



Project Information Document (PID)

Appraisal Stage | Date Prepared/Updated: 25-Oct-2021 | Report No: PIDA31835

**BASIC INFORMATION****A. Basic Project Data**

Country Niger	Project ID P174034	Project Name Niger Accelerating Electricity Access Project (Haské)	Parent Project ID (if any)
Region AFRICA WEST	Estimated Appraisal Date 27-Oct-2021	Estimated Board Date 17-Dec-2021	Practice Area (Lead) Energy & Extractives
Financing Instrument Investment Project Financing	Borrower(s) Republic of Niger	Implementing Agency Société Nigérienne d'Electricité (NIGELEC), Agence Nigérienne pour la Promotion de l'Electrification en milieu Rural (ANPER), Agence Nationale d'Energie Solaire (ANERSOL)	

Proposed Development Objective(s)

Increase access to modern energy services in Niger through grid, mini grids, off-grid and clean cooking solutions.

Components

- Component 1. Reinforcement and expansion of transmission and distribution networks to increase access to grid electricity services
- Component 2. Reinforcing the ecosystem for the development of solar PV powered mini grids in rural areas
- Component 3. Increasing access to solar off-grid electricity for public institutions, households and productive uses and clean and efficient cooking solutions
- Component 4. Utility operational performance improvement, institutional strengthening, technical assistance and implementation support
- Component 5. Contingency Emergency Response Component

PROJECT FINANCING DATA (US\$, Millions)**SUMMARY**

Total Project Cost	317.50
Total Financing	317.50



of which IBRD/IDA	310.00
Financing Gap	0.00

DETAILS

World Bank Group Financing

International Development Association (IDA)	310.00
IDA Credit	155.00
IDA Grant	155.00

Non-World Bank Group Financing

Trust Funds	7.50
Energy Sector Management Assistance Program	7.50

Environmental and Social Risk Classification

Substantial

Decision

The review did authorize the team to appraise and negotiate

Other Decision (as needed)

B. Introduction and Context

Country Context

1. **Niger is a large, landlocked and mostly arid country in Western Africa, with a rapidly growing population.** With a total land area of 1,267,000 sq. km, Niger is the sixth biggest country in Africa and the biggest in West Africa. Two-third of the country’s land (mostly in the north) is covered by the Sahara Desert. Consequently, about three quarters of the population is concentrated along the Niger River (in the west) and the long (1,500 km) southern border with Nigeria. Conversely, some parts of the north are almost uninhabited except for a few smaller cities along the northern route to Algeria. In 2019, the population was estimated at more than 23 million inhabitants, of which 83 percent lives in rural areas. The population is growing rapidly at a pace of 3.9 percent per annum and is expected to reach 36 million inhabitants by 2030.

2. **Niger is rebuilding its democratic governance mechanisms in a challenging security environment.** The Government of Niger (GoN) has been combating organized crime and terrorism and promoting the safety and property rights of its citizens. Cross-national security threats have increased considerably in recent years, with spillover effects



and terrorist attacks on the border with Mali and Burkina Faso in the south-west (Tillabéri and Tahoua regions), as well as in the Lake Chad area bordering Nigeria and Chad in the east (Diffa region). As a consequence, the socioeconomic situation is deteriorating rapidly and the lack of vital primary resources and basic services (water, food, electricity, closure of schools) is adding to the difficulties faced by the population.

3. **The economy grew over the past decade, but sustained growth remains challenging especially considering the current COVID-19 pandemic compounded by Nigeria's closure of its border to trade.** Average growth between 2010 and 2019 was 6 percent, putting the country's economy among the most dynamic of the West African Economic and Monetary Union (WAEMU). However, the COVID-19 crisis is taking a significant toll on the economy and livelihoods. Real growth fell from 5.9 percent in 2019 to 3.6 percent in 2020, owing to the pandemic, confinement measures, and increasingly violent terrorist attacks. Inflation increased to 3.4 percent in 2020, triggered by supply disruptions and speculative behaviors, combined with food shortages. GoN responded to the COVID-19 crisis by implementing several social protection measures including: increasing health spending, strengthening of the social safety net program, providing free electricity and water for two months to protect the most vulnerable under social tariff categories, and introducing temporary tax breaks to help businesses mitigate the impact of the pandemic. The economy is expected to rebound in 2021 with a projected growth of 5.5 percent thanks to the reopening of the border with Nigeria, the resumption of major investment projects and the normalization of supply chains. But uncertainties remain on how long the COVID-19 pandemic will last, how deep the impact will be and how effective policy measures will be.

4. **Poverty, though declining, remains high, with the country facing substantial wealth disparities.** Despite progress made in recent years, poverty remains high in Niger, with two in five individuals (41.7 percent) living below the national poverty line in 2020 (people living with less than US\$1.9 per day). This corresponds to an absolute number of 10 million poor individuals (out of 23 million). The poverty incidence in rural areas is 46.8 percent, compared to only 11.8 percent in urban areas. Such wealth disparities between regions can be a source of social tension and potentially affect the country's future growth and security situation. Furthermore, the COVID-19 pandemic and its related economic downturn is having an adverse effect on progress made to reduce poverty, which in turn exacerbates inequality issues.

5. **Women in Niger face considerable challenges in terms of their health, education, and access to economic opportunities. Social and cultural norms dictate the specific activities women and men can perform, and these norms work to restrict women's economic opportunities.** Women's restricted mobility is an impediment to their engagement in productive activities such as venturing outside the home to sell their products or taking their animals to pasture or to the market. Moreover, women cannot legally get a job without permission from their husbands. Women and girls also bear a disproportionate share of household's duties, cooking responsibilities for example are both time consuming (women spend more than 2h/day cooking) and exerting (over 10h per week collecting and carrying wood). Gender-based violence (GBV) and survival sex are relatively prevalent and economic opportunities and access to education are very limited for women and girls.

6. **The spillover of the crisis in Mali and the Boko Haram regional crisis is causing major people displacement towards and within Niger.** According to United Nations High Commissioner for Refugees (UNHCR), Niger is hosting more than 614,400 people displaced as a consequence of conflicts in May 2021: 240,500 refugees, 338,300 Internally Displaced People (IDPs) mainly in Diffa and Tillabery, and 35,600 Nigerien nationals who returned from Nigeria. The World Bank's 2019 Risk and Resilience Assessment (RRA) in the Sahel Region further highlights the security and economic impacts of regional conflicts and forced displacement on Niger.



7. **The overall legal framework and protection environment in Niger is conducive to an effective socio-economic response to the forced displacement crisis.** The World Bank, following consultation with the UNHCR, confirms that the protection framework for refugees continues to be adequate in Niger. Niger is a signatory to and has adopted most international instruments to protect refugees. Niger has also in place an institutional and monitoring framework to ensure the implementation of the refugee protection framework. Niger meets both the quantitative and the qualitative eligibility criteria for the IDA19 Window for Host Communities and Refugees (WHR). In February 2021, Niger submitted a strategy note on protection and support to refugees and host communities which summarized substantial progress since the development policy letter issued in June 2017.

8. **Niger set the landmark for its 2035 development vision in its Strategy for Sustainable Development and Inclusive Growth (SDDCI)¹ adopted in May 2017.** The overall strategy seeks to address main constraints to development, including national security, public administration, human capital (education and health), population growth as well as economic growth, rural development, and private sector development. The SDDCI recognizes that electricity is needed for human capital development (education, health care, access to water, information, digital economy) and that it is critical for the rural economy (access to water, irrigation, agri-businesses, income-generating activities, youth employment, women's empowerment). Niger remains one of the countries with the lowest access to electricity in the world at about 19.5 percent in 2020. the GoN has prepared a National Electrification Policy Document (NEPD) and a National Electrification Strategy (NES), which are formulated around two main pillars: (a) on the demand side, to ensure – on the basis of a principle of social justice – universal access to affordable, reliable and modern electricity services for all Nigeriens by 2035, as part of the recognition that access to electricity is the driver of modernization and development of rural areas in support of the decentralization process, and (b) on the supply side, to promote public-private partnerships (PPPs), with a view to increase the share of renewable energy to 30 percent by 2030 and to generate domestically 80 percent of the supply by 2035.

9. **Niger has very low greenhouse gas emissions but is highly vulnerable to the impacts of climate change.** Niger accounts for 0.09 percent of global emissions but is ranked 180th out of 188 countries in terms of its vulnerability to climate change impact². The climate and disaster risk screening indicate that Niger has a high risk of river and urban floods, water scarcity, extreme heat and wildfires. An increase in the frequency and severity of extreme weather events would inflict a heavy toll in human lives and welfare, with a high risk of damage to the country's scarce and valuable capital. The poorest, marginalized and most vulnerable households and communities will be hit the hardest, as income and health shocks will drive them deeper into poverty. Infrastructure assets including electricity transmission and distribution network can be vulnerable to both chronic and acute climate hazards. According to World Bank's Lifelines report, the cost of disruption to power sector due to natural shocks was about 2 percent of GDP in 2019³. This cost could be much higher in Niger if the natural shocks affect the main import lines interconnecting Niger and Nigeria, which provide almost two thirds of Niger's electricity consumption.

¹ For more details, please see <http://www.plan.gouv.ne/sddci-2035.php#:~:text=Le%20Tome%201%20de%20la,de%20ses%20objectifs%20en%202035>

² Notre Dame Global Adaptation Initiative Country Index <https://gain.nd.edu/our-work/country-index/rankings/>

³ World Bank, 2018. Lifelines, the Resilient Infrastructure Opportunity, Global Facility for Disaster Reduction and Recovery (GFDRR)



Sectoral and Institutional Context

10. **Access to electricity in Niger is not only the lowest in Sub-Saharan, but also illustrates big disparities between urban and rural areas.** The Multi-Tier Framework (MTF)⁴ survey data show that 19.5 percent of Niger households have access to electricity through either the national grid or off-grid sources, while the remaining 80.5 percent have no access to electricity. According to NIGELEC's data⁵, grid access rate reached 15.8 percent in 2020 at the national level and ranged from 50 percent in Zinder to 86 percent in Niamey⁶. In other cities and rural areas where lives 83 percent of the population, only 5.3 percent of the population benefited from electricity in 2020. In electrified areas, only 32 percent of the households have electricity connections.
11. **In a country already characterized by low access rate, refugees and host communities suffer more from energy poverty.** According to the Food and Agriculture Organization (FAO), approximately 90 percent of refugees living in rural settlements have very limited access to energy (both for cooking and electricity). This often leads to deforestation as well as health risks of using biomass for cooking. The energy dimension (cooking, electricity, public lighting) remains at this stage marginalized in responses to refugees and IDPs crisis, although it is central to developing additional levers to strengthen the resilience of the population and the hosting regions.
12. **The national electricity system in Niger is small and fragmented. The electricity system is composed of four unconnected systems: (a) the Western Zone (Zone Fleuve), (b) the Niger Center-East zone (NCE), (c) the Northern zone, and (d) the Eastern zone.** The Western and Center-East grids account for more than 90 percent of Niger's electricity consumption. The Western grid serves Niamey, Dosso and Tillabery regions through a 132-kV interconnection with northern Nigeria (Birnin-Kebbi substation, up to 120 MW), the Gorou Banda thermal power plant as well as a new thermal IPP commissioned in March 2021. The NCE supplies Zinder, Maradi, and Tahoua regions including some of Niger's largest industries such as the Malbaza cement plant from a second 132-kV interconnection with Nigeria (Katsina substation, up to 60 MW). The Northern Zone provides electricity to the mining sector and related urban centers, such as Arlit and Agadez. The Eastern Zone provides electricity to Diffa Region, using small diesel units. Finally, 115 isolated centers are supplied (either continuously or for only a few hours) through mini grids powered by small diesel units with prohibitive operation costs.
13. **The Electricity Code provides the foundation for the participation of the private sector in generation segment and rural electrification with various legal arrangements including concession, affermage, delegation, independent power production (IPP), imports, etc.** Several application decrees clarify rules around third party connection to the transmission system, captive power generation, cost-coverage tariff principles and regulation. Furthermore, the GoN approved in 2020 a decree to mandate a transparent and competitive selection process for new IPPs based on least-cost plan. Outside of the grid, the government set a regulatory framework to promote private sector-led solar mini grids as well as exoneration of imports duties on a positive list of off-grid solar devices. Niger signed its first IPP in March 2019 for a total thermal capacity of 111 MW on two sites. Many solar generation projects are under consideration including 90 MWp of solar power plants on three sites which studies were financed by ESMAP.

⁴ The MTF defines access to electricity according to a spectrum that ranges from Tier 0 (no access) to Tier 5 (full access) through seven attributes: capacity, availability, reliability, quality, affordability, formality, and health and safety. The survey results were published in June 2020 using data collected in 2018.

⁵ Off-grid solutions not included

⁶ According to the SE4all SDG7 tracker (2018), access rate in Niger was 20 percent in 2017. But national data will be used



14. **To address the low access to electricity, the Government of Niger (GoN) has prepared and adopted a National Electrification Strategy (NES) and National Electrification Plan (NEP) with the ambition to reach universal coverage and 80 percent access rate by 2035.** By preparing a detailed and comprehensive GIS-based least-cost electrification plan, instead of opportunistically selecting which areas to electrify, GoN has provided sector actors with a clear roadmap to reaching universal electricity access. The NES⁷ clearly establishes grid electrification as the least cost option for 76 percent of the connections complemented by mini-grids (2 percent) and standalone solar systems (22 percent). Achieving the access goal will require the deployment of grid densification and extension in about 10,000 localities for 3.2 million new connections, the development of 400 mini grids covering 636 localities for 240,000 new connections, and the diffusion of standalone solar systems for 1 million households across the country. Mini grids and standalone solar systems will play an important role in the strategy as both transition and definitive solutions. The successful implementation of the NEP will require an acceleration of the electrification pace from 40 villages a year to an average of 300 villages in the first phase (2019-2025) and 700 villages per year from 2026-2035. To achieve these targets, an investment of US\$1.9 billion would be required split between the main grid (US\$1,225 million), mini-grids (US\$364 million) and off-grid solar solutions (US\$301 million). The majority of the investments (90 percent) will be directed towards rural electrification.

15. **The implementation of the first phase of the NEP would double access by 2025 and require US\$ 1.92 billion of investments in generation, transmission and distribution networks, mini grids and distributed solar systems.** US\$ 1.1 billion will be needed to build access infrastructure (transmission and distribution networks, mini grids and distributed solar systems) while US\$810 million would also be needed in generation capacity to meet the increase in energy demand. To double access to electricity⁸ in Niger by 2025, 1.6 million connections will be required, serving 10 million people, mainly in rural areas. These investments needs were presented by the GoN to development partners during a round table on accelerating electricity access in Niger in November 2020.

16. **The cooking subsector is strained in Niger, wedged between the need to rapidly alleviate the pressure of an increasing demand for fuel, led by demographics, and the difficulties of increasing wood supply.** The wood production is constrained by slow growth and low yields in this Sahelian country, and introducing new fuel-saving technologies is difficult, with households' ability and willingness to adopt them very constrained by poverty. There is however, encouraging progress in urban areas where the use of Liquefied Petroleum Gas (LPG) has gained a significant share of users since 2013. Biomass is used by 94 percent of households for cooking fuel⁹, with wood remaining the preferred choice for 88 percent nationwide. Rural households cook almost exclusively with biomass and three-stone stoves and only 15 percent purchase the wood they use. Urban households also cook predominantly with firewood (66.7 percent), but it has most often been purchased rather than collected, but also access a slightly more diverse array of cooking options, including charcoal (9.5 percent) and LPG, used by 19.9 percent of urban households (4.6 percent nationwide).

17. **While some biomass stoves exist beyond the 3 stone solutions, most of the traditional stoves available in the markets are very fuel inefficient and the few locally produced improved stoves remain very simple with questionable savings in fuel and emissions.** The net annual wood fuel balance has been increasingly negative (natural regeneration minus annual fuel use) for an estimated 10 to 15 years and is now heavily impacting the woodstock of the country.

⁷ These figures correspond to a steady state situation. In a pre-electrification approach (before grid connection), mini-grids and off-grid potential could play a more prominent role.

⁸ Scaling-Up World Bank Group Involvement in the Energy Sector in G5 Sahel Countries, June 2020.

⁹ All numbers in this section are from "Niger Energy Access Diagnostic Report Based on Multi-Tier Framework, June 2020"



Relationship to CPF

18. **The proposed Multiphase Programmatic Approach (MPA) operation is well aligned with the World Bank Group's (WBG) twin goals of reducing extreme poverty and promoting shared prosperity, with the WBG's Systematic Country Diagnostic (SCD), and the WBG's FY18–FY22 Niger Country Partnership Framework (CPF).** The WBG's support to the electricity sector is a critical part of the CPF, which is clustered around three focus areas: (a) rural productivity and incomes with the aim to increase Niger's low levels of productivity and household incomes in rural areas; (b) human capital and social protection; and (c) governance for jobs, service delivery and growth. The proposed project will support all three focus areas by providing electricity to rural communities in a way that fosters productivity, enhances human capital and stimulates job and economic activity. The use of IDA19 Window for Refugees and Host Communities provides resources to support Niger's development approach to refugee crises.

19. **The proposed operation also supports the World Bank's engagement under the energy pillar of Sahel Alliance initiative by providing development to combat poverty and fragility.** The World Bank adheres to the Alliance three targets in the energy space for 2022: (i) double the rate of access to electricity, an intermediate objective aimed at ultimately achieving universal access by 2030 as envisaged by the SDG7; (ii) double renewable energy generation capacity; (iii) increase interconnection arrangements to facilitate cross-border trade. The World Bank is championing the energy access agenda in Niger and is mobilizing other donors to fund the implementation of the NES. In this role, the Bank has provided support to the Government and the Sahel Alliance to organize a successful donor roundtable in November 2020. The World Bank engagement through the proposed project will send the right signal to leverage financings from other donors to accelerate access to electricity in Niger. Many other donors¹⁰ are engaged in the electricity access space in Niger and close coordination is put in place and driven by the World Bank to create the required synergies of actions.

20. **Going beyond the target set by the Sahel Alliance to double access by 2025 in G5 Sahel countries, the World Bank has set a milestone to accelerate access to energy through the Energy Access Initiative.** The Initiative aims to support economic recovery from COVID-19, catalyze growth by mainstreaming productive use interventions, and improve resilience to future shocks. Scaling up access to energy in the G5 Sahel countries is a priority. For Niger, this means an investment of US\$ 5.4 billion to achieve universal with an intermediate target to reach 50 percent access rate by 2026. The proposed project will be an important contributor to the Bank's corporate priorities as it will embed post-COVID-19 recovery principles, support private sector participation and the Bank's climate change agenda. As such, the operation will strengthen the energy sector, provide electricity energy services to households, businesses, and enable human capital development and protection with the electrification of public institutions, productive uses and empowerment of women.

21. **Accelerating reforms to Maximize Finance for Development (MFD) and to deliver jobs and economic transformation.** Creating an enabling environment for increased private sector participation is key to improve access to services and address supply constraints, particularly to develop new renewable generation capacity and the solar market. With calibrated technical assistance, the World Bank will continue to support the development of grid-scale solar and off-grid solar. The project is designed to maximize private sector participation in solar-based rural electrification for households, community infrastructures, businesses, jobs creation for women and youth. It will build on ongoing operations including NESAP and ROGEP as well as the collaboration with IFC in the development of solar mini-grids and

¹⁰ Other donors investing in the energy sector in Niger include: the French Development Agency (AFD), the African Development Bank (AfDB), the European Union (EU), the European Investment Bank (EIB), West African Development Bank (BOAD), ECOWAS Bank for Investment and Development (EBID), Islamic Development Bank (IDB), Abu Dhabi Fund for Development (ADFD), International Renewable Energy Agency (IRENA), Arab Bank for Economic Development in Africa (BADEA).



solar home systems and solar lighting systems. The emphasis on zero-emission and low-emission electrification is critical to support Niger's target of increasing the share of renewable energy to reach 30 percent share energy mix in the primary and final energy balance by 2030, as stated in its Nationally Determined Contribution (NDC). This is also aligned with New Generation Africa Climate Business Plan's objectives.

22. **The proposed Multiphase Programmatic Approach (MPA) fits well with the long-term vision of the Government and the strategy of the World Bank in the Sahel Region.** The MPA will support and consolidate efforts of Niger to focus on bold outcomes and impacts instead of outputs in the current project by project approach. A three-phase MPA is proposed for a total program envelope of US\$842.5 million of IDA funding including IDA WHR funding of US\$60 million and US\$7.5 million of Clean Cooking Fund. The first phase of the MPA is proposed for US\$317.5 million. It is expected that the subsequent phase will be overlapping with the first phase to ensure continuity of support and build on the momentum expected in the first phase. The financing of the second phase will be subject to then applicable IDA terms and country borrowing limits at the time of preparation.

C. Proposed Development Objective(s)

Development Objective(s) (From PAD)

Increase access to modern energy services in Niger through grid, mini grids, off-grid and clean cooking solutions.

Key Results

- People provided with new or improved electricity service under the project (number) (Corporate Results Indicator), of which female (percentage);
- Refugee and host beneficiaries provided with electricity services through grid, mini grids and electrified public institutions, of which refugees (number)
- Public facilities provided with electricity services under the project (number);
- People provided with clean and efficient cooking solutions under the project (number), of which female (percentage);
- Refugee and host population provided with clean and efficient cooking solutions (number), of which refugees
- Generation capacity of renewable energy constructed or rehabilitated (MW) (Corporate Results Indicator).

23. **The ultimate project beneficiaries will be households (including refugees), businesses, and public institutions in Niger through the following channels:** (a) a portion of the currently unelectrified households will get electricity connections (on-grid or off-grid); (b) the quality and reliability of electricity services will improve, enabling households and businesses to make better and productive use of electricity; (c) households using biomass for cooking are expected to get health and economic benefits by switching to cleaner cooking options; and (d) a portion of currently unelectrified public institutions in Niger, including schools and health centers, will get electrified. By supporting electrification through solar off-grid solutions the project will help reduce greenhouse gas emissions if equivalent electricity were sourced from fossil fuel-based utility-scale power plants or emergency diesel power plants. NIGELEC, the implementing agency, will also be a direct beneficiary of the project as it is expected to benefit from higher cost-recovery through improved operational efficiency (lower technical and commercial losses), and potentially higher revenues through increased electrification rate and improved quality of service. Refugees and host communities are clear targeted beneficiaries for the project. Overall, it is expected that 550,000 refugees and host population will directly benefit from electricity services through the



electrification of the localities and community infrastructures (health and education facilities, street lighting, water pumping). In addition to access to electricity services, the refugee and host population will be provided with clean cooking solutions in the targeted areas.

D. Project Description

24. **The proposed project aims to accelerate access to electricity in Niger and support the implementation of the NES by financing the construction of various electricity infrastructure to support human capital development.** The considered infrastructure includes transmission and distribution backbones and extensions, mini-grids and standalone systems and connect new consumers and public institutions (health facilities, schools, water boreholes, public lighting). It will also support the deployment of clean cooking solutions. The project has five components.

25. **Component 1. Reinforcement and expansion of transmission and distribution networks for Increasing Access to Grid Electricity (Estimated Cost: US\$195 million of which IDA US\$195 million)**

26. This component will enable grid access by building the transmission and distribution backbones, upgrading and densifying existing distribution networks. This component will also facilitate the integration of more renewable energy over time and include specific measures to ensure the resilience of the infrastructure to geophysical and climate risks. The component will transform and reshape the electricity systems in Niger linking the Western grid (Zone Fleuve - ZF) and the Center-Eastern Grid (Niger Centre-Est - NCE), which are the two largest grids, representing 90 percent of the electricity consumed in the country. The component will consist in the construction of a 270 km double circuit 132-kV line or single circuit 330-kV line and 3-4 substations connecting Zabori (ZF) to Malbaza (NCE) through Doutchi and Konni. Finally, this component will include the construction of new medium voltage (MV) distribution backbones as well as low voltage (LV) networks to electrify new localities targeting development hubs in this first place. Localities will be selected among 1,997 rural development hubs to drive economic growth.

27. **Component 2. Reinforcing the Ecosystem for the Development of Solar Mini-Grids Electricity for Rural Areas (Estimated Cost: US\$40.00 million equivalent, of which IDA US\$40.00 million).**

28. This component will scale up and reinforce activities under the Niger Solar Electricity Access Project (NESAP) by supporting two streams of activities: (i) finance the mini grids infrastructure (solar PV system, battery storage, inverter, diesel back up, distribution network), connection equipment and meters and an owner's engineer to finalize studies and supervise the construction works for the development of private sector led new solar mini-grids, and (ii) the solar hybridization and densification of existing diesel-powered mini grids to provide access to new consumers as well as improving access for existing users.

29. **Component 3. Increasing Access to Solar Off-Grid Electricity for Public Institutions, Households and Productive Uses and Clean and Efficient Cooking Solutions (Estimated Cost: US\$50.00 million equivalent, of which IDA US\$42.50 million and CCF US\$7.5 million)**

30. This component will support the development of human capital by electrifying social infrastructures including schools, health centers and drinking water pumping systems, in rural areas not identified for electrification through mini grids or the main grid. The component will leverage on achievements and learning from the implementation of the ongoing NESAP project. It will also facilitate the acquisition of solar lighting systems (SLS), solar home systems (SHS), solar applications for productive uses and Clean and Efficient Cooking (CEC) solutions for households and small businesses,



specifically targeting vulnerable and female-headed households and women-led businesses when applicable. It would consider distributing SLS and clean and efficient stoves and provide public lighting in selected refugees’ areas (host communities and forcibly displaced people). The multiphase programmatic approach will enable the testing of various business models to address a number of barriers that prevent the development of off-grid solar and clean cooking market.

31. Component 4. Utility Operational Improvement, Institutional Strengthening, Technical Assistance and Implementation Support (Estimated Cost: US\$32.50 million equivalent, of which IDA US\$32.50 million)

32. The project will finance: (i) a revenue protection program to reduce commercial losses through an advanced metering infrastructure and control center; (ii) an incident management system coupled with the distribution control center; (iii) upgrade of customers management and billing systems. It supports the enterprise communication plan to rebrand the company image, the digitalization of the internal processes as well as promotion of household energy efficiency, trainings for young managers to rebuild NIGELEC’s manager pools and to also improve its gender equality. The activities to be financed will be defined by the ongoing study on an emergency plan that encompasses all the issues aforementioned.

33. The Project will finance institutional capacity of the Ministry of Petroleum, Energy and Renewable Energy (MPEER) and regulator (ARSE), including (a) strengthening the planning capacity for the MPEER for electrification and generation that promote a low-carbon technologies; (b) improvement of the regulatory framework supporting ARSE; (c) strengthening capacity stakeholders on development of new power generation projects, mainly solar power, including studies, and advisory services for private sector participation; (d) trainings and South-South exchange energy sector issues.

34. The component covers all activities related to project implementation for NIGELEC, ANPER and ANERSOL, including the recruitment of additional project staff, the purchase of vehicles for site supervision, the acquisition of computers and office equipment, training, audits, and other operational costs. In the project arrangement assessment, possibility for implementing an e-procurement platform will be considered and financed, if deemed appropriate to improve implementation and lower fiduciary risks.

35. Component 5. Contingent Emergency Response Component (Estimated Cost: US\$0.00).

36. A Contingency Emergency Response Component (CERC) is included in the project in accordance with Investment Project Financing (IPF) Policy, paragraphs 12 and 13, for Situations of Urgent Need of Assistance and Capacity Constraints. This will allow for rapid reallocation of credit/grant uncommitted funds in the event of an eligible emergency as defined in OP 8.00.

Legal Operational Policies

	Triggered?
Projects on International Waterways OP 7.50	No
Projects in Disputed Areas OP 7.60	No

Summary of Assessment of Environmental and Social Risks and Impacts



37. **The environment and social risk to the project are rated Substantial due to the large-scale nature and complexity of the project as well as the capacity issues related to developing off-grid solutions.** Environmental impacts are localized and can be managed if effectively implemented by the Government- this includes issues in the right of way related to preservation of biodiversity, and proper management of hazardous waste materials. On the social side, while no resettlement is anticipated, other issues such as GBV, restricted land access, particularly in the right of way, and worker occupational health and safety issues were key issues to assess in the ESMF.

E. Implementation

Institutional and Implementation Arrangements

38. **The project will be implemented by NIGELEC, ANPER and ANERSOL.** The implementation arrangements have been designed to manage the wide array of components and subcomponents, and all activities within the project will be managed by three implementing agencies, with NIGELEC covering all grid related components and the overall program coordination, while ANPER will implement the new mini grids subcomponents and ANERSOL the off-grid and clean cooking component. The institutional arrangement will allow the share of implementation burden and build national capacity as requested by Government during project identification discussions. Each agency will focus on one type of technologies (grid, mini grids and off-grid solar) where it has an added valued. The three agencies will have full fiduciary responsibilities over supervised activities. NIGELEC will provide the overall coordination of reporting on implementation progress, work plan and annual budget and auditing.

39. In addition, the Ministry of Petroleum, Energy and Renewable Energy (MPEER) will manage technical activities under subcomponent 4.2 and the Directorate for Promotion of Households Energy (DPED) under the MPEER will manage technically activities under Subcomponent 3.3 on clean cooking. These two entities will not have fiduciary responsibilities.

CONTACT POINT

World Bank

Affouda Leon Biauou
Senior Energy Specialist

Borrower/Client/Recipient

Republic of Niger
Abdou Rabiou
Ministry of Planning
contact@plan.ne

Implementing Agencies



Société Nigérienne d'Electricité (NIGELEC)
Arzika Mahamadou
Secretary General
arzikam@yahoo.fr

Agence Nigérienne pour la Promotion de l'Electrification en milieu Rural (ANPER)
Salouhou Hamidine
Director General
shamidine12@gmail.com

Agence Nationale d'Energie Solaire (ANERSOL)
Mariama Sido
Director General
nsido2003@yahoo.fr

FOR MORE INFORMATION CONTACT

The World Bank
1818 H Street, NW
Washington, D.C. 20433
Telephone: (202) 473-1000
Web: <http://www.worldbank.org/projects>

APPROVAL

Task Team Leader(s):	Affouda Leon Biaou
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Approved By

Practice Manager/Manager:		
Country Director:	Joelle Beatrice Dehasse	27-Oct-2021