Independent Evaluation of the Brazil Renewable Energy Projects and Associated Transmission

Approach Paper: Methodology and Process

Independent Evaluation Office

20 April 2023

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Abbreviations

ANEEL	Brazilian Electricity Regulatory Agency Agência Nacional de Energia Elétrica
BoD	Board of Directors
BNDES	Brazilian Development Bank *Banco Nacional de Desenvolvimento Econômico e Social*
BRL	Brazilian Real (R$)
ESG	Environmental, Social, and Governance
E&S	Environmental and Social
GW	Gigawatt
IEO	Independent Evaluation Office
MW	Megawatt
NDB	New Development Bank
NSO	Non-Sovereign Operation
PCR	Project Completion Report
SPV	Special Purpose Vehicle

I. BACKGROUND

COUNTRY CONTEXT

1. Brazil is the fifth largest country in the world in terms of geographic size. With a population of around 215 million, it is the sixth most populous country in the world and the most populous in Latin America. It is also the tenth largest economy in the world with a GDP of USD 1.6 trillion in 2021 and a per-capita GDP of USD 7,560. According to the World Bank[1], growth in Brazil tends to have measurable or statistically significant spillovers (with a lag) to its neighbors. Brazil is home to about a third of the global tropical rain forests, and 12% of the world's freshwater - making it important to the world's natural assets. Brazil's development matters not just locally, but globally.

Table 1: Economic statistics of Brazil

								Projected		
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
GDP, current prices (USD trillion)	1.8	2.06	1.92	1.87	1.45	1.61	1.89	2.06	2.2	2.32
Real GDP growth	(3.3)%	1.3%	1.8%	1.2%	(3.9)%	4.6%	2.9%	1%	1.9%	2%
Per Capita GDP (USD Thousand) [1]	8.76	9.98	9.19	8.91	6.84	7.56	8.86	9.57	10.17	10.67
Share of World GDP (in PPP terms)	2.53%	2.47%	2.42%	2.39%	2.37%	2.34%	2.34%	2.3%	2.27%	2.25%
Population (millions)[1]	205.16	206.81	208.5	210.15	211.76	212.61	213.91	215.16	216.35	217.48

Source: International Monetary, Fund World Economic Outlook April 2023.

2. Despite its many advantages, the economy has averaged a growth rate of only 0.3% over the last decade. In 2020, the economy contracted by 3.9%—primarily due to the pandemic induced recession. After the sizable counter-cyclical fiscal response and vaccine rollout, the

[1] Global Economic Prospects, World Bank Group.

economy bounced back in 2021. However, Brazil faces an uncertain economic environment with rising interest rates and inflation.

SECTORAL CONTEXT

3. Brazil has the largest electricity sector in Latin America, with an annual consumption of about 580 TWh. At the end of 2022 the installed capacity was 191.6 GW, of which around 85% was from renewable sources. The power sector in Brazil serves more than 70 million customers, which corresponds to about 99% of the country's households, who have access to reliable electricity. Of the unserved population, about one million people live in very dispersed areas in the so called “legal” Amazon region. Fully serving the Amazon region continues to be a technical and economic challenge.

4. The country has the second largest installed hydroelectric power in the world, with about 109 GW. In 2001 hydropower met more than 80% of electricity requirements. At that time, Brazil faced one of its most severe droughts, and the country had to take steps to reduce demand for nine months, even though no black-outs or brownouts were necessary. Brazil took various steps to help bridge the supply-demand gap. A cost-effective, market-based rationing scheme was put in place, which was acknowledged as international best practice. In 2021 some soft measures were also implemented to deal with the energy component of the crisis, while an innovative mechanism of demand response (RVD) was introduced to deal with the capacity constraint (absent in past crisis). The Brazilian Electricity Regulatory Agency (ANEEL), the national regulatory agency, has taken important steps to mainstream demand response in the wholesale market.

5. Hydroelectricity now meets around 60% of electricity consumption. While this has allowed Brazil to benefit from high levels of renewable power and lower emission intensity, the dependence on hydropower leaves the country vulnerable to erratic weather patterns. In 2022, due to abundant rains, Brazil generated an all-time record of 92% of its energy requirements from renewable sources, significantly higher than 80% in 2021. However, climate change and its impact on precipitation patterns and temperatures, which are not being analytically quantified by ONS, are likely to further strain hydro generation.

6. Over the last two decades about 47.7 GW of new renewable capacity, including 25 GW of wind and 15 GW of biomass (mainly sugar-cane co-generation), has been installed. Solar energy had a late start, but is now the second largest source, contributing 7.7 GW at utility-scale and about 16.3 GW of distributed generation. Due to their lower generation factor,

the contribution of wind and solar is much smaller, on a relative basis, in terms of GWh produced. In 2022, non-hydro generation represented 20% of the total energy consumed in the country (not accounting for distributed generation). The equivalent figure was 17.7% in 2021. Therefore, there is still a significant room for non-hydro renewables to make a stronger contribution to help decarbonize the electricity sector.

7. Currently, wind and solar represent the second most important source in terms of installed capacity, after hydropower. Brazil still offers a huge potential of on-shore wind (hundreds of GW, particularly in the NE) and solar energy, which are already very cost competitive. In the future, Brazil expects to be a world player in the low carbon hydrogen market. It has taken the first steps in the hydrogen space, with the development of a national plan for hydrogen (Programa Nacional do Hidrogênio - PNH2) in 2021. The proposed hydrogen program is technology-neutral, but it is expected that green hydrogen, backed by renewables, will dominate hydrogen production. A few small-scale projects are in the pipeline, and more ambitious ones, including low-carbon hydrogen for exports, are being considered. There is optimism that Brazil may become a major hub for the production of hydrogen, but the economic feasibility of production and use of hydrogen at a large scale (in Brazil and elsewhere) is yet to be proven.

8. Brazil has also pioneered the procurement of energy via reverse auctions, which have pushed renewable prices down and benefitted the consumer. Since the 2001-2002 energy crisis, Brazil has been procuring (mostly) renewable resources working to diversify its energy mix and reduce its dependence on hydro generation therefore mitigating the impact of variable rainfall patterns. Wind and biomass production present negative correlation with rainfall patters, creating a virtuous circle of complementarity. Even so, Brazil still needs to dispatch increasing volumes of thermal generation, particularly natural gas. In 2001, thermal capacity was less than 3 GW and it has grown to more than 20 GW today. Despite the significant increase in renewable resources, all this capacity was dispatched in 2021. This corroborates the need of expanding cost-effective renewable sources, such as on-shore wind, solar (utility scale or distributed generation) and biomass.

9. Brazil's utility-scale electricity market is organized in two specific ways to contract electricity. One is known as the Free Market, which accounts for 36% (2022) of the energy traded with end-users. In this market, consumers with a demand/load over 2 MW would be free to contract electricity directly from generators or retailers. To foster the development of alternative energy in the Brazilian Free Market, the government allows consumers over 0.5 MW to acquire electricity from waste, wind, small hydro, biomass, and

solar, with substantial discounts on transmission tariffs. In addition to the formal Free Market, small and medium customers have the prerogative to generate power on a distributed basis. This prerogative has significantly contributed to expand the total solar capacity. It is expected that the free market will grow in the next few years, as more customers become eligible to participate in this market.

10. The other electricity market, which accounts for 64% of the total market, is known as the Regulated Market, where domestic consumers (households) and other consumers below the threshold of 0.5 MW can purchase energy only from distribution companies or install their own distributed generation. Consumers over 0.5 MW[2] can remain as clients of distribution companies or migrate to the Free Market. In the Regulated Market, distribution companies must contract 100% of their total load through centralized, state-organized electricity auctions. Federal state authorities, such as the Electricity Regulator (ANEEL) and the Ministry of Mines and Energy, organize these auctions taking into account electricity demand forecasts. It is common, for each auction, to have the participation of more than 20 distribution companies seeking new long-term Power Purchase Agreements (PPAs) with private developers.

11. In the last few years, due to a significant growth in the free market, an increasing volume of energy has been traded via corporate PPAs, therefore outside-of-the centralized auction process. Instead, large private users have taken a prominent role as renewable energy off-takers, anchoring the expansion of greenfield renewables via corporate contracts. The Brazilian Development Bank (BNDES) has been playing a key role in this transition process, by creating the necessary conditions to lend to sponsors/developers of renewable projects that will trade energy via those corporate contracts. This is becoming an important avenue to support the development of additional renewable capacity. Centralized auctions continue to contract energy from renewables and capacity from thermal generators and the price resulting from the auctions serve as a reference for other transactions.

12. Brazil has one of the largest and most sophisticated transmission systems in the world, which is designed and operated to optimize the multiple generation sources and to transmit the energy to consumer centers (sometimes very distant) at the lowest possible cost. The business model used to expand transmission assets, introduced in the late 90's has also been very successful. Brazil has granted concessions competitively, and the interest from the private sector and the volume of investment received so far have been

[2] There is a plan to reduce this threshold to increase the share of the Free Market.

positive. However, the transmission sector faces multiple challenges. First, planning has become more complex, given the growth in the free-market and corporate contracts, which are less visible to the energy planner. Second, there is a growing need to continue investing to connect distant hydro plants and intermittent renewables to the main load centers. The transmission sector is aging and needs to be modernized, in line with the concept of establishing smart grids. All this requires additional investments, which will put more pressure on the existing transmission prices, which have been growing steadily over the last year.

II. THE PROJECT

13. **Background.** In April 2016, the New Development Bank (NDB) Board of Directors (BoD) approved a US$ 600 million operation, namely the *Renewable Energy Projects and Associated Transmission* in Brazil. This included US$ 300 million of NDB financing, without a sovereign guarantee. The remaining US$ 300 million (or more) were to be provided as co-financing by the Brazilian Development Bank (BNDES). The latter was the borrower and overall executing agency of the project. The NDB classified this project as a "Non-Sovereign Operation" (NSO), part of its clean energy sector.[3]

14. **Geographic coverage**. The project's geographic coverage includes three states of Brazil, namely Bahia, Minas Gerais, and Pernambuco. It supports the financing and construction of renewable energy projects including two wind power complexes in the northeast (Araripe III in Pernambuco state and Campo Largo in Bahia state) and the Pirapora Solar Complex in Minas Gerais state.

15. **Project Dates**. Following BoD approval in 2016, the NDB loan agreement was signed with BNDES in April 2017. However, the loan was declared effective in February 2018, following a loan amendment in October 2017. The project was implemented just over a two-year period, with a loan closing date of April 2020. All three projects were in full commercial operation by December 2018.

PROJECT OBJECTIVES

16. The Project had the following higher-level objectives[4]:

[3] https://www.ndb.int/about-ndb/focus-areas/

[4] As captured in the Design and Monitoring Framework in the Project Document to the Board.

- Adequate and reliable supply to meet the future demand for electricity in Brazil; and
- Achieve the planned additional capacity by way of alternative forms of renewable energy.

17. For the purposes of this evaluation, IEO will consider the aforementioned to be the main objectives of the project. However, with regard to the second objective above, the Project Completion Report (PCR) underscores that the project will "Contribute to a diversified renewable energy portfolio for Brazil's energy sector, to reduce reliance on hydel and increase the country's resilience in energy supply". This will also be considered as part of the overall objectives of the project.

PROJECT COMPONENTS AND ACTIVITIES

18. The project would facilitate development of infrastructure through investments in renewable energy projects.

19. The project design envisioned that NDB loan would also be available to BNDES for subscribing to debentures of the projects. This would assist BNDES in its efforts to develop an alternative financing source for renewable energy projects and facilitate the development of the secondary market for infrastructure debentures/bonds.

20. The NDB loan would be utilized by BNDES in the following manner:

    i. BNDES would finance at least five projects under the proposed loan;
    ii. The aggregate exposure for projects in any one individual area (for example wind or solar or biomass etc.) shall not exceed 60% of the total loan amount;
    iii. Sub-loan for any single project would be limited to 25% of the total loan amount;
    iv. Up to 20% of the loan amount can be used by BNDES for the purpose of financing of debentures / bonds of the renewable energy projects; and
    v. Sub-loans/debentures would be for maturity in excess of seven years and would not be used for intermediate / bridge financing.

21. At the end of implementation, the NDB loan supported three major sub-projects in the renewable energy sector. Each power plant complex comprised several farms; each had an individual legal entity, and received a separate sub-loan from BNDES, totaling 29 sub-loans. The sub-projects were implemented by Special Purpose Vehicles (SPVs).

Table 2. Sub-projects supported by the NDB loan

Sub-Projects	Sector	No. of Plants	No. of Sub-Loans	Total Installed Capacity (MW)	NDB Loan Amount (USD Million)	% of NDB loan
Campo Largo	Wind	11	11	326.7	95	32%
Pirapora-I	Solar	5	4	150.0	61	20%
Araripe-III	Wind	14	14	357.9	143	48%
Total		*30*	*29*	*834.6*	*299**	*100%*

* Excludes front-End Fee.

22. The Project was designed to rely on the credit appraisal and monitoring capabilities of BNDES and was therefore able to target and attract high-quality sub-project borrowers in the Brazilian market. The shareholders of the sub-project SPVs are large, mostly global, energy companies operating in Brazil:

    a. Campo Largo Wind Complex shareholder: Energia (a holding company of the Engie Group in Brazil);
    b. Pirapora-I solar complex shareholders: EDF EN do Brasil Participações Ltd. (owned by EDF Energies Nouvelles S.A.), owning 80%, and Canadian Solar UK Projects Ltd. (owned by Canadian Solar Inc.), owning 20%; and
    c. Araripe-III wind project shareholders of VTRM are Votorantim Geração de Energia SA (VE) and Canada Pension Plan Investment Board.

23. BNDES was responsible for financing from its own sources at least the same amount as NDB's contribution to the sub-projects. The Loan agreement guides the selection of sub-projects and BNDES commits to utilize the loan proceeds to finance at least five sub-loans. The project also supported the growth of the secondary market for debentures of renewable energy projects and helped promote the development of the capital market for infrastructure bonds. In addition to NDB's loan, investments in the three sub-projects included over USD 339 million from BNDES, USD 399 million from shareholders' equity and USD 107 million in bonds issuances, totaling over USD 1.15 billion. The breakdown of investments by source and sub-project is presented in Table 3 below.

Table 3: Sub-projects funding

Source	Araripe III	Campo Largo	Pirapora	Total
NDB	143,112	94,991	61,147	299,250*
BNDES	175,024	94,991	69,383	339,398
Shareholders' Equity	188,979	162,860	47,655	399,494
Bonds	52,839	0	54,489	107,328
Total	559,955	352,841	232,674	1,145,471

* Does not include the Front-end fee of USD 750,000 capitalized in April 13, 2018. Source: NDB and BNDES.

IMPLEMENTATION ARRANGEMENTS

24. As mentioned, BNDES was the overall Executing Agency for the project. Representatives of the Ministry of Economy were part of the NDB's Board of Directors, responsible for overseeing the Bank's general operations. In January 2023, under the new Brazilian Government, this role was assigned to the Ministry of Finance. President Luiz Inácio Lula da Silva signed Decree No 11,041, which now links the BNDES to the Ministry of Development, Industry, Trade and Services.

25. BNDES selected SPVs to undertake sub-projects by paying close attention to SPV's shareholders, experience and financial strength. After approving SPVs, BNDES ensured compliance by the sub-projects with the requirements of the environment and social framework in Brazil and the core principles enunciated in NDB's Environment and Social Framework. All procurement of goods and works were to be undertaken according to procedures agreed to with NDB.

26. Several reports tracked the progress and performance of the project over the course of its life. Both BNDES and NDB, respectively, produced a final report and/or a project completion report. Other progress and/or supervision and monitoring reports were produced during implementation, which will be reviewed as part of the IEO evaluation. The detailed bibliography of project documents that IEO will examine may be seen in Annex 7.

III. PROJECT EVALUATION

BACKGROUND

27. This evaluation has been agreed with the NDB BoD in 2022. It will be the first project to be evaluated by the Independent Evaluation Office (IEO)[5] in Brazil. It is important to note that the evaluation will cover the entire project and financing, and not just the NDB financing. The results of the evaluation, including the NDB Management Response, will be presented to the BoD in September 2023.

28. A preparatory mission to Brazil was conducted by IEO in September 2022. The purpose of the mission was to brief concerned partners about the evaluation and to seek their initial feedback on the overall methodology and approach, and timelines. Subsequent to the meeting and taking into account the commitments of the executing agency (BNDES), it has been agreed to conduct the main evaluation mission in the week starting April 17, 2023.

EVALUATION OBJECTIVES

29. The evaluation's overarching objectives are to promote accountability and learning. More specifically, the evaluation will assess the results of the operation and generate findings and recommendations for improving the quality of ongoing and future NDB operations in Brazil and beyond. In addition, a secondary purpose of the evaluation is to draw lessons and insights for future evaluations by IEO, which would also serve as useful inputs for the development of IEO's evaluation methods and processes.

METHODOLOGY

30. The evaluation will be conducted within the overall framework of the NDB Evaluation Policy[6], approved by the BoD in August 2022. In particular, the evaluation will be guided by internationally recognized evaluation criteria, methodologies, and processes, as particularly adopted by the Evaluation Cooperation Group (ECG) of the Multilateral Development Banks.

31. In line with the main provisions of the latest *Good Practice Standards (GPS) for Evaluation* of Public Sector and Private Sector Operations, agreed and issued by the ECG[7], IEO will

[5] Independent Evaluation - New Development Bank (ndb.int)
[6] IEO_Final-Evaluation-Policy.pdf (ndb.int)
[7] GPS4 - ECG FINAL - 08Nov11 (ecgnet.org)
https://www.ecgnet.org/document/good-practice-standards-evaluation-public-sector-operations-2012-revised-edition

evaluate the project based on the following evaluation criteria: **A - Relevance; B - Effectiveness; C - Efficiency; D - Impact; and E - Sustainability**.

32. Based on the assessment and ratings of these criteria, the evaluation will form a qualitative performance judgement of overall "overall project achievement". The six-point rating scale that will be applied is shown in Table 4.

33. Apart from determining overall project achievement, the evaluation will assess NDB's performance as well as BNDES and sub-borrower performance. As part of NDB's performance, the evaluation will assess NDB's additionality. This is important to make a wholistic assessment of the operation and key partners involved in the entire project life cycle.

34. The evaluation is summative and will rely on mixed methods of both quantitative and qualitative analysis. Based on the evidence collected and using techniques of triangulation, the evaluation team will assign a performance rating to each evaluation criterion.

Table 4: Rating scale

Rating Scale		
6	Highly Satisfactory	The project demonstrates overwhelming positive results and no shortcomings.
5	Satisfactory	The project demonstrates strong results, with minor shortcomings.
4	Moderately Satisfactory	The project demonstrates positive results with some shortcomings in several areas.
3	Moderately Unsatisfactory	The project has several shortcomings that outweigh some positive results.
2	Unsatisfactory	The project has with largely negative results, with very few positive results.
1	Highly Unsatisfactory	The project demonstrates significant negative results, with hardly any positive results.

35. More specifically, some of the key questions that the evaluation will address are listed below. The list of questions is shown in the Evaluation Framework in Annex 1.

- How does this project fit into the overall energy planning of Brazil?
- How does this project fit into NDB's strategy and country strategy as well as other applicable NDB and Government policies and strategies?

- To what extent were the project designs, construction processes, operations, and administration effective and efficient?
- To what extent did the project achieve its outputs, outcomes and impacts?
- Did the project effectively and efficiently reach its business outcomes in a timely physical completion?
- How was the project financial performance?
- How was the project environmental and social performance?
- What are NDB's investment returns?
- To what extent do the various sub-projects contribute to improved reliability and access to energy to meet domestic demand?
- To what extent did the sub-projects contribute to the diversification of Brazil's energy mix? (In terms of both installed capacity and actual energy production).
- To what extent did the sub-projects contribute to strengthening BNDES' financial position?
- Did the sub-projects avoid duplication with other development institutions? In the event of similar projects, were they complementary?
- To what extent did the appraisal and monitoring capabilities of BNDES help attract high-quality sub-project investors?
- To what extent did the project contribute to strengthening Brazil's private sector?
- To what extent did the project facilitate the development of a secondary market for infrastructure bonds and debentures?
- To what extent are the renewable energy projects in line with Brazil's environmental and social safeguard regulations?
- To what extent were ESG dimensions incorporated in the design and implementation of the project?
- To what extent did BNDES apply its selection criteria (for SPVs) in a fair and transparent manner?
- What was the additionality NDB provided to BNDES during the entire project cycle, including project preparation and implementation stages?
- Were land acquisition and resettlement activities in compliance with federal and state regulations?
- Was the results framework sound and to what extent are the performance indicators being monitored?

36. During the IEO September 2022 mission, the suggestions of key areas that could be covered by the IEO evaluation included an assessment of the: (i) gender dimensions and impact as a result of increased production of energy; (ii) the sustainability of infrastructure put in place by the project; (iii) how this operation fits into the overall energy planning of the country, which is done at the Federal level by the Ministry of Mines and Energy; (iv) the technical assistance requirements for the project and how they were mobilized; (v) the monitoring and financial management activities of the project; and (vi) the approach to procurement, and oversight of environmental and social safeguards. These suggestions have been included as part of the key questions in Evaluation Framework as well.

EVALUATION TEAM AND PROCESS

37. While the evaluation will be conducted under the overall oversight of Mr. Ashwani K. Muthoo, the Director General (DG) IEO, the evaluation will be managed and conducted under the responsibility of Mr. Henrique Pissaia de Souza, Principal Professional, IEO. Critical inputs will be provided by a team of consultants comprised of Mr. Rakesh Nangia (Evaluation Specialist), Mr. Luiz Maurer (Energy Sector Expert) and Mr. Izidoro Tokarski Junior (Evaluation Research Analyst). They will also be supported by Ms. Jaqueline Rabelo Souza, IEO evaluation communication and outreach expert. IEO will be responsible for the contents and quality of the evaluation report and related outputs.

38. The evaluation will benefit from IEO quality enhancement processes, including internal and external reviews. With regard to the latter, Dr. Jose Graziano da Silva, former Director General of the Food and Agriculture Organization of the United Nations, will serve as Senior Independent Adviser (SIA). In particular, he will provide inputs towards the design of the evaluation and review the draft final report. Once IEO has prepared the final evaluation report, the SIA will prepare a final short (2-3 pages) report capturing his assessment of the quality of the evaluation and the recommendations contained therein. The SIA's report will be made available to the NDB Management, partners at the country level, and the Board of Directors.

39. The evaluation will comprise the following phases.

    i. **Desk Review**. IEO will conduct an initial literature review. The documents to be reviewed will include, *inter-alia*, the project design report, loan agreements, the project progress reports, supervision reports, and the Project Completion Report (PCR) completed by NDB. IEO will also examine a separate final report prepared by BNDES, and other relevant documentation and data. The evaluation team will also

examine findings on the impacts of the energy projects on communities elsewhere in Brazil that may be of relevance to the project. This phase will be in preparation for the field work.

ii. **Field Work**. Thereafter, IEO will organize a field mission to Brazil to conduct data collection and initial analysis. The mission will stay in country from 17-28 April 2023, and will interview key informants, collect additional evidence, and visit selected project sites. The qualitative analysis will rely on the use of semi-structured interview questionnaires to be used with key informants, field observations, and relevant project documents. The quantitative analysis will rely mainly on secondary data, including data from the project's internal monitoring and evaluation system, financial data, as well as country and sector data from public sources. At the end of the field work, IEO will produce a power point presentation, capturing its preliminary evaluation findings, and discuss the presentation in a debriefing meeting with BNDES and others concerned, virtually.

Given the project covers three states and the time required for travel, the IEO mission will physically visit two states only (Minas Gerais and Bahia). Data and information from the third state (Pernambuco) will be conduct virtually (e.g., through Zoom meetings, email exchanges, etc). At the state/project level, IEO plans to meet relevant state authorities in the capital city and at the local level, representatives of beneficiaries (including women), and representatives of those involved in project implementation (i.e., sub-borrower companies). A more detailed programme of the field visits may be seen in Annex 8.

iii. **Drafting of the evaluation report**. Building on the desk and field work, IEO will draft the main evaluation report (see Annex 2 for draft table of contents). The draft will be shared with BNDES and other concerned in-country partners and NDB Management for comments. The report will be finalized taking into account the comments received. An audit trail will be produced illustrating how the comments received have been incorporated by IEO in the final report. Once the final report has been prepared by IEO, on that basis, the NDB Management will prepare a written Management Response to the independent evaluation, which will be included in the evaluation report once published.

iv. **Stakeholders' workshop**. Following the completion of the evaluation report, IEO will organize a final stakeholders' workshop in Brazil. The workshop will focus on learning, with the aim of discussing and exchanging views on the evaluation's main findings,

lessons and recommendations. In addition to the evaluation report and NDB Management Response, as background documentation for the workshop, IEO will prepare an Evaluation Lens [8] and summarize the main evaluation results and recommendations in a power point presentation to be delivered at the workshop (which will be held before BoD discussion, see next point).

v. **BoD discussion**. The final evaluation report along with NDB Management Response will be discussed in the Bank's Board of Directors meeting planned on 13 September 2023. Representatives of the Borrower (BNDES) will be invited to participate in the BoD to share their views on the project and its independent evaluation.

IV. DISCLOSURE

40. In line with the provisions of the NDB Evaluation Policy, key evaluation outputs (e.g., evaluation report, Evaluation Lens and others) will be disclosed to the public through the IEO webpages[9] on the NDB website and other communication instruments.

V. TIMELINE

41. Broadly speaking, the evaluation will be conducted from April to September 2023. Specific deliverables, and a corresponding timeline, are shown in Table 5.

[8] A two-page reader-friendly brochure summarizing the evaluation's findings and recommendations.
[9] https://www.ndb.int/governance/independent-evaluation/

Table 5: Deliverable timeline[10]

Deliverable	Timeline
Draft Approach Paper shared with NDB Management, the Borrower and others	31 January
Comments on draft Approach Paper by Management, the Borrower and others	9 February
Final Approach Paper	20 April
Main Evaluation Mission to Brazil	17-28 April
Draft evaluation report sent to NDB Management, the Borrower and other relevant in-country partners	16 June
Comments on draft evaluation report by NDB Management, the Borrower and other relevant in-country partners	7 July
Share final evaluation report with NDB Management for preparation of Management Response	17 July
NDB Management Response finalised	31 July
Transmit final evaluation report and NDB Management Response to NDB Corporate Secretary's Office	August
Stakeholder's workshop (Brazil)	Week of 4 September
Presentation of evaluation report and Management Response in the NDB Board of Directors	13 September

[10] The timelines may be adjusted depending on evolving context.

ANNEXES

Annex 1: Evaluation Framework

Evaluation Criteria	Evaluation Questions	Sources
Relevance	• To what extent was the project in line with the national energy and development policies and plans? • How does this project fit into NDB's strategy and country strategy as well as other applicable policies and strategies? • To what extent were the projects relevant to NDB's Long Term Strategy? • To what extent were the project design and structure appropriate? Were they compatible with other ongoing or planned initiatives?	Stated policies and plans; interviews with officials. NDB long-term strategy; interviews with NDB staff. Project documents and interviews.
Effectiveness	• To what extent did the project contribute to strengthening the energy sector? Did the operation facilitate investments in renewable energy projects? • To what extent did the project contribute to growth in the economy, for instance, by strengthening the performance of enterprises through enhanced access to reliable energy? • To what extent did the project achieve its business outcomes? • To what extent was the process for selection of sub-projects transparent? Did the borrower reach and engage the right sub-borrowers? • To what extent are the borrower and sub-borrowers competitive in relation to the market and its sector peers?	Brazil Energy Sector strategy. Analysis of energy mix. Analysis of results data. Review of projects' initial power output estimations and actual monthly production. Review of baseline and collected data. Comparison of projected output with the generated output. (production, curtailment, production versus contracts, cost) Discussions with sub-project operators about curtailment (if any) and its causes Physical inspections, implementation reports and

Evaluation Criteria	Evaluation Questions	Sources
	• To what extent did the project contribute to strengthening Brazil's private sector? • To what extent did the sub-projects contribute to the diversification of Brazil's energy mix? (in terms of both installed capacity and actual energy production). • To what extent have the sub-projects promoted economic development at their area of influence? • To what extent did the sub-projects contribute to strengthening BNDES' financial position? • To what extent has the project facilitated secondary market development for infrastructure debentures/bonds? Did the project assist BNDES in its effort to promote alternative financing options for renewable energy projects? *Environment and Social:* • To what extent were Environmental, Social and Governance (ESG) dimensions incorporated in the design and implementation of the project? • Were country systems with regards to environmental and social safeguards appropriately followed? • Did the project contribute to promoting clean energy and energy efficiency? • Did the project contribute to advancing NDB's and Brazil climate goals and the SDGs?	interviews with relevant staff. Analyze financial statements and evaluate the borrowers and sub-borrowers revenues and profitability. Interviews with BNDES staff, Ministry of Finance. Review of design and implementation in the context of stated and inferred ESG issues. Interviews with NDB staff and BNDES. Review of E&S plans and report. Review of NDB E&S procedures. Discussions with E&S staff and consultants.

Evaluation Criteria	Evaluation Questions	Sources
	• Were mitigation and compensation for Environmental and Social (E&S) impacts from sub-projects handled in line with NDB processes? • Were there any unintended environmental or social impacts of the project? • To what extent are sub-projects' forecasted output vulnerable to climate change? • To what extent BNDES and NDB monitoring compliance with E&S plans? • Does BNDES and the Implementing companies have any E&S policies, guidelines and certifications? • Did the projects follow any E&S standard or certifications?	Discussion with BNDES, local community. Review of project design reports and climate projections. Discussion with experts. Review of E&S progress reports Discussions with relevant staff/management and comparison with international norms. Review regulations and safeguards pertinent to the project. Interviews with staff and community members.
	Contribution to NDB Mandate • To what extent did the project contribute to achieved the objective of mobilizing resources for infrastructure and sustainable development projects? • Has the project complemented the efforts of other MDBs and related development partners for growth and development? • To what extent did the project promote innovative solutions to infrastructure development and economic growth? • To what extent did the project advance NDB's corporate objectives for stimulating private sector development?	Stated policies and plans, interviews with officials. Interviews with other MDB staff, Ministry of Energy.

Evaluation Criteria	Evaluation Questions	Sources
	• To what extent does the project increase competition and help market expansion? • To what extent did the project contribute to economic and social advancement in general, and in particular of end beneficiaries - including women, youth, quilombolas and other marginalized communities? • Is there evidence of improved infrastructure in the project areas (e.g., roads, markets, etc)? • To what extent did the project contribute to adequate and reliable supply to meet the demands for electricity in Brazil? • Did the project achieve the planned additional capacity by way of alternative forms of renewable energy?	
Efficiency	• To what extent was the project ready for implementation? • To what extent was the project implemented in a timely manner? • To what extent was project procurement in compliance with applicable policies and procedures. Was it completed in a timely manner? • Were land acquisition and resettlement activities in compliance with federal and state regulations and completed in a timely way? • Was the disbursement performance in line with the provisions in the PDB?	Review of documents and interviews. Discussions with BNDES, developers, and local communities Discussion with private sector operators and BNDES staff. Discussions with relevant staff/management and industry associations Review of project reports.

Evaluation Criteria	Evaluation Questions	Sources
	• To what extent are the performance indicators sound and monitored/reported? • Were all the articles and loan covenants related to the borrowers and sub-borrowers properly followed? *NDB Investment Profitability:* • Are the project's financial rate of return (after tax) and internal rate of return in line with the PDB. • Has the borrower calculated and assessed the Sub-Project's EIRR, FIRR and WACC as required by the PDB and Loan Agreement, during life cycle of the Sub-Projects? Is the model used by them for these assessments in line with the industry best practice? • Were the data, projections and assumptions used by them reasonable, complete, accurate and in line with the delivered outputs when the Sub-Projects commenced their commercial operations (such as the accomplished capacities, generated electricity, etc.)? • What was the impact of the sub-projects on profitability?	Discussion with BNDES staff. Incremental impact of project(s) on BNDES' and each sponsor's EBITDA and debt Comparative economic and financial data. (NPV, FIRR, EIRR.)
Impact	• Will the project contribute to adequate and reliable supply to meet the future demand for electricity in Brazil?	Review of baseline and collected data.

Evaluation Criteria	Evaluation Questions	Sources
	• Will the project achieves the planned additional capacity by way of alternative forms of renewable energy?	Review the goal achievement based on national statistics and interviews with key authorities.
Sustainability	• Has the project contributed to the sustainability of benefits, especially for end beneficiaries in terms of access to energy and improved livelihoods and incomes? • Was an exit strategy developed, to ensure that recurrent costs are met post project implementation? • What are the provisions for operations and maintenance of infrastructure put in place by the project? • Did the project have a risk management strategy (financial, operational, legal and reputational) and were adequate mitigation measures considered?	Review of project documents, interviews with BNDES and NDB staff.
NDB additionality	• What was NDB's financial additionality overall? • Would BNDES have been able to mobilise sufficient financing for the project without NDB involvement? • Was NDB catalytic in mobilizing funding or was it merely helping complete the financing package? • Was NDB engagement important to reduce risks or to provide comfort to other investors and lenders? • What was NDB's non-financial additionality overall, including	Review of relevant policy documents and scrutiny of other projects in the area. Review of renewable energy projects in same states or project that shared the same transmission lines. Discussion with design team and stakeholders. Review of project documents and interviews.

Evaluation Criteria	Evaluation Questions	Sources
	during project preparation and implementation stages? • Was NDB participation important to the allocation of risk and responsibilities between BNDES and other sub-borrowers? • Did NDB's knowledge and expertise strengthen project design and BNDES functioning and capacity building?	
NDB Performance	• What is the overall quality of project design report (PDR)? • Was the PDR preparation process participatory? • Is the Loan Agreement appropriately aligned with the PDR? • Assess the quality of the Design and Monitoring Framework in the PDR. • Did NDB conduct project supervision in accordance with guidelines? What was the frequency and quality of supervision processes and deliverables? • Was the PCR done in a timely manner? To what extent is it in line with guidelines? How is the quality of the report? • Did NDB assign appropriate human resources to accompany project implementation? • Were the roles and responsibilities of NDB HQs and the Americas Regional Office clearly defined in the project life cycle? • How was the quality of partnership with relevant stakeholders	Review of PDR, interviews with NDB staff and BNDES officials. Review of results framework, implementation reports, and effectiveness of KPIs. Review all related project documents. Interviews with NDB and BNDES staff.

Evaluation Criteria	Evaluation Questions	Sources
	including Federal and State Governments? • Did NDB put in place a knowledge management and learning plan to document and share lessons learned?	
BNDES and sub-borrowers performance	• Did the borrower make available the financial resources (co-financing) in line with the PDR and loan agreement? • As executing agency, what type and level of human resources did the BNDES assign as part of the "project execution team"? • Did the borrower and sub-borrowers have an appropriate financial management system in place? Was the frequency and quality of audits appropriate? • Did the borrower conduct timely supervision of all projects, monitoring of activities and produce the required progress reports? • Comment on the timeliness and quality of the BNDES final report	BNDES Documents/reports and interviews.

Annex 2: Evaluation Report Outline[11]

Preface	**1 page**
Acknowledgements	**1 page**
List of Acronyms	**1 page**
Executive Summary	**2-3 pages**
NDB Management Response	
Background	
• Country, sector and international context	1 page
• Project and Local context	1-page
Project background	
• Project objectives	½ page
• Project design and components	1 page
• Implementation arrangements and support	½ page
Evaluation objectives, methodology and process	
• Objectives	½ page
• Methodology, questions and rating system	2 pages
• Limitations and mitigation measures	½ page
• Process steps	1 page
Evaluation Findings	
• Relevance	½ page
• Effectiveness	2 pages
• Efficiency	1 page
• Impact	1 page
• Sustainability	1 pages
• Overall project achievement	½ page
• NDB Performance (including additionality)	1 page
• BNDES Performance	1 page
Conclusions and recommendations	
• Conclusions	1 page
• Recommendations	1 page
Annexes	

[11] This is a draft and will be further developed as the evaluation is undertaken.

Annex 3: Evaluation Criteria[12] and Evaluation Aspects Explained

EVALUATION CRITERIA	
RELEVANCE	The assessment of relevance will examine the extent to which: (i) the objectives of the project are consistent with beneficiaries' requirements, country needs, institutional priorities and partner policies; (ii) the design of the project is consistent with the objectives; and (iii) the project design has been (re-) adapted to address changes in the context. Finally, under relevance, an assessment will also be made of the compatibility of the intervention with other interventions in a country, sector, or institution.
EFFECTIVENESS	Effectiveness it is evaluated the extent to which the project achieved, or is expected to achieve, its objectives and results at the time of the evaluation, including any differential results across groups. The analysis of effectiveness involves taking account of the relative importance of the objectives or results.
EFFICIENCY	In evaluating effectiveness, it focusses on how well resources are used. In particular, the assessment of efficiency will examine the extent to which the project delivers, or is likely to deliver, results in an economic and timely manner.
IMPACT	The impact, evaluate the extent to which the project has generated, or is expected to generate, significant positive or negative, intended or unintended, higher-level effects.
SUSTAINABILITY	In evaluating sustainability, it is assessed whether project benefits will last or are expected to last after completion. More specifically, sustainability is about whether the net benefits of the project will continue or are likely to continue.

[12] Source: Multilateral Development Banks Evaluation Cooperation Group Working Group on Private Sector Evaluation, Good Practice Standards for the Evaluation of Private Sector Investment Operations-Fourth Edition.

EVALUATION ASPECTS

NDB AND BORROWER PERFORMANCE	This criterion assesses the contribution of partners to project design, execution, monitoring and reporting, supervision and implementation support, and evaluation. The performance of each partner will be assessed on an individual basis with a view to the partner's expected role and responsibility in the project life cycle.
NDB ADDITIONALITY	The rating of the NDB's additionality considers the orgnaisation's value proposition in providing support to the project. It is based on the counterfactual assessment of how the project would have (or would not have) proceeded without NDB support. It should consider all factors relevant to the role and contribution of the NDB.
FINANCIAL PERFORMANCE AND FULFILMENT OF PROJECT BUSINESS OBJECTIVES	In evaluating financial performance, the incremental effect of the project on the company is assessed on a with vs. without project basis, or a before vs. after project basis. The effect of the project on all financial stakeholders in the project and/or company should be considered. The rating also considers fulfilment of project business objectives, that is the extent to which the project has delivered on the process and business objectives stated at approval. The rating of financial performance and fulfilment of project business objectives is determined with the following methods: Performance of Sub-Portfolio, Performance of the Fund Portfolio, Achievement of Project Business Objectives, and Performance of Intermediary.
ECONOMIC SUSTAINABILITY	In evaluating the project's economic sustainability (i.e., the project and/or project company's contribution to growth in the economy), the incremental effect of the project and sub-projects (if applies and documents are available) on stakeholders is assessed on a with vs. without-project basis, or before vs. after-project basis. Both historic and, where

	relevant, projected economic effects should be taken into consideration. The rating of economic sustainability is measured by considering the economic activities of sub-borrowers and economic viability of fund investees.
CONTRIBUTIONS TO MANDATE OBJECTIVES	This indicator measures the project's contribution to the IFI's mandate objective (such as stimulate development of the private sector, development of efficient capital markets, or transition to a market economy).
ENVIRONMENTAL AND SOCIAL PERFORMANCE	The rating of environmental and social performance considers the project company's overall environmental and social performance in the area of influence of the project, based primarily on the IFI's specified standards in effect at approval, and secondarily on the IFI's standards prevailing at the time of the evaluation. The assessment is based on the project company's management of its environmental and social aspects and to the extent covered by IFI's policies. In addition, the assessment should consider the adequacy of the financial intermediary's Environmental & Social Management System (ESMS) and its implementation.
INVESTMENT PROFITABILITY	The indicator measures the profitability of each of the IFI's investments in the project company (sub-projects). The rating of the IFI's investment profitability is based on the investment's net profit contribution (the gross income less financing costs, loss provisions / write-offs, transaction and administrative costs), measured in risk-adjusted, discounted cash flow terms, provided reliable cost data are readily available from management information systems.
ADDITIONALITY	The rating of the IFI's additionality considers the IFI's value proposition in providing support to the project. It is based on the counterfactual assessment of how the project would have (or would not have) proceeded without IFI support.

Additionality has two components: financial additionality and no-financial additionality. Financial additionality considers the following: would the client have been able to obtain sufficient financing private sources on appropriate terms; was the IFI catalytic in mobilizing funds; and was the IFI need to reduce risks and, thus encourage other investors and lenders to proceed?

Annex 4: Project Data Sheet

Project country / Name	Brazil/Financing of Renewable Energy Projects and Associated Transmissions			
Loan Number	16BRO1			
Sector and Subsector	Clean Energy	On-Shore Renewable Energy		
Safeguard Categories	FI-B (Financial Intermediary)		Environment	
	Land acquisition, resettlement and compensation			
			Approved (USD Million)	**Actual** (USD Million)
Project costs (USD million)		Total Project Cost	800	1288
		Loan (NDB)	300	300
		Borrower (BNDES)	300	339.40
Co-Financiers/project developers	Sub-projects' shareholder equity and bonds	Total co-financing	200	650
Approval Date	April 13, 2016	**Loan signing date**	April 26, 2017	Amended October 26, 2017
Effectiveness Date	February 9, 2018	**Project closing date**	April 26, 2020	
Restructuring and/or Additional Financing				
Date: 18.06.2017	Reasons for Revision: Amendment 1: Decrease in the interest rate spread to 1.75% p.a. from 1.90% p.a. The decrease was the result of NDB's broader revised loan pricing approach and revised lending rates for approved projects.			

Annex 5: Project Design and Monitoring Framework

Design Summary	Performance Indicators and Targets	Monitoring Mechanisms	Assumptions and Risks
Goal			
Adequate and reliable supply to meet the future demand for electricity in Brazil. Achieve the planned additional capacity by way of alternative forms of renewable energy.	Aggregate power generation capacity to increase to 207 GW by 2024 from 141 GW in 2016. Wind generation capacity to increase to 24 GW in 2024 from 8 GW in 2016 and solar generation capacity to increase to 8 GW in 2024.	Statistics released by Ministry of Mines and Energy and Agência Nacional de Energia Elétrica (ANEEL) Statistics released by Ministry of Mines and Energy and ANEEL	**Risk** Protracted economic slowdown in the international and domestic markets.
Purpose			
Facilitated investment in renewable energy. Assist BNDES in its effort to promote alternative financing options for renewable energy projects through debentures.	By 2024, USD 300 million of additional finance available to BNDES. About 600 MW of additional renewable energy capacity added through BNDES's provision for long term loan	BNDES annual reports and other project specific reports BNDES annual reports and other project specific reports BNDES annual reports and other project specific reports.	**Risk** Private sector demand for renewable energy projects will be maintained.

Design Summary	Performance Indicators and Targets	Monitoring Mechanisms	Assumptions and Risks
	Up to 20% of the Loan earmarked for debentures.		
Outputs			
Enhanced availability of long-term financing to support renewable energy projects	At least 5 renewable energy projects approved and funded by BNDES	BNDES annual reports and other project specific reports	**Assumptions** BNDES and project developers make available sufficient counterpart funds in a timely manner. **Risks** BNDES portfolio quality in power sector deteriorates due to accelerated slowdown in economy.
Activities			
Enhanced availability of long-term financing to support renewable energy projects	provides USD 300 million line of credit to BNDES. BNDES uses the funds earmarked	BNDES sources, appraises and funds renewable energy projects.	

Design Summary	Performance Indicators and Targets	Monitoring Mechanisms	Assumptions and Risks
	for debenture facility to facilitate growth of the secondary market for debentures of renewable energy projects.		
Inputs			
NDB Loan BNDES own sources Project developers	USD 300 million USD 300 million USD 200 million	Quarterly progress reports NDB review missions	**Assumptions** Adequate funds from BNDES's other resources

Annex 6: Project Risks and Mitigation Measures

The evaluation will assess each of the risks as tabled at appraisal. It will evaluate the extent to which each of these risks materialized and the robustness of the mitigation measures proposed against actual events. It will also identify any risks not considered initially for their impact either on the project or its results (e.g., the COVID-19 pandemic and inflation).

Table 6. Key Project Risks and Mitigation Measures

#	Risk	Mitigantion Measures
1.	Business risk	Systemic importance: BNDES is wholly owned by the Government of Brazil. The Board of Directors is almost entirely appointed by the Government. All the international rating agencies assign an "almost certain" likelihood of receiving extraordinary government support given its high systemic importance. Business position: As on June 2015, BNDES had total assets of BRL 911.5 billion with a loan portfolio of BRL 667.6 billion. BNDES is the pre-dominant source of long-term financing of infrastructure and industrial projects in Brazil. In some of the sub-sectors of infrastructure, BNDES has a market share of over 90% (example wind power, large hydro, toll roads, railways etc.). Thus, business position of BNDES is considered strong. Asset quality: non-performing loans of BNDES are at 0.05% of assets. The asset quality has been stable over the years. The key reasons for the extremely low non-performing loans are as follows: (i) about 45% of loans are through indirect operations. So the exposure of BNDES is to the financial intermediaries and not to the underlying companies /projects; (ii) in many instances, before BNDES provides its loans to companies /projects, commercial banks provide bridge loans which are then re-financed from BNDES disbursements; (iii) in most cases, BNDES stipulates cross-default provisions across different projects of the sponsor; (iv) to mitigate construction /stabilization of operations related risk, in many instances, BNDES seeks bank guarantee /sponsor guarantees as security for its entire loan for the project; and (v) in cases where the asset **experiences problems**, BNDES and company mutually formulate a recovery strategy. This ensures that the asset is not categorized non-performing on the very first instance of stress in cashflows. Risk of asset quality for BNDES is currently considered

#	Risk	Mitigantion Measures
		low but would need to be monitored regularly given the high economic and industry risk environment. Asset liability profile: The liability profile of BNDES is extremely long term with National Treasury funding available for up to 50 years and no stipulated amortization schedule for FAT / PIS-PASEP funds. The assets have a much shorter maturity profile. Thus, risk on account of mis-match between the asset liability structure is considered low. Foreign exchange: BNDES manages foreign exchange risk by converting the liability under FAT into foreign exchange liability at the time of creation of the foreign exchange assets. Any residual (mostly short term) risks of foreign exchange are hedged using futures and swaps so as to ensure near zero exposure in foreign exchange accounting positions. Foreign exchange risk in the books of BNDES is considered low.
2	Financial Risk	Capitalization: As on June 30, 2015, the Total Capital ratio (Tier 1 + Tier 2) for BNDES was 17.0%. Assets of BNDES have been increasing at a CAGR of over 20% over the period 2007-2015 (June). If the asset growth of BNDES is maintained at the same level as the past and if the dividend payout by BNDES to the Government is retained as in the recent years, risk due to capitalization can be considered low to moderate. Resource raising: For the six-month period ended June 30, 2015, BNDES funded its cash flow requirements from return on operations (93.5%), FAT (3.4%) and asset monetization (3.1%). Given the dis-continuity in the availability of long-term funding from the National Treasury, the risk of resource raising can be considered moderate for BNDES in the event the demand for funding continues like in the past few years. Liquidity risk: BNDES currently has liquidity much in excess of its regulatory requirement. Further, BNDES has access to raise liquidity from a number of sources. The risk on account of liquidity can be considered low.
3	Economic and industry risk	GDP growth in Brazil for 2015 is estimated by the Brazilian Central Bank at -3.6% and for 2016 is estimated at -1.9%. One of the key factors for the contraction in the economy is the fall in investments.

#	Risk	Mitigantion Measures
		BNDES would not only be indirectly impacted by the contraction in the economy because of being a part of the domestic financial system but would also be directly exposed by virtue of being the predominant provider of long term finance for infrastructure and industrial sectors. The economic and industry risk related element for BNDES is considered high risk.
4	E&S	BNDES would ensure compliance by the projects with the requirements of the environment and social framework in Brazil and the core principles enunciated in NDB's Environment and Social Framework.
5	Procurement	With respect to the projects financed, BNDES primarily relies on the company / sponsors with respect to procurement. Disbursements are however linked to actual progress at the site which is monitored by the BNDES team.
6	Reputational	BNDES has assured that project implementation would be in conformity with the country systems in Brazil and taking into account the core principles enunciated in NDB's Procurement Policy and the Environment and Social Framework.
7	Project delays and cost overrun	To mitigate construction / stabilization of operations related risk, in many instances, BNDES seeks bank guarantee / sponsor guarantees as security for its entire loan for the project

Annex 7: Bibliography[13]

Section A – Policies and Documents

- **Evaluation Cooperation Group (ECG). Good Practice Standards for the Evaluation of Public Sector Operations. 2012 Revised Edition. February,2012**
- **Evaluation Cooperation Group (ECG). Good Practice Standards for the Evaluation of Private Sector Investment Operations. 4th Edition – November 8, 2012**
- New Development Bank Policy on Partnerships with National Development Banks –December 2015 New Development Bank Policy on Loans without Sovereign Guarantee to National Financial Intermediaries – January 21, 2016
- New Development Bank Environment and Social Framework – March 2016
- New Development Bank General Strategy: 2017 – 2021, 2017
- New Development Bank General Strategy for 2022-2026: Scaling Up Development Finance for a Sustainable Future – May 2019
- New Development Bank General Strategy for 2022-2026: Scaling Up Development Finance for a Sustainable Future – May 2022
- New Development Bank Evaluation Policy – August 2022
- International Monetary Fund, World Economic Outlook April 2022.
- International MonetaryFund, World Economic Outlook April 2023.

Section B – Project Documents

- Project Document to the Board – Brazil: Financing of Renewable Energy Projects and Associated Transmission – NDB Operations Division - April 13, 2016
- NDB Board Resolution - Minutes of the 5th Meeting of the Board of Directors of the New Development Bank held in Washington D.C., USA – April 13, 2016
- Loan Agreement – Development of the Renewable Energy Sector in Brazil – April 26, 2017
- Loan Agreement Amendment 1 - June 18, 2017
- Memorandum of Understanding (MoU) between BNDES and NDB - November 13, 2019
- Final Report Loan Agreement 16BR01 by BNDES – January 2020
- Project Completion Report by NDB –– May 25, 2020
- Project Briefing Note by NDB

[13] To be expanded

- Statement of Loan Disbursements – March 21, 2022
- Statistical Yearbook of Electricity 2022 (MME) - June 2022
- Director General IEO, Back to Office Report (Evaluation Preparatory Mission to Brazil) - October 5, 2022

Annex 8: Tentative Mission Schedule

Date	Day	City	Purpose
April 12, 2023	Wednesday	Virtual	Meeting with Secretariat of Economic Development Minas Gerais
April 14, 2023	Friday	São Paulo	Meeting with CAF Private Sector VP and Brazilian Evaluation Review
April 17, 2023	Monday	Rio de Janeiro	Meeting with BNDES and Think Tanks.
April 18, 2023	Tuesday,	Brasília	Meeting with NDB, National Agency of Electric Energy (ANEEL), World Bank, IaDB and CAF.
April 19, 2023	Wednesday	Brasília	Meeting with Ministry of Finance, Ministry of Planning, Ministry of Mines and Energy.
April 19, 2023	Thursday	São Paulo	Meeting with sub-projects' developers, Civil Society and CAF.
April 21, 2023	Friday	São Paulo	IEO team meetings. (National holiday)
April 24, 2023	Monday	Salvador Road trip to Jacobina	Meeting with Secretariat of Planning of Bahia

Date	Day	City	Purpose
April 25, 2023	Tuesday	Campo Largo Bahia	Field visit and meeting with local authorities and developers.
April 26, 2023	Wednesday	Road trip from Umburanas to Salvador Flight from Salvador to Montes Claros	Project sites are around 6 hours from the airport and there are only flights with connections.
April 27, 2023	Thursday	Pirapora Minas Gerais	Field visit and meeting with local authorities and developers
April 28, 2023	Friday	Montes Claros	Meeting with Department of Environmental Development of Minas Gerais
May 4, 2023	Thursday	Virtual	Wrap-up meeting with BNDES

Annex 9: Tentative list of meetings (to be developed)

Brasilia

Government:

- NDB Board Director and Alternative Director- Ministry of Finance
- Secretariat of Foreign Affairs and other authorities – Ministry of Finance
- Secretary General - Ministry of Foreign Affairs (Itamaraty)
- Secretariat of Planning and Energetic Development (Secretary or Deputy) - Ministry of Mines and Energy
- Secretariat of Electric Energy (Secretary or Deputy) - Ministry of Mines and Energy
- Superintendency of Fiscalization of Energy Generation (Superintendent or Deputy) - National Agency of Electric Energy (ANEEL)
- Secretariat of National Bids - Agency of Electric Energy (ANEEL)

NDB Americas:

- **Marcos Thadeu Abicalil**, Director General - acting, Americas Regional Office
- **Alexandre Takahashi** - Senior Professional, Americas Regional Office
- Others as appropriate

Development Partners:

- **Morgan Doyle**, Country Representative - Inter-American Development Bank
- **Johannes Zutt**, Country Director - World Bank Group
- **Jaime Holguin**, Representative Director - CAF Brazil

São Paulo

- Three developers – contacts to be provided by BNDES – VTRM (Votorantim), EDF, and Energia (Engie)
- **Elbia Ganoum**, - CEO Associação Brasileira de Energia Eólica
- **Rodrigo Sauaia** - Associação Brasileira de Energia Solar
- **Rodrigo Lopes Sauaia -** Co-founder and CEO at Brazilian Solar Photovoltaic Energy Association (ABSOLAR)
- **Gustavo Dos Reis Vajda**, Director and Head of Business Development Brazil at Canadian Solar / Board Member ABSOLAR
- Casa dos Ventos

- NGO Conectas Human Rights
- NDB Americas staff
- **Jorge Arbache**, Vice President for Private Sector - CAF

Rio de Janeiro

BNDES:

- **Vivian Machado do Santos Correa Pereira**, Head of Funding Department
- **Claudia Amarante,** Gerente de Organismos Internacionais, Departamento de Captação
- **Daniella Camarão Motta** - Fundraising and International Cooperation Specialist
- **Bruno Cabus Muller** – Manager, Energy Division
- **Paula Seara Arraes de Oliveira** – Manager, Energy Division
- **Mauricio Bernhardt Maciel** – Sector Engineer, Energy Division

Other:

- **Maurício Omine, Implementation Director**, EDF Renewables of Brazil
- **Bernardo Folly de Aguiar**, Energy Research Office – EPE
- State Environmental Agency of Pernambuco (CPRH) & (2) Environmental & Water Resources Secretary of Piauí State (SEMAR) (**virtual)**
- Environmental and Water Resources Institute (INEMA) (**virtual)**

Field Visits

Pirapora I - Solar Project (the only solar)

- On-site visit
- Surrounding Communities
- Landowner
- Local Authorities

Campo Largo – Wind Complex

- On-site visit
- Surrounding Communities
- Local Authorities