

Sustainable Energy for Climate Protection in Ghana

Making energy greener and more affordable to benefit people, industry and the environment

The challenge

A country's development depends to a large extent on how it deploys its energy resources and provides its energy services. For a sustainable development, the energy sector does not only have to be cost-effective and reliable, but environmentally friendly as well. While Ghana has made a lot of progress in this regard, challenges remain.

One of those challenges is that current power generation capacities exceed the country's needs. This overcapacity results from long-term and expensive power purchase agreements (PPAs) that the state has concluded with private operators of thermal power plants. These "take or pay" contracts were agreed on after of the 2014-2016 energy crisis. They result in high electricity prices, which not only represent a challenge for private households and businesses, but also lead to high public debt.

Other challenges include an inadequate power supply infrastructure, frequent outages and difficult conditions for private investments into the sector. Furthermore, more than two thirds of Ghana's energy sources come from burning fossil fuels, which generates high Greenhouse Gas (GHG) emissions. In addition, the lack of qualified personnel in the fields of sustainable energy, including both renewable energies (RE) and energy efficiency (EE), results in a slow development of the sector.

Renewable energy – most of all solar power – and energy efficiency, meaning using less energy to perform the same task, are solutions to these challenges. They make energy cheaper, have the potential to bring down the number of outages, do not pollute the environment and therefore prevent global warming.

Our objective

The project Sustainable Energies and Energy Efficiency for Climate Protection in Ghana (SE4C) aims at tackling those challenges. It assists Ghana in installing more renewable energy, increasing energy efficiency in different areas and thus bringing down its electricity costs and GHG emissions. To realise this, several conditions must be improved. Ghana needs regulations that allow for the development of more renewable energy and energy efficiency. Staff in public office and private companies need the necessary expertise, which entails practical training and knowledge.

The SE4C project is commissioned by the German Federal Ministry for Economic Cooperation and Development (BMZ) and implemented by GIZ in cooperation with Ghana's Ministry of Energy and Ministry of Education. Thus, it contributes to the objectives of the German-Ghanaian Reform and Investment Partnership. Namely, to support financial recovery of the energy sector and improve the framework for private investments. Furthermore, it assists Ghana in achieving its pledge to the world to bring down its GHG emissions (Nationally Determined Contribution [NDC]).

Project name	Renewable Energy and Energy Efficiency for Climate Protection in Ghana
Commissioned by	Federal Ministry of Economic Cooperation and Development (BMZ)
Project region	Nationwide in Ghana
Lead executing agency	Ministry of Energy
Duration	01/2022 – 12/2024



Left: Students at a Technical Training Institute are learning how to work on solar panels. The practical approach will help them being well equipped for the job as solar technician.

Right: Solar panels are being installed on a rooftop as a measure to reduce energy costs.



Left: The project supports the industrial community with third party advisory services and general promotion of RE and EE, for examples through feasibility studies and analyses.

Right: During a training, participants are learning how to model and simulate the energy performance of new buildings.

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Our approach

The project's interventions are grouped into five main outputs., each of which address different crucial areas that are important to a successful outcome.

- Output 1 aims to improve the political and regulatory framework at national scale to encourage faster development of the RE/EE market in Ghana.
- The activities in Output 2 are directed at enabling electricity distribution utilities to make a profit from the increasing number of private solar photovoltaic (PV) systems that are run by households and private companies.
- Output 3 aims to strengthen the capacities of the Energy Service Centre (ESC) hosted by the Association of Ghana Industry (AGI) as a RE/EE service provider for the private sector. It will also enable it to become a financially viable structure.
- Output 4's focus is to support RE/EE investments in public buildings.
- Output 5 aims to strengthen the capacities (knowledge, methods, didactics) of teachers and the technical equipment of selected vocational training institutions in Ghana in the area of RE/EE.

The benefits

Benefits of the project are numerous – some are immediate, others will become visible in the longer term. Greener energy and thereby reduced GHG help to diminish the effects of climate change, which benefits everybody in Ghana, since climate change effects are already noticeable.

Cheaper power relieves every single Ghanaian, be it private households, schools, hospitals, or companies. The same is true for more stable grids with less power outages – they benefit individuals in their everyday activities, business owners who suffer losses from power cuts, and crucial areas such as the health

sector. Some groups benefit from direct cooperation with the project, e.g. decision-makers at the Ministry of Energy, as well as in Ghanaian regulatory authorities and utility companies. Vocational schoolteachers will also benefit directly from the project activities, e.g. from training activities.

The SE4C projects builds on results achieved by previous projects. These include:

- First steps have been initiated together with state authorities to measure and subsequently bring down the energy consumption of buildings. This is an indispensable step towards an energy (and thus GHG) saving future. Towards the same goal points the adoption by the Government of Ghana of the Renewable Energy Act, whose drafting GIZ supported.
- With the support of GIZ, the Association of Ghana Industry (AGI) established a service centre to support companies that want to invest in their own renewable energy supply and in energy efficiency measures. It furthermore created a data base of local companies that are suitable as service providers or suppliers for the planning and implementation of such investments. These measures actively promote the use of renewable energies in the private sector and help develop the local market, creating investment and jobs.
- Developing new curricula, supplying vocational schools with modern technical equipment and training of teachers has improved the vocational training of solar technicians at six vocational schools. The SE4C project will support more schools in the future

Published by Deutsche Gesellschaft für
Internationale Zusammenarbeit (GIZ) GmbH

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Registered offices Bonn and Eschborn, Germany

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GIZ is responsible for the content of this publication.

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On behalf of Federal Ministry for Economic
Cooperation and Development (BMZ)

In cooperation with Ghana Ministry of Energy (MoEn)



MINISTRY OF ENERGY

As at May 2022