

2026 CTCN Learning Visit on Energy Storage System under the collaborative RD&D theme.

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in the Republic of Korea**

Chad's Energy Transition!

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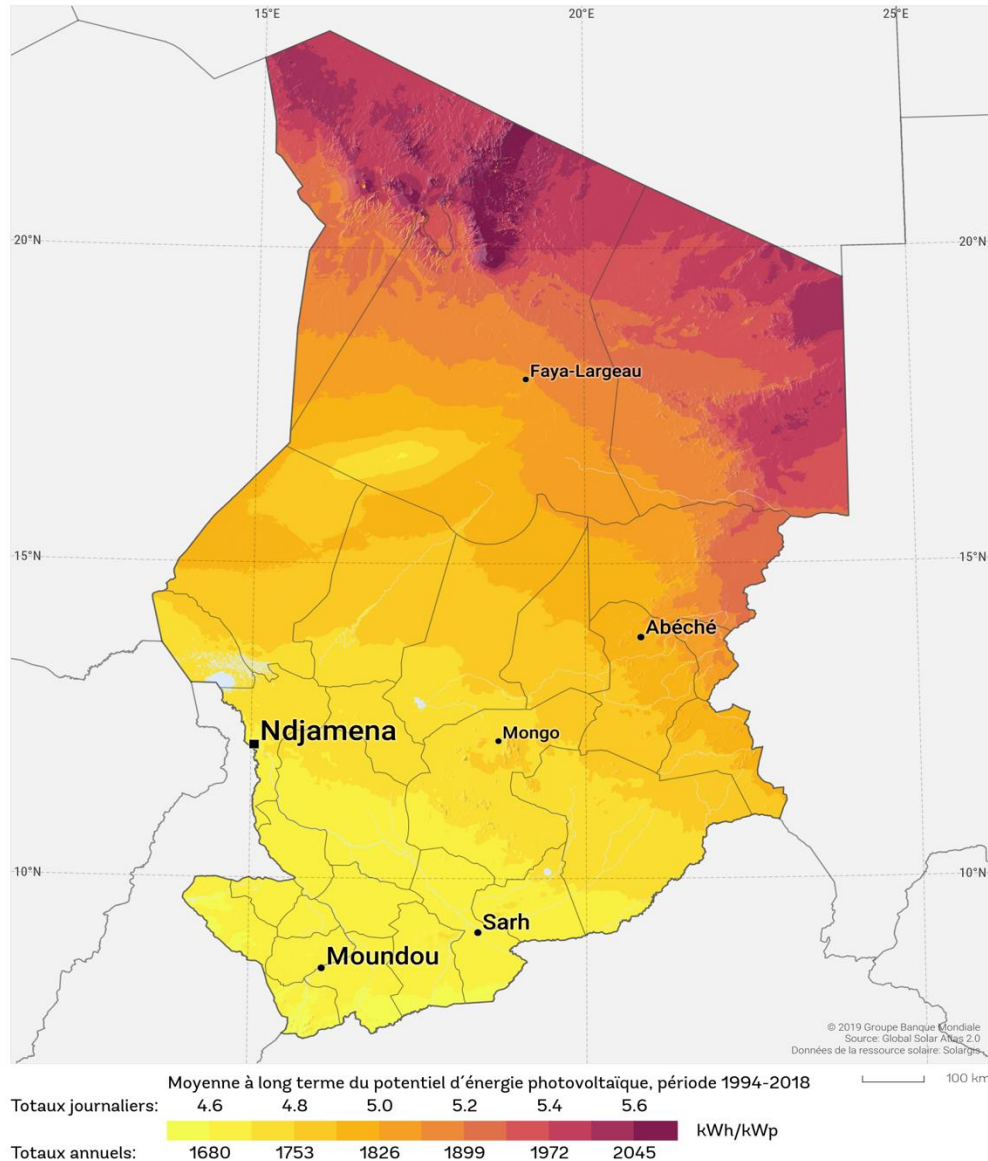
CARTE DE LA RESSOURCE SOLAIRE

POTENTIEL D'ÉNERGIE PHOTOVOLTAÏQUE TCHAD



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Republic of Chad



With an area of 1,284,000 km², Chad has a population of over 20 million. The average population density is 17 inhabitants/km² and nearly 72% of the population lives in rural areas.

Chad's energy transition: low access, high potential

ENERGY SECTOR AT A GLANCE

Chad's power system remains fragmented and largely dependent on thermal generation. Expanding the grid, deploying decentralized solar and integrating battery storage are central to improving access, reliability and affordability.

≈ 12%

Electricity access
2024 estimate

110 MW

Available capacity in
N'Djamena

+75%

Biomasse and waste in
total energy supply 2019

Three constraints define Chad's power sector today

CURRENT SITUATION AND KEY CHALLENGES

Electricity demand is growing faster than infrastructure development.

Closing the access gap requires simultaneous action on supply, networks and sector performance.



ACCESS GAP

Most households, businesses and public services remain without reliable electricity.



HIGH SUPPLY COST

Dependence on diesel and heavy fuel oil increases operating costs and exposure to fuel prices.



FRAGMENTED SYSTEM

The N'Djamena grid and isolated city systems have not interconnection and network reach.

Chad's renewable resources far exceed current deployment

RENEWABLE ENERGY POTENTIAL

Solar is the leading near-term opportunity, while wind and selected hydropower resources can support longer-term diversification.



80 GW

Estimated solar PV potential:
1600–2300 kWh/m²/year



59 GW

Estimated wind potential
Strongest resources in the
north : 4 à 7 m/s



1.8 GW

Technical potential Seasonal and
hydropower geographically constrained

The National Energy Compact sets clear 2030 targets

90% ELECTRICITY ACCESS

Provide access to more than 14 million additional people through grid and off-grid solutions.

+866 MW CAPACITY

Mobilize 520 MW of solar capacity and 346 MW of thermal capacity across the country.

30% RENEWABLE ENERGY

Increase the share of renewable energy in the national electricity-generation mix.

US\$650.3M PRIVATE CAPITAL

Enable private investment across generation, networks and decentralized energy solutions.

Solar and storage form the backbone of the transition in Chad

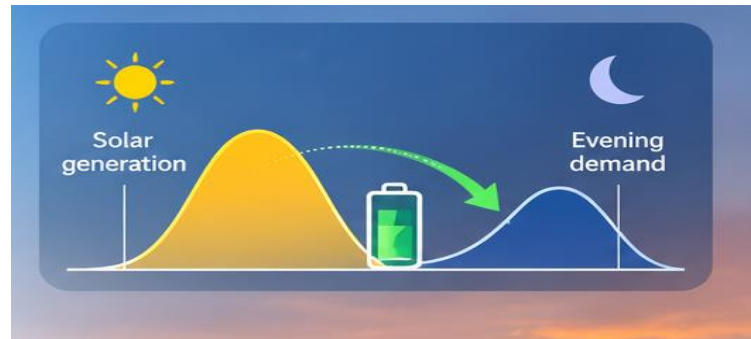
SOLAR PV

Scalable solar PV electricity production that can strengthen the national park, isolated towns and off-grid communities..



BATTERY STORAGE

Balances solar variability, supports frequency and voltage, and shifts clean electricity into evening demand periods.



HYBRID SYSTEMS

Combines solar PV, BESS and thermal backup to reduce fuel consumption while improving continuity and reliability of supply.



Flagship projects currently underway in Chad

A DIVERSIFIED PROJECT PIPELINE

Chad is combining utility-scale solar and storage with grid expansion, regional interconnection and decentralized electrification.

Together, these projects, financed by the World Bank, the African Development Bank, the Islamic Development Bank, and the government, address the challenges of energy production, flexibility, and access.



RESPITE

35 MWp solar PV + 60 MWh BESS for N'Djamena



PAAET

Grid reinforcement and solar-storage systems in 12 cities



PIRECT

225 kV Cameroon–Chad interconnection and corridor access



PASET 1 & 2

Hybrid systems and network upgrades in secondary cities



PESDRT

Project for the construction of a photovoltaic solar power plant and connection to the grid



**ADERM
Projects**

Several mini solar power plants of 1.5 to 5 kWp with storage

ESS cooperation can create a national learning platform

SYSTEM STUDIES

Develop locally calibrated models for BESS sizing, dispatch, dynamic stability, protection and EMS control in weak or isolated grids.

PILOT & VALIDATE

Monitor field performance under high temperatures and dust, including efficiency, degradation, safety and maintenance requirements.

BUILD LOCAL CAPACITY

Strengthen technical skills, testing protocols, operational data systems and partnerships between utilities, universities and research centers.

01 DESIGN

02 DEMONSTRATE

03 SCALE

Chad offers a real-world platform for ESS cooperation

A READY PARTNER FOR APPLIED RESEARCH

The country combines strong solar resources, ambitious 2030 targets and an active pipeline of solar-storage projects.

The opportunity is to design, demonstrate and scale ESS solutions adapted to weak grids and Sahelian conditions.

Chad is not only a market for energy storage — it is a real-world testbed for the next generation of BESS solutions in challenging grid and Sahelian conditions.

- ④ **Joint power-system and BESS studies**
- ④ **Pilot testing and field validation**
- ④ **Technical training and knowledge transfer**
- ④ **Operational data and performance monitoring**
- ④ **Long-term institutional research partnerships**

THANK YOU!

MERCI!

شكراً لك!

감사합니다!