volumes. The growing price of gas and oil on the world market is severely exacerbating the socio-economic situation in those countries without sufficient natural resources of their own. It has been estimated that energy consumption worldwide is going to increase by around 50 percent by 2030, compared to 2005, if drastic political action is not taken. The developing countries account for two thirds of this increase.

According to the Federal Ministry for Economic Cooperation and Development (BMZ), additional expenditure for developing countries importing mineral oil today is already almost as high as the total of international finance provided for Official Development Aid.

However, energy efficiency is still not high on the agenda in many countries, although enormous potentials exist. The reason for such a state of affairs is often that the wrong incentive systems are in place. For instance, the price of energy may be highly subsidised, while production plants are operating with obsolescent equipment and there is only little know-how regarding the efficient use of energy in all fields of society. In rapidly growing economies such as India and China, it is not rare for efficiency measures to founder on the fast pace of growth. But even the existing political determination to take action is not necessarily enough. Monitoring of compliance with laws, which is deficient in several countries, as well as corruption quite often impede the implementation of effective efficiency measures in spite of progressive legislation.

Commissioned by the BMZ, GTZ is working together with its partners in various emerging and developing countries in Asia, Latin America and Africa to arrive at solutions to enhance energy efficiency. The thematic foci here are raising the efficiency of thermal power plants, energy efficiency in buildings, eco-efficiency in industry and energy in households. Often enough, small measures can result in big impacts. Implementing measures to improve efficiency, such as the introduction of an energy-optimised cooker in an African household or the energy optimisation of a technical process in a production plant, is usually only the last and simplest step within a long impact chain. Before this level is reached, processes of change taking years are required to create the

necessary framework conditions in politics and society.

Development requires time and skills

This can be illustrated by the example of thermal retrofitting of residential buildings in Romania, where around 85,000 buildings were constructed with prefabricated slabs between 1950 and 1985. These buildings have hardly any insulation and are usually fitted with single-glazed windows, while the radiators cannot be adjusted. As a result, many occupants sit in the cold during the winter, behind icy windows and mouldy walls even though the heating is turned on. This is energetic, ecological and social madness that has only been brought about by gas prices that used to be subsidised in the past. In spite of energy prices that are gradually adapting to world market level, the situation is changing only very slowly. There are a multitude of reasons for this. Establishing and implementing government funding programmes requires specialist know-how and transparent processes and procedures in the authorities. For a long time, no legal provisions existed to take out a mortgage. Legally independent homeowners' associations had to be founded, which required amendments to existing legislation. The homeowners had to be convinced that the renovation measures made sense. Renovation standards had to be developed, and specialists had to be trained who could then comply with them or monitor compliance with them. This shows the wide range of demanding activities that the GTZ advisers are engaged in at local level, with the renovation measure proper at the end of a long impact chain the simplest of problems to be solved. Today, Romania has to import around 40 percent of its mineral oil requirements – thermal renovation of all prefab slab buildings in the country would suffice to render these imports virtually superfluous.

Consistent tapping of potentials to raise energy efficiency not only cuts costs. It also represents a valuable contribution to combating global warming, reduces the strain on the environment caused by air pollutants, enhances industry's competitiveness and thus creates incentives to invest. That this is only making sluggish progress is due to what are often conflicting interests among the actors involved, unsuitable structures among authorities and public administration, poorly trained specialist staff, an insufficiently sensitised population, restricted access to information, a lack of technology transfer, obstacles to

accessing funding sources, corruption or simply the hurdle of changing well-worn habits. Technical cooperation can contribute to the development of effective practical solutions to these complex problems through joint programmes between the partner countries.

Boosting renewables with the right policies

By Paul H. Suding and Philippe Lempp, GTZ

2005 was another record year for investment in renewable energy. The REN21 Global Status Report 2006 update brims with accounts of high growth in almost every technology and market in this sector. However, growth tends to be strongest where policy has established favourable conditions, underscoring that setting an appropriate policy framework is crucial to promoting renewable energy.

Sustained promotion policy has made Germany the leader in wind as well as photovoltaic solar energy. Spain has effectively followed that path, and other European countries are joining in. In 2006, the US took the lead in wind capacity additions, fostered by a prolongation of the federal promotion policy and the renewable portfolio obligations set by a number of states. With the adoption of renewable energy promotion policies even in large developing countries like China and India, yet more momentum is created to bring renewables forward.

Lately, rising fossil energy prices have led more investors to look into renewable energy options in particular biofuels. Even in such cases, policy is critical to ensure access to energy markets. In many countries modern renewable energy technologies are new players in the markets for electricity generation, transport and household energy. As such, these technologies have to overcome entry barriers where strong existing competitors occupy dominant market positions

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that they have bolstered with formal and informal arrangements over the decades. Rules and regulations geared to yesterday's market place continue to favour the established market actors. New policies are required to level the playing field. Fair competition often requires removing subsidies for traditional energy sources or granting equitable support for new energy technologies.

Renewable energy in the global energy supply

According to the REN21 Global Status Report, renewable energy provides some 17 percent of the world's primary energy with 9 percent still being delivered by traditional biomass (i.e. agricultural residues, fuel wood and charcoal). Large hydropower (i.e. from plants above 10 MW) and the so-called "new renewables" (small hydro, modern biomass, wind, solar, geothermal and biofuels) supply the remaining 8 percent.

Despite their small share in global primary energy, the "new renewables" are advancing fast and are gaining significance in their respective markets. Wind energy has experienced an average annual growth rate as high as 25 percent for 15 years now. Solar photovoltaic generation capacity has made leaps of 50 percent in recent years. Since 2004, biodiesel production has doubled each year. Technologies like hydropower, ethanol, and solar hot water are growing strongly but with rates below 10 percent per year.

As ever more countries join the renewable energy policy trend, technological progress is bringing down costs. With fossil fuel prices remaining high, the growth of renewable energy is set to continue. Biofuels are expected to see a boom in the short term. Long-term projections foresee a sustained high growth of renewables (except for the traditional fuels), even under business-as-usual assumptions.

However, these business-as-usual projections of world energy supply are considered unsustainable due to climate change and increasing scarcity of fossil resources. Global concern requires an even higher share and therefore more growth of renewables. It is not only global concerns but also local rationale that leads countries to accelerate the development of renewables: protection of the

The International Action Programme of renewables 2004

In June 2004, participants of the International Conference for Renewable Energies (renewables 2004), held in Bonn, Germany, assembled an "International Action Programme" consisting of 197 specific actions towards developing renewable energies. The actions were put forward by a large number of governments, international organisations and stakeholders from civil society, the private sector and other stakeholder groups. They all contributed with voluntary commitments to goals, targets and actions within their own spheres of responsibility, demonstrating the dynamics of renewable energy in a very concrete manner.

local environment, security of energy supply, protection against price volatility, industrial policy.

In summary, there is broad consensus that renewable energy technologies (RET) should play a much larger role in world energy supply. All the global scenarios developed to explore a low carbon future consider RET at least a highly significant part of the solution, and some even a panacea. The International Energy Agency (IEA) believes to be realistic when it estimates that by 2050 renewables could contribute 35 percent of global electricity production (up from 18 percent today) and that biofuels could reach a 20-percent share of the transport market, but it stresses that even this can only be achieved if the existing technologies are determinedly and consistently applied.

This draws our attention back to policy again. Market forces as predicted under business-as-usual conditions will not be sufficient for the development that is needed. Policy is critical to shape the markets that create favourable conditions for people and organisations to use and invest in renewables.

Renewable energy policies in existing and emerging markets

In industrialised countries and in modern areas of the developing economies, renewables have great prospects in electricity production, as transport fuels, and for low-temperature energy used for heating and cooling in buildings. Years of experience in the promotion of renewable energy for electricity generation have shown that the most effective way to rapidly increase market shares and create thriving renewable energy industries is the establishment of feed-in regulations, including obligations for the electricity network and trading companies to connect, take up and remunerate - at a guaranteed preferential price - the electricity delivered from renewables. It is this policy that has made Germany and Spain the forerunners in wind power. Nonetheless, renewable energy quotas and portfolio standards (for electricity generators or distributors) have also proven quite successful if the electricity market framework is appropriate. Public bidding for renewable energy (RE) resource concessions and a power purchase contract will also work in an initial exploratory stage but become cumbersome when rapid expansion is the goal, as each project requires public bidding. China has decided to stay with this instrument for wind energy development, though it is combined with an unofficial quota that forces the electricity generators to participate in bids. Other proven instruments are fiscal incentives (e.g. tax breaks) to correct market signals. Like public bidding, tax incentives are often temporary measures and do not transform markets in a sustained long-term way, which feed-in tariffs and quotas do.

Securing market access

In all cases, securing long-term market access and levelling the playing field for renewables is indispensable, and must be ensured through rule of law and powerful regulators. Interestingly, reforms in the electricity sector have generally enhanced the opportunities for renewable electricity generators where they have created an accessible generation market and reduced the dominant and politically influential position of integrated electricity companies. Creating appropriate conditions for RE also includes a range of technical and procedural standards for connecting renewable electricity to the grid, land use regulation, etc. These standards reduce the time and cost of

approval, thus facilitating access for non-traditional generators like farmers and private secure market access and quota as well as tax exemptions are also the preferred policies for increasing the share of biofuels and biodiesel in the transport sector. As bioenergy production requires land resources and may compete with the production of food and even with nature conservation areas, a need emerges for coordination between energy, agriculture and forestry as well as nature conservation, which bears new opportunities but also dangers. In collaboration with the Worldwatch Institute, GTZ recently presented a comprehensive in-depth study showing that further breakthroughs in technology would be highly desirable to increase productivity and permit a sustained growth of bioenergy. Thus, related research and development (R&D) and a balanced promotion policy is needed. In the building sector, renewable energy obviously has enormous importance in terms of gains from solar radiation, which is, however, not accounted for in the statistics. More intelligent use of solar radiation by building technology (passive solar) and the reduction of losses can significantly contribute to a low carbon economy. RET like solar water heaters have attained wide application, most notably in China. They are still used in a hybrid manner, though, in combination with other hot water or heating technology. Energy efficiency policy can change this and define low or zero energy standards for buildings so that renewables can entirely cover the need for low-temperature energy services (for hot water, heating, and – why not? – cooling). The economics of solar thermal systems improve decisively when these technologies are not only an auxiliary but actually become the main system.

Renewable energy in developing countries

Only few developing countries have ventured into policies focused on bringing RET into energy markets on a significant scale. Some large middle income countries have advanced considerably, like China, India, or Brazil, followed by South Africa, Mexico and others which are still struggling internally to enact the policies.

Some developing countries have initiated specific renewable energy programmes that combine awareness raising, capacity building and research & development with the deployment of renewable energies in individual projects on the ground (e.g. Egypt, Tunisia,

Uganda, Madagascar, and Pakistan). Most developing countries do not promote renewable energies with special programmes but rather incorporate RE in programmes for rural energy, electricity sector expansion, etc. Low-income developing countries are confronted with a complex challenge. In the modern energy sector, they face a supply crisis, while in the rural and peri-urban area, access to modern forms of energy is urgent in order to reduce poverty. In such a situation, some consider the complex introduction of RET an additional burden. However, this need not necessarily apply. In many instances, renewable energies are actually the most cost-efficient solution. Where this is not the case, international co-operation and finance may be willing to help overcome the cost barrier. Special instruments like the Global Environment Fund (GEF) have been created to take care of such incremental costs.

In many developing countries, urban and productive electricity demand is rising but existing generation and grid infrastructure has become increasingly unreliable because of old age, extreme climate and inappropriate maintenance. Rehabilitation of existing hydropower plants has top priority, alongside improved water resources management, to realise the urgently needed expansion of electricity generation and gain capacity margins. In order to avoid that the worst-hit countries slip back to electricity production based on imported fossil fuels, all opportunities to establish renewable energy generating capacity must be seized: hydropower, biomass, and wind and geothermal energy where available. This requires clear government policies, enterprise involvement, and support from the international community via instruments such as the Clean Development Mechanism.

In off-grid areas, a variety of low-tech energies are used. The low quality of the energy services goes hand in hand with the lower quality of other technical, as well as social infrastructure, and – consequently – poverty. Modern forms of energy, like electricity and gas, can significantly improve the quality and opportunities of life in these areas. At the same time, traditional fuel use has to be rendered ecologically sustainable and also benign vis-à-vis people's health. Solar, small wind, small hydro, as well as biogas, are the preferred technologies where grid extension is uneconomical. Rural energy policies need to consider the rural energy needs in an

integrated manner. Here too, government policy is required and international support is available to follow a low-carbon growth path. The establishment of institutions for financing, operation, and maintenance is crucial to securing sustainability.

Development and environment need not clash. Indeed, the two can be complementary. RET provide means to attain local development without damaging the local environment while contributing to the protection of global environmental goods. Without doubt, achieving sustainable energy is one of the major challenges of our time. Its local and international aspects cannot be separated, nor can its impacts on development and environment. Therefore, REN21 works as a global policy network to connect different stakeholders from all parts of the world, with the goal to improve understanding of the value of renewables in contributing to sustainable development in a holistic way. While further research and technological development remain important, the time is already ripe to benefit from more renewable energy. Tapping

these benefits now is above all a question of political will and very practical policy measures.

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About REN21

REN21 is a global multi-stakeholder initiative that emerged from the renewables 2004 conference. It keeps the international momentum of renewables 2004 active and follows up on the conference outcomes. REN21 has many participants from all types of organisations from the development, environment and energy communities. GTZ and UNEP are the implementing partners of the REN21 Secretariat in Paris. So far, the principal financing partners have been the German Ministries for Development (BMZ) and Environment (BMU). The IEA is an additional partner in the Secretariat, and more than 30 distinguished individuals from a large variety of organisations are members of the network's Steering Committee. GTZ is executing partner in the REN21 Secretariat. www.ren21.net

For further information about GTZ's work on energy please visit our website at www.gtz.de/energy. Regular information about new project activities, publications and other updates can be received via subscription to our bi-monthly newsletter "GTZ Energy News".