

PMR Operational Report

Operation Number	BR-L1442	Chief of Operations Validation Date	04/05/18
Year- PMR Cycle	Second period Jan-Dec 2017	Division Chief Validation Date	04/18/18
Last Update	03/28/18	Country Representative Validation Date	04/18/18
PMR Validation Stage	Validated by Representative		

Basic Data

Operation Profile

Operation Name	Financing Program for Sustainable Energy	Loan Number	3866/OC-BR
Executing Agency	BANCO NACIONAL DO DESENVOLVIMENTO ECONOMICO E SOCIAL	Sector/Subsector	FM-BNK - FINANCIAL MARKETS-BANKING MARKET DEVELOPMENT
Team Leader	NETTO DE A. C. SCHNEIDER, MARIA E.	Overall Stage	Disbursing (From eligibility until all the Operations are closed)
Operation Type	Loan Operation	Country	BRAZIL
Lending Instrument	Investment Loan	Convergence related Operation(s)	
Borrower	BANCO NACIONAL DO DESENVOLVIMENTO ECONOMICO E SOCIAL		

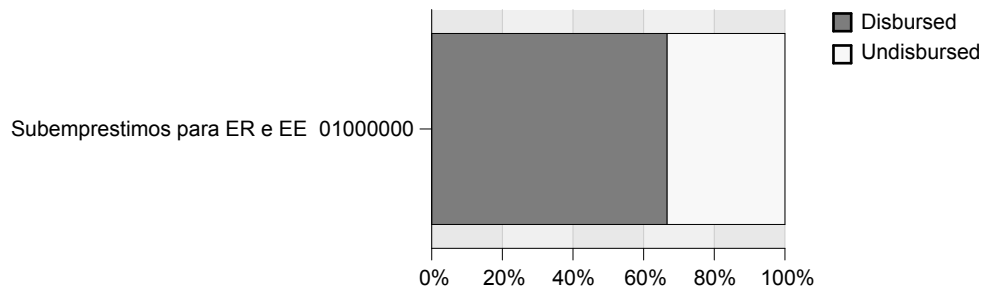
Environmental and Social Safeguards

Impacts Category	B13	Was/Were the objective(s) of this operation reformulated?	NO
Safeguard Performance Rating	Partially Satisfactory	Date of approval	
Safeguard Performance Rating - Rationale	The project team has identified three wind farm complexes for potential financing. All three complexes demonstrate material compliance with IDB policies with only minor upgrades required to: hazardous waste storage, general cleanliness of the facility, and creating a more formalized grievance redress mechanism. See Supervision Report for more details.		

Financial Data

Item	Total Cost and Source					Available Funds (US\$)			
	Original IDB	Current IDB	Local Counterpart	Co-Financing / Country	Total Original Cost	Current IDB	Disb. Amount to Date	% Disb	Undisbursed Amount
BR-L1442	750,000,000	750,000,000	150,000,000	0	900,000,000	750,000,000	500,000,000	66.67%	250,000,000
Aggregated	750,000,000	750,000,000	150,000,000	0	900,000,000	750,000,000	500,000,000	66.67%	250,000,000

Expense Categories by Loan Contract (cumulative values)



Please note that the Overall Stage represents the stage of the operation at the time of this report's publication, which might not necessarily match the stage of the operation during the PMR Cycle to which the report pertains. Please also note that inactive indicators and outputs are not displayed; totals in the actual cost table may not match the sum of the cost of the outputs displayed, due to the cost of inactive outputs.

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RESULTS MATRIX

IMPACTS

Impact Nbr. 0: Promote investments in sustainable energy projects to contribute to meet Brazil's goal

Observation:

Indicator		Unit of Measure	Baseline	Baseline Year		2021	EOP 2021
0.0	Power generation from Alternative Renewable Energy (ARE) sources (excludes hydro) in Brazil as a share of total generation (percent of the installed capacity).	%	9.40	2014	P		14.00
					P(a)		14.00
					A		

Details

Means of verification: MME and the Balanço Energético Nacional

Observations: This measure includes all new investments added to the system, including those supported by the program. This impact is related to ARE projects under the program. Target estimate is based on country's authority projections. Baseline refers to the electric generation matrix (internal offer) as of end of 2014, last report published by the Ministério de Minas e Energia (Resenha Energética Brasileira, 2015). Target considers a 50% increase, taking into account that values have already increased during 2015.

Pro-Gender No **Pro-Ethnicity** No

Indicator		Unit of Measure	Baseline	Baseline Year		2021	EOP 2021
0.1	Energy intensity to Gross Domestic Product (GDP).	tep/US\$	0.15	2012	P		0.14
					P(a)		0.14
					A		

Details

Means of verification: IMF and official figures from the Ministério de Minas e Energia and the Balanço Energético Nacional.

Observations: Measures the quantity of energy required to generate US\$1 of GDP. This impact is related to EE and cogeneration projects under the program.

Pro-Gender No **Pro-Ethnicity** No

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RESULTS MATRIX

OUTCOMES

Outcome Nbr. 0: Contributed to the Brazil's goal of investments in sustainable energy projects

Observation:

Indicator		Unit of Measure	Baseline	Baseline Year		2017	2018	2019	2020	2021	EOP 2021
0.0	Financing from third parties mobilized by the program.	millions	0.00	2014	P	194.00	118.00	0.00	0.00		312.00
					P(a)	194.00	118.00	0.00	0.00		312.00
					A	194.00					

Details

Means of verification: Annual report on program execution by BNDES.

Observations: Includes all sources of financing other than the IDB and Banco Nacional de Desenvolvimento Econômico e Social (BNDES) own resources (debt or equity). Target estimate based on the average total investment required per project and an average 66/34 debt to equity ratio observed in similar projects from BNDES existing credit portfolio. Total investment = US\$900 million from the program + equity + other sources

Pro-Gender No **Pro-Ethnicity** No

Indicator		Unit of Measure	Baseline	Baseline Year		2017	2018	2019	2020	2021	EOP 2021
0.1	Annual electricity generation from ARE sources (excludes hydro) by projects financed by the program.	GWh	0.00	2014	P	1,815.91	2,183.52	2,959.27	2,959.27		2,959.27
					P(a)	1,815.91	2,183.52	2,959.27	2,959.27		2,959.27
					A	1,236.10					

Details

Means of verification: Annual report on program execution by BNDES. Can be validated with information from national utility.

Observations: Final target was estimated based on an average production factor per ARE technology in Brazil. Electricity prod (GWh) = Installed capacity (GW) x 24 x 365 x production factor.

Pro-Gender No **Pro-Ethnicity** No

Indicator		Unit of Measure	Baseline	Baseline Year		2017	2018	2019	2020	2021	EOP 2021
0.2	Average annual energy savings from EE projects (including cogeneration) financed by the program.	GWh	0.00	2014	P		183.95	183.95	183.95		183.95
					P(a)		183.95	183.95	183.95		183.95
					A	0.00					

Details

Means of verification: Annual report on program execution by BNDES.

Observations: Final target was estimated based on an average capacity and efficiency ratios of EE systems installed. Energy savings = MWh produced by the system installed * [efficiency of system installed – efficiency of original system]

Pro-Gender No **Pro-Ethnicity** No

Indicator	Unit of	Baseline	Baseline		2017	2018	2019	2020	2021	EOP 2021
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OUTCOMES

		Measure		Year							
0.3	Greenhouse Gas (GHG) emissions annual reduction, from projects financed by the program	TM CO2e	0.00	2014	P	205,219.20	246,758.10	334,429.20	334,429.20		334,429.20
					P(a)	205,219.20	246,758.10	334,429.20	334,429.20		334,429.20
					A	188,063.18					
Details											
Means of verification: Annual report on program execution by BNDES and conversion factor specific to Brazil electricity grid.											
Observations: Indicator is based on the CO2e emissions displaced by RE power generation and the EE energy savings once the projects start operation. Final target was estimated based on envisaged ARE production and EE savings, using a specific conversion factor on the average emissions factor of the Brazilian electricity grid, calculated by Empresa de Pesquisas Energeticas (115kgCO2/MWh, 2014). This emission factor considers the emissions of every source in the energy mix for power generation in Brazil, thus reflecting that this is already a clean energy matrix.											
Pro-Gender		No		Pro-Ethnicity		No					

RESULTS MATRIX

OUTPUTS: ANNUAL PHYSICAL AND FINANCIAL PROGRESS

Component Nbr. 1 Projects Financing of Energy Efficiency and Renewable Energy Projects

	Output	Unit of Measure		PHYSICAL PROGRESS		FINANCIAL PROGRESS	
				2017	EOP 2021	2017	EOP 2021
1.1	Alternative Renewable Energy (ARE) generation capacity (excludes hydro) financed by the program are installed	MW	P	350.93	1,075.11	585,000,000	890,000,000
			P(a)	350.93	1,130.91	585,000,000	900,000,000
			A	350.93	350.93	585,000,000	585,000,000
1.2	Projects of Energy Efficiency (EE) financed by the program (includes co-generation).	projects	P	0	2		10,000,000
			P(a)	0	0		0
			A	0	0		0

Total Cost

	Total Cost	P			585,000,000	900,000,000
		P(a)			585,000,000	900,000,000
		A			585,000,000	585,000,000

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CHANGES TO THE MATRIX

Section	Name	Type of Change	Reasons	Entered in the System	Agreed with Executing Agency
Output	Alternative Renewable Energy (ARE) generation capacity (excludes hydro) financed by the program are installed	Modify Output	Alteração da redação dos indicadores para atender recomendações de SPD.	02/16/2018	12/14/2017
Output	Alternative Renewable Energy (ARE) generation capacity (excludes hydro) financed by the program are installed	Modify Output	Não há na carteira do BNDES demanda por eficiência energética de forma que para 2018 os recursos inicialmente programados para eficiência energéticas serão redirecionados para financiar projetos de energia renováveis. Que são projetos de maior complexidade e impacto nas metas de redução de gases de efeito estufa.	03/13/2018	03/01/2018
Output	Projects of Energy Efficiency (EE) financed by the program (includes co-generation).	Modify Output	Não há na carteira do BNDES demanda por eficiência energética de forma que para 2018 os recursos inicialmente programados para eficiência energéticas serão redirecionados para financiar projetos de energia renováveis. Que são projetos de maior complexidade e impacto nas metas de redução de gases de efeito estufa.	03/13/2018	03/01/2018
Output	Alternative Renewable Energy (ARE) generation capacity (excludes hydro) financed by the program are installed	Modify Output	Não há na carteira do BNDES demanda por eficiência energética de forma que para 2018 os recursos inicialmente programados para eficiência energéticas serão redirecionados para financiar projetos de energia renováveis. Que são projetos de maior complexidade e impacto nas metas de redução de gases de efeito estufa.	03/13/2018	03/01/2018
Output	Projects of Energy Efficiency (EE) financed by the program (includes co-generation).	Modify Output	Não há na carteira do BNDES demanda por eficiência energética de forma que para 2018 os recursos inicialmente programados para eficiência energéticas serão redirecionados para financiar projetos de energia renováveis. Que são projetos de maior complexidade e impacto nas metas de redução de gases de efeito estufa.	03/13/2018	03/01/2018