



DESERT TO POWER



The Sahel is one of the regions of the world which receives the highest amount of sunlight. The Desert to Power initiative will harness that solar energy, generating 10 GW of additional capacity to provide clean electricity for 250 million people. Part of the African Development Bank's New Deal on Energy in Africa and a key pillar of the Great Green Wall Initiative, Desert to Power will help build the world's largest solar zone.

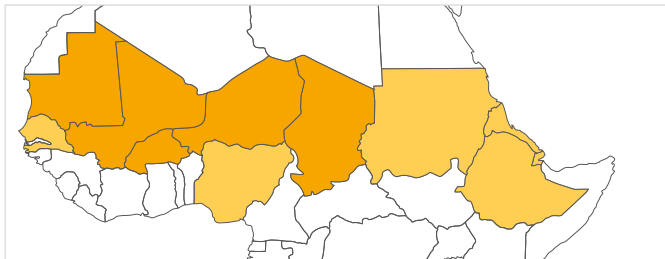


AFRICAN DEVELOPMENT BANK GROUP



THE DESERT TO POWER INITIATIVE

Context of the Sahel



The Sahel countries are among the most vulnerable in Africa with an average GDP 2.5 times lower than the rest of the continent. According to the 2020 Human Development Index, all 11 Sahel countries (Burkina Faso, Chad, Djibouti, Eritrea, Ethiopia, Mali, Mauritania, Niger, Nigeria, Senegal, Sudan) are in the “low human development” category with 5 of them amongst the ten least developed countries in the world.

Political and Global Mandate

In September 2019, the Heads of State of the G5 Sahel countries, namely, Burkina Faso, Chad, Mali, Mauritania and Niger, endorsed the implementation of the **Desert to Power (DtP)** initiative. DtP has been identified as a key pillar of the **Great Green Wall Initiative**, for which in January 2021 the AfDB President Adesina was nominated a **Champion** in mobilising political and financial support.

Development Context

As reported in the AfDB Impact Assessment of the DtP Djeremaya project site in Chad 2019:

“The locality has only one operational health centre which does not have power supply. This makes it difficult to deliver certain types of care and preserve medicines. Villages in the locality have no electricity connection. Some inhabitants have solar panels. Otherwise, households use firewood, charcoal and cow dung as cooking fuel.”

DtP investments aim to accelerate economic development through access to electricity. Irrigation powered by electrical pumps will improve agricultural productivity and food security, Better access to health and education and reduced time spent collecting firewood for cooking will help create new opportunities, particularly for women and youth.

The Sahel is highly affected by climate change and fragility, which undermines the region’s food security, the countries’ long-term development prospects, and opportunities for youth. Climate shocks like droughts are becoming increasingly frequent and are affecting more people, while shorter, more intense and less predictable rainy seasons increase the risk of floods. Climate change represents a severe threat to the livelihoods of more than 80 percent of the population living in rural areas and it has posed additional stresses on the region’s fragility, precipitating internal displacement and migration.

It is urgent to address the numerous energy sector challenges which are hindering development in the Sahel region: inadequate generation capacity; high reliance on fossil fuels; low energy access rates, especially in rural areas; poor transmission, distribution and supply infrastructure; inadequate power systems; and weak policy and regulatory frameworks.

5 Priority Interventions

DtP has a set of five priority intervention areas, with capacity building as a cross-cutting priority.

- i Expanding grid-connected solar power generation capacity
- ii Strengthening and expanding national and regional grids
- iii Deploying decentralized energy solutions
- iv Improving the financial and operational capacity of public electricity operators
- v Strengthening the enabling environment for increased private investment electricity operators.



The DtP Organisation

The implementation structure for the DtP comprises:

- A Dedicated Taskforce for:
 - i Syndicating project opportunities
 - ii Serving as a knowledge repository to inform decision-making and fast-track project implementation;
 - iii Providing technical support on project preparation to Sahel countries
 - iv Mobilizing project preparation funding for Sahel countries; and
 - v Facilitating access to climate finance.
- A Steering Committee chaired by M. Bakkoury, CEO of MASEN and comprising the 5 Ministers of Energy of the G5 Sahel countries, Africa50, ACWA Power, the French Development Agency (AFD), the International Renewable Energy Agency (IRENA), the Sustainable Energy for All (SEforALL) Initiative and the USAID Power Africa Program. The European Commission is an observer.
- Country focal points nominated by the respective G5 Sahel countries.

National DtP Roadmaps

The initial focus of the DtP program is on the G5 Sahel countries. National DtP Roadmaps for the G5 Sahel were developed by the Taskforce and the G5 and have been validated by the countries. The Roadmaps define national DtP targets and identify priority interventions and projects. They also provide the basis for alignment of stakeholders and for resource mobilization. A Regional G5 Sahel Roadmap is under discussion.

Projects approved for financing by the AfDB under the DtP Initiative

CHAD DJERMAYA SOLAR

A 32 MW solar PV plant, with 4 MWh of battery storage, in N'Djamena. It is the first renewable power generation project in the country, as well as the first Public-Private Partnership that Chad is implementing.

SUDAN SOLAR POWERED IRRIGATION

Targets 1,170 existing farms for the replacement of diesel-powered water pumps with solar PV powered ones as well as providing requisite capacity building and a quality assurance. The project will result in reduced emissions and improve farmers' income by increasing yields and improving livelihoods.

Identification of Priority Projects

The initial phase of DtP is dedicated to the G5 Sahel countries: Burkina Faso, Chad, Mali, Mauritania, and Niger. DtP Roadmaps in these countries have enabled the identification of projects for preparation and investment.



85 PROJECTS IDENTIFIED

- Solar generation (22%)
- Transmission & distribution (26%)
- Decentralized solutions (23%)
- Utility reform (7%)
- Enabling environment projects (22%)



> 2GW SOLAR POTENTIAL



~USD 3bn INVESTMENT VALUE


Chad's Solar Potential: The Business Case

The first phase of the Djermaya PV plant will be built under a fixed-price date-certain contract on a site provided by the Government of Chad. Generated solar power will be sold under a Power Purchase Agreement (PPA) at a competitive price on a take-or-pay basis to the national utility over a 20-year period. At the end of the PPA, ownership of the plant will be transferred to the state utility.

€54m

Total project cost,
including €9m equity
funding from private
investors

With an annual production of more than 61 GWh, the Djermaya solar power plant will reduce the costs related to thermal production (diesel / heavy fuel oils) which affects the population and the country's economy.

 **10%** OF CHAD'S
ELECTRICITY WILL BE
LOW-COST SOLAR

 **€6m** ANNUAL SAVINGS
FOR THE UTILITY

As Mandated Lead Arranger, the AfDB has played a pioneering role in the structuring and execution of the Djermaya Solar project, providing a senior loan of €18 million and syndicating an additional €20 million from Proparco (Agence française de développement) and Emerging Africa Infrastructure Fund (Part of the Private Infrastructure Development Group – PIDG). The AfDB is providing a Partial Risk Guarantee of €10 million (ADF-funded) to backstop payments from the utility company. The AfDB is also providing a \$0.7 million grant to support the development of the project, and a Technical Assistance grant of \$1 million to assist in the integration of intermittent PV generation.

DtP Resource Mobilization

Realizing the DtP Initiative will require the mobilization of resources at scale and close collaboration with Governments, development partners and the private sector. The Bank's **Africa Energy Market Place** held in December 2020 mobilized a broad coalition of technical and financial partners in support of the implementation of the DtP Roadmaps presented by the G5 Sahel countries. The DtP Taskforce is focused on mobilizing

concessional financing from internal and external sources. The Sustainable Energy Fund for Africa (SEFA) is the Bank's primary resource mobilization vehicle for DtP. SEFA has already funded a large-scale **G5 Sahel Technical Assistance program**. The Taskforce is also developing standard documentation for the projects to alleviate issues of tax regime, currency risks and tariff structures.



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