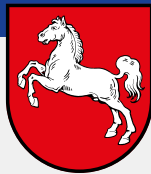




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**GERMAN GOVERNMENT AND
FEDERAL STATES PROGRAMME**
BUND-LÄNDER-PROGRAMM (BLP)



Federal state – partner country
Lower Saxony – South Africa

Title
Developing a Monitoring System for Mini-grids
in the Eastern Cape

In cooperation with the GIZ programme
South African-German Energy Programme (SAGEN)

Financing arrangements
 BMZ contribution € 133,878
 Lower Saxony contribution € 86,514

Duration
01.12.2018 – 31.12.2020

Responsible ministry
Ministry for the Environment, Energy, Construction
and Climate Protection of the State of Lower Saxony

This project helps to achieve the following Sustainable Development Goals (SDGs):



Upper Blinkwater – a rural region
in South Africa's Eastern Cape province

Measuring Energy Use in Mini-grids

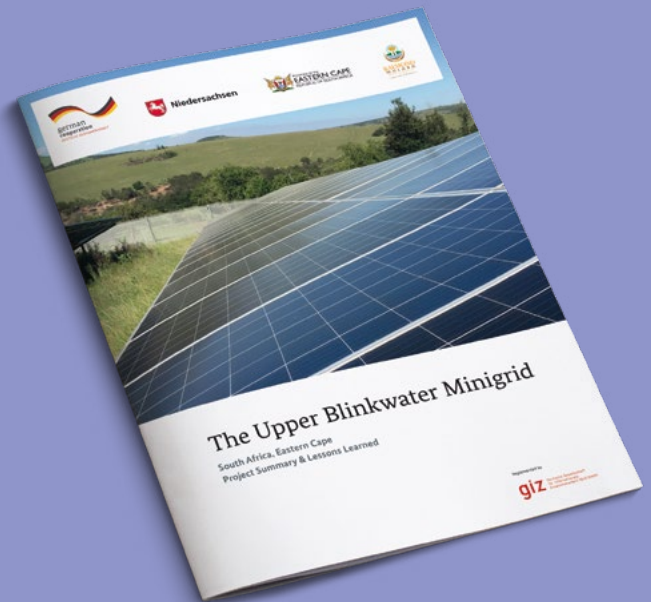
Local situation

The electrification of South Africa has yet to be fully completed. Despite a concerted nationwide effort, many areas (e.g. 25 % of all municipalities in Eastern Cape) are still 8 to 15 years away from being connected to the national grid. The potential for using solar energy is extremely high given the intense solar radiation of 2,100 kWh/m² and annual sunshine duration of up to 2,500 hours. Due to a lack of experience, however, this potential has still not been sufficiently harnessed in rural areas.

As part of the German Government and Federal State Pilot Programme (German: Bund-Länder-Programm; BLP), Lower Saxony was involved in a cooperation project in which a small hybrid power grid (mini-grid) was built in the pilot municipality of Upper Blinkwater in the Eastern Cape. As very few mini-grids of this kind have been built and operated so far, little experience-based data exists on how to transfer mini-grid technology to other regions. The aim of this measure is therefore to enhance the scientific and practical skills required for planning and operating decentralised

“The mini-grid project is hugely important for Upper Blinkwater because it significantly improves living conditions and development opportunities for people in that rural region. It will create new prospects – both economic and social – for the rural population. As a model project, it will provide essential, practice-based information and findings on how to implement a decentralised power supply in other regions. That is sustainability in its truest form.”

Stephan Weil,
Minister-President of Lower Saxony



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Project experiences and lessons learned were published in a jointly produced brochure

renewable energy systems. A monitoring system for the mini-grid in Upper Blinkwater shall provide practical insights into the technical requirements for creating a sustainable, decentralised energy supply and the necessary framework conditions for its implementation in other regions.

Cooperation arrangements

The BLP project between Lower Saxony and the Eastern Cape was implemented in 2017 in cooperation with the South African-German Energy Programme (SAGEN), which has supported South Africa in developing the renewable energy sector since 2008. The DLR Institute of Networked Energy Systems in Lower Saxony is monitoring this cooperation. The main implementation partner on the South African side of the project is the Eastern Cape Department of Economic Development, Environmental Affairs and Tourism (DEDEAT), with scientific support provided by Nelson Mandela University, Fort Hare University and the Council for Scientific and Industrial Research (CSIR).

What we are doing – and how

This project analyses and studies the long-term energy consumption behaviours of Upper Blinkwater residents, ranging from when they had no access to electricity through to their current everyday consumption patterns. As part of the project, institutional and technical structures were put in place to enable the long-term gathering and analysis of data on mini-grid activity. Scientific and state institutions in Lower Saxony and the Eastern Cape work together to determine the

relevant parameters used to assess mini-grid performance and to create the foundations for the long-term recording and publication of the project’s findings. The results and findings from the partners involved at every stage of the process, from developing the mini-grid to putting it into operation, were published in a jointly produced brochure.

Useful links

- TC programme SAGEN:
<https://www.giz.de/en/worldwide/17790.html>
- Mini-grid brochure:
https://www.giz.de/de/downloads/UpperBlinkwaterMinigrid_Brochure_web.pdf
(in German)
- Ministry for the Environment, Energy, Construction and Climate Protection of the State of Lower Saxony:
<http://www.umwelt.niedersachsen.de/startseite/>
(in German)
- DLR Institute of Networked Energy Systems:
https://www.dlr.de/ve/en/desktopdefault.aspx/tabid-12472/21440_read-49440/
- More information on the programme:
<https://www.giz.de/en/worldwide/91262.html>
<https://www.giz.de/en/worldwide/34949.html>
<https://bund-laender-programm.de/en>

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Editors Dieter Anders (legally responsible for content), Angela Zur, Jelena Fleischmann

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On behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ)
Division 513: Federal states, local authorities

Address of BMZ offices
BMZ Bonn
Dahlmannstr. 4
53113 Bonn | Germany
T +49 (0)228 99 535 0
poststelle@bmz.bund.de | www.bmz.de/en

BMZ Berlin | Im Europahaus
Stresemannstr. 94
10963 Berlin | Germany
T +49 (0)30 18 535 0

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