



Concept Environmental and Social Review Summary

Concept Stage

(ESRS Concept Stage)

Date Prepared/Updated: 10/25/2024 | Report No: ESRSC04543



I. BASIC INFORMATION

A. Basic Operation Data

Operation ID	Product	Operation Acronym	Approval Fiscal Year
P507629	Investment Project Financing (IPF)	BNDES Energy	2026
Operation Name	Brazil: Decarbonization of Energy and Industrial Value Chains Project		
Country/Region Code	Beneficiary country/countries (borrower, recipient)	Region	Practice Area (Lead)
Brazil	Brazil	LATIN AMERICA AND CARIBBEAN	Energy & Extractives
Borrower(s)	Implementing Agency(ies)	Estimated Appraisal Date	Estimated Board Date
Banco Nacional de Desenvolvimento Economico e Social (BNDES)	Banco Nacional de Desenvolvimento Econômico e Social (BNDES)	17-Apr-2025	05-Aug-2025
Estimated Concept Review Date	Total Project Cost		
22-Oct-2024	1,060,000,000.00		

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Proposed Development Objective

To catalyze investments in decarbonization of energy and industrial value chains in Brazil.

B. Is the operation being prepared in a Situation of Urgent Need of Assistance or Capacity Constraints, as per Bank IPF Policy, para. 12?

No

C. Summary Description of Proposed Project Activities

The Project Development Objective is to catalyze investments in decarbonization of energy and industrial value chains in Brazil. As a Financing Intermediary, BNDES will finance energy transition and low-carbon industrial technologies, and necessary support infrastructures. This project will enable BNDES to mobilize private capital for energy transition and industrial decarbonization projects in Brazil through the implementation of key financial mechanisms such as blended finance, risk mitigation instruments, and long-term, low-interest financing. The project will fund sub-projects that will substantially reduce the GHG emissions across industrial value chains, particularly in sectors such as chemicals, crude



steel, and cement, provided they incorporate at least one of the five core technological pillars of industrial decarbonization. The project will comprise a credit line with two subcomponents, as described below:

- Subcomponent 1: Financing to decarbonize energy-intensive industries (US\$700 million IBRD). The component will provide financing to deploy technologies to produce new fuels and feedstocks, such as biofuels or clean hydrogen; renewable energy generation and energy efficiency in industrial processes; material efficiency; and CCUS. The sectors that are being considered under this subcomponent are: biofuels, green hydrogen production and value chain, renewable energy for industrial decarbonization, energy efficiency and electrification of hard-to-abate industry (iron and steel industry, mining, cement), chemical industry and mining.
- Subcomponent 2: Financing for shared infrastructure required to decarbonize energy and industry value chains (US\$300 million IBRD). The Project will finance investments on basic infrastructure (such as electricity and water utility infrastructure, corridors, port or industrial area expansion or improvement, logistics) that are required to enable investments on decarbonization of energy and industry value chains. Shared infrastructure is necessary to de-risk private investments on industrial decarbonization. Although subprojects will not be defined until the implementation stage, a set of potentially eligible activities has been identified, based on available technologies and an initial view of BNDES's expected project pipeline. These activities encompass six areas: industrial decarbonization in hard-to-abate industries; renewable energy projects dedicated to electrifying industrial processes or supplying advanced energy industries; machinery and equipment for green hydrogen value chain, SAFs and other e-fuels that have the potential to support the decarbonization of hard-to-abate sectors; advanced biofuels projects (not linked to deforestation); required infrastructure to enable the deployment of the eligible decarbonization solutions; and projects in critical minerals for the energy transition (e.g. lithium) and for the decarbonization of the mining sector itself.

D. Environmental and Social Overview

D.1 Overview of Environmental and Social Project Settings

Brazil is among the top-ten world's largest energy consumers mainly derived from an increased demand for fuels by the transport and industry sectors, which represented 71% of the country's total final energy consumption in 2022, with energy-intensive/hard-to-abate industries making up 65% of this demand and accounting for 4.2% of the country's GHG emissions.

The industry sector is critical for economic reasons and as a provider of materials and components needed to produce sustainable technologies/infrastructure. In 2022, it employed 20.8% of the workers in the country (11 million people) and contributed with 22.4% of the GDP.

The 2023 Brazil CCDR states that the fundamentals of Brazil's energy sector offer a unique opportunity to efficiently decarbonize the harder-to-abate transport and industry sectors and can lead to a power sector with zero gross emissions by 2050 at a negligible incremental cost to the power system. However, it calls attention to risks associated with job losses among "brown" sector workers.

The country's laws and policies are robust on protecting the environment, human/labor rights, traditional communities/indigenous peoples rights, and citizen participation, strong in promoting renewable energy scale-up, and firmly committed to achieving sustainable reindustrialization through technological innovation and decarbonization. Hence, it has launched the New Industrial Program (NIB) and is undertaking consultations on a Brazilian Sustainable Taxonomy (BST). NIB aims to promote green industrial activities by reducing CO2 emissions and increasing the use of



biodiversity by the industry. BST aims to mobilize and redirect capital flows for investments on climate adaptation and mitigation.

Both NIB and BST are based in principles of sustainability, socioeconomic inclusion, gender, racial and ethnic equality, promoting decent work and improving income, reducing regional inequalities, and expanding the supply of basic services and quality of life.

D.2 Overview of Borrower’s Institutional Capacity for Managing Environmental and Social Risks and Impacts

The Bank will support BNDES to provide financing to the implementers of eligible and clearly defined subprojects. BNDES is a public Brazilian development bank founded in 1952 and linked to the Brazilian Ministry of Development (MDIC).

BNDES will manage the E&S risks of the Project and will establish a Project Management Unit (PMU) under its Planning and Institutional Relations Department that will receive support from the E&S Directorates. BNDES has in place an Environmental and Social Management System (ESMS), which includes: a) an E&S policy that is endorsed by its senior management; b) clearly defined procedures for identifying, assessing, managing, monitoring and reviewing E&S risks and impacts of subprojects in a manner proportionate to their E&S risks and impacts; c) a list of exclusion that render activities, economic sectors and clients ineligible for financing; d) appropriate labor management procedures – including a grievance mechanism – that are clearly communicated to all personnel; e) a grievance mechanism; and f) external communications mechanisms.

BNDES maintains an organizational structure with clearly defined roles and responsibilities involving senior management instances that have overall accountability for E&S performance and technical units in charge of the ESMS implementation.

BNDES’ ESMS is in line with the National Monetary Council Resolution 4945/2021, which provides for the E&S and Climate Responsibility Policy, the actions aimed at its effectiveness, and E&S risks to be considered by FIs authorized to operate by the Central Bank when conceding financing to private/public borrowers.

BNDES is not an Equator Principles FI, however, it has previous experience working with MDBs. During preparation, the team will discuss any initiatives undertaken to update their ESMS in accordance with other MDB standards which could help avoid duplicating efforts and enhance the effectiveness of existing strategies.

II. SCREENING OF POTENTIAL ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS

A. Environmental and Social Risk Classification (ESRC)

High

A.1 Environmental Risk Rating

High

The environmental risk of the project is High. The main aspect that preliminarily indicates a high-risk operation currently relies on the fact that the potential list of eligible subprojects includes several activities/types of projects that are well-known for generating a wide range of significant adverse risks and impacts on human populations or the

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environment. Although the expected general outcomes of the project are directly related to positive E&S impacts of energy transition and GHG emissions reduction, the uncertainties linked to subprojects’ scale, location, and overall E&S context entail several concerns about local vulnerabilities, affectation of environmentally sensitive areas, valuable ecosystems and habitats, generation of significant risks to human health or the environment. The subprojects could be either greenfield or brownfield projects, and will most likely entail important environmental risks, such as significant biodiversity loss, affectation of natural habitats, protected areas, soil and water contamination, storage of large quantities of chemicals. During construction stage, environmental impacts are likely to be: increasing noise and vibration, dust and air emissions, waste and wastewater generation, disturbance and/or accidents to wild fauna, fragmentation of terrestrial habitats, decrease in the number of endemic, protected and endangered species of flora and fauna, and disturbances to protected and/or environmentally-sensitive areas. During operation, the subprojects can also generate a wide range of significant adverse risks and impacts on the environment and nearby communities, such as the potential emergency scenarios from chemicals leakages, use of explosives and handling of large amounts of hazardous products. During preparation, the team will be able to reassess and recalibrate the project’s E&S risk, as applicable, in light of the further development and detailing of the project’s scope and the E&S due diligence of BNDES ESMS.

High

A.2 Social Risk Rating

BNDES would finance subprojects for public/private borrowers that meet the eligibility criteria of fostering energy transition (ET) and low-carbon industrial technologies and necessary support infrastructures. These subprojects are not known yet, but ET and decarbonization are often associated with positive effects on the economy, energy security, public health, human welfare, jobs, and livelihoods. They are also often associated with needs to: a) create decent jobs and provide skills retraining and upskilling to brown or high-emitting sector workers to help them to manage skill, wage, and location mismatches; b) avoid the downgrading of employment conditions and its adverse effects on socio-psychological well-being and social cohesion; c) ensure that places with high concentrations of brown jobs do not lose their economic viability, sense of community, and identity, and can develop alternative activities and livelihoods; d) contribute to eradicate energy poverty and ensure universal access to clean and affordable energy; e) incorporate gender and generation views and to assure that ET benefits are distributed fairly and negative impacts did not fall disproportionately on vulnerable people; and, f) engage workers, unions, employers, vulnerable groups and local communities as active participants, decision-makers and beneficiaries. Other areas of major concern refer to: health and safety of workers and communities involved in the increasingly needed extraction of lithium and rare earth minerals and exposed to the handling/use of dangerous chemical products; conflicts over land and water use right; and the impacts associated with the construction of enabling infrastructures related with land acquisition, physical/economic displacement, impacts on livelihoods of local and traditional communities, and temporary project induced labor influx in communities with low absorption capacity and weak law enforcement and its widely known consequences.

B. Relevance of Standards and Policies at Concept Stage

B.1 Relevance of Environmental and Social Standards

ESS1 - Assessment and Management of Environmental and Social Risks and Impacts

Relevant

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BNDES has clear procedures to: a) screen, review and categorize subprojects according to their potential environmental and social risks and impacts; b) screen subprojects against a long exclusion list that takes in consideration the type of financing instrument, the type of subproject, the economic sector, the geographical area, and the track record of the borrower; c) monitor subproject implementation and E&S performance according with the nature and magnitude of its E&S risks; and d) ensure the subproject is implemented to meet national law and contractual requirements. The risk classification system covers 3 categories referring to subprojects having the potential to cause: highly relevant adverse socio-environmental risks/impacts or involving investments in critical activity sectors or sensitive locations that generally require more complex E&S studies (Category A); or adverse E&S risks/impacts of medium relevance (B); or minimal or non-existent relevant adverse E&S risks/impacts.

ESS10 - Stakeholder Engagement and Information Disclosure

Relevant

BNDES E&S Policy obeys the principle of ethics and transparency, providing for dialogue and reporting on corporative decisions and activities to key stakeholders and incorporating the requirement of communicating internally and externally its relevant social, environmental and climate actions. In addition, BNDES has a specific policy on Transparency and Information Disclosure and since 2008, has made information about its operations available on its website and social media. BNDES also operates different channels of engagement with stakeholders, including an Ombudsman Office as the 1st instance for receiving complaints or as a 2nd instance to receive complaints not resolved through conventional service channels. During preparation, the team will assess BNDES requirements with regard to the conduction of stakeholder engagement by its sub-borrowers and agree on procedures to be put in place for external communications on E&S matters.

ESS2 - Labor and Working Conditions

Relevant

BNDES counts with 2,409 open-ended employees hired through public competition and selected based on performance. The robust Brazilian labor legislation – ensuring fair treatment and equity of opportunities, freedom of association and protection of the labor force in a manner consistent with the requirements of ESS 2 – applies to them. For outsourced workers, BNDES monitors the contracted companies to verify compliance with the law. BNDES has formally established teams focused on occupational health and safety and maintains Risk Management and Occupational Health Medical Control Programs updated. BNDES checks on borrowers’ records related to child/forced labor and compliance with the labor law. Its exclusion list includes borrowers convicted for acts involving child/forced labor, moral/sexual harassment, race/gender discrimination. The loan agreements include clauses related to OHS and labor rights. Same rules apply to primary suppliers.

ESS3 - Resource Efficiency and Pollution Prevention and Management

Relevant

The key environmental impacts of the eligible subprojects will be those commonly associated with large-scale civil works: waste/effluent generation (incl. hazardous), noise, dust, vibration, air emissions, soil carryover, chemicals handling and potential leakages. The GH2 supporting infrastructure might involve dredging works, and the use of dumping sites (on/offshore), entailing important risks linked to seabed disturbance and affectation of seawater quality. Industrial plants, biofuel production and mining operations entail the use of large quantities of water and other natural resources. The country’s legislation is especially demanding and enforced to handle the licensing of higher-risk projects, as the ones preliminarily eligible. The issuance of environmental licenses is conditioned to the



approval of comprehensive ESA instruments by the env. agency. Per the Central Bank requirements, BNDES ESMS is also designed to properly screen/assess/manage the E&S risks of its operations.

ESS4 - Community Health and Safety

Relevant

Although subprojects are not defined yet, it can be envisaged that project activities may have positive impacts on community health and safety by reducing emissions of nearby industries and improving mining processes that have adverse impacts on environmental services. The project may potentially have adverse impacts due to temporary subprojects induced labor influx in areas/communities with low absorption capacity and increased road/traffic safety risks. It is not envisaged that subprojects will increase risks associated with security to safeguard their personnel and property. It is too early to cast off whether some subprojects may need to rely on new or existing dams. During preparation, the team will assess the probability of such risks and the capacity of BNDES to screen them and ensure that preventing and mitigating measures are adopted in a manner consistent with the objectives of ESS4 and may propose additional measures (if needed) to reach this outcome.

ESS5 - Land Acquisition, Restrictions on Land Use and Involuntary Resettlement

Relevant

Although subprojects are not yet known, it can be expected that at least the financing of enabling infrastructures may require land acquisition with potential adverse impacts related with involuntary resettlement. In accordance with the ESMS of BNDES, all subprojects that may cause a large scale of involuntary resettlement must be classified in Socio-environmental Category A. These subprojects would submit more complex socio-environmental studies and BNDES would either include additional E&S conditions in the financing contract or not grant financial support. The team will assess the additional requirements commonly made by BNDES and check whether they would be sufficient to ensure the achievement of outcomes materially consistent with the objectives of ESS 5, or to propose additional measures to reach this outcome, or, as a last resource, or to include all subprojects with significant resettlement impacts in a Project's Exclusion List.

ESS6 - Biodiversity Conservation and Sustainable Management of Living Natural Resources

Relevant

The preliminarily listed subprojects are well-known for entailing significant risks and impacts to biodiversity. The implementation of industrial, biofuel plants, supporting infrastructure and mining sector are likely to encompass: forest clearing, biodiversity loss, affectation of natural habitats/protected areas, and impacts on endemic and endangered flora and fauna species, among others. Per BNDES ESMS all subprojects located in protected areas, internationally important sites, primary/natural forests or with high biodiversity value are classified as Category A (high risk). Thus, they should entail more complex ESA studies (as required per licensing processes). BNDES would either include additional E&S conditions in their contracts or not grant financial support. During preparation, BNDES procedures will be assessed to check whether they are sufficient to avoid adverse impacts on critical/natural habitats and ensure the achievement of outcomes materially consistent with the ESS6.

ESS7 - Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities

Relevant

Although subprojects are not yet known, ESS7 is considered relevant because BNDES may support subprojects located in indigenous lands or their buffer zones following the standards of Interministerial Ordinance 60/2015 (50



Km in the Amazon and 10 Km outside it). In such cases, BNDES classifies the subproject in Category A, requires more complex socio-environmental studies (as required by the licensing law), and either includes additional E&S conditions in the loan agreement or does not grant financial support. The team will assess these additional requirements commonly made by BNDES to a) check whether they would be sufficient to avoid adverse risks/impacts on Indigenous People and ensure the achievement of outcomes materially consistent with the objectives of ESS 7, or b) to propose additional measures that must be taken to reach this outcome or, as a last resource, c) to include all subprojects interfering with indigenous lands and buffer zones in the Project’s Exclusion List.

ESS8 - Cultural Heritage

TBD

As subprojects are not yet known, the relevance of ESS 8 is still to be determined. The ESMS of BNDES states that all subprojects located in areas of archaeological or cultural importance must be classified in Socio-environmental Category A. Hence, these subprojects should submit more complex socio-environmental studies (as required in their licensing processes) and BNDES would either include additional E&S conditions in the financing contract or not grant financial support for these subprojects. During preparation, the team will assess the additional requirements commonly made by BNDES to check whether they would be sufficient to ensure the achievement of outcomes materially consistent with the objectives of ESS 8, or to propose additional measures must be taken to reach this outcome, or, as a last resource, or to include all subprojects with significant impacts in (tangible and intangible) cultural heritage in a Project’s Exclusion List.

ESS9 - Financial Intermediaries

Relevant

BNDES has in place an ESMS that is in line with the main requirements of ESS9, including: • A Social, Environmental and Climate Responsibility Policy (PRSAC) endorsed by senior management in 2022; • Clearly defined procedures for identifying, assessing, managing, monitoring and reviewing E&S risks and impacts of subprojects; • An E&S risk categorization system considering the nature and magnitude of E&S risks, contextual (sectoral and geographical) factors and type of financing; • Organizational structure with clearly identified roles and responsibilities with regards to overall and day-to-day implementation of E&S risk management; • Labor management procedures; and • External communication and grievance mechanisms. During preparation, the team will further assess this ESMS and its capacity to deal with the E&S risk of subprojects in a proportionate manner and consider whether elements of this ESMS must be enhanced to meet the requirements of ESS9.

B.2 Legal Operational Policies that Apply

OP 7.50 Operations on International Waterways

No

OP 7.60 Operations in Disputed Areas

No

B.3 Other Salient Features

Use of Borrower Framework

In Part

The Brazilian legal and institutional framework ruling environmental licensing processes and the environmental, social and climate responsibilities of financial intermediaries is comprehensive, robust, and well-enforced. Brazilian regulatory framework for financial intermediaries also requires consideration of environmental, social and climate

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risks and impacts in the assessment of financing requests (CMN Resolution 4,943/2021). The ESMS of BNDES screens subprojects in terms of compliance with national laws. This ESMS will be further reviewed by the Bank during project preparation to ensure it is well aligned with the application of ESS 9 and whether the use of Borrower Framework (in part or in a whole) enables the project to achieve objectives materially consistent with the ESSs. Subsequently and as deemed appropriate by the Bank, additional E&S requirements may be proposed to enhance elements of the ESMS that BNDES has in place.

Use of Common Approach

No

Not currently applicable.

C. Overview of Required Environmental and Social Risk Management Activities

C.1 What Borrower environmental and social analyses, instruments, plans and/or frameworks are planned or required by Appraisal?

The due diligence of the Bank is ongoing and will be completed by Appraisal. Its results will be properly reflected in the Appraisal ESRS, including potential gaps between the application of the national legislation, BNDES ESMS, and the ESF, and specific measures to bridge such gaps – also to be included in the project’s ESCP. Particularly, the E&S due diligence will consider whether BNDES ESMS has measures in place aligned with the relevant ESSs requirements to any subproject that involves resettlement (unless the risks or impacts of such resettlement are minor), adverse risks or impacts on Indigenous Peoples or significant risks or impacts on the environment, community health and safety, labor and working conditions, biodiversity or cultural heritage.

The task team will first complete an assessment of the ESMS that BNDES has in place. Based on this assessment, an Environmental and Social Commitment Plan – including all measures considered necessary to enhance elements of this ESMS so they meet the requirements of the ESSs – will be agreed and publicly disclosed.

Furthermore, during preparation, the team will also assess the elements of the ESMS, reports and other E&S-related documents that are currently publicly available on BNDES’ website. If not already in public domain, the Bank will request the borrower to prepare and disclose on its website the summary of each of the elements of its ESMS by Appraisal.

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III. CONTACT POINT

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