DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK GROUP

TECHNICAL GUIDANCE FOR ALIGNING IDB GROUP'S OPERATIONS TO THE PARIS AGREEMENT

ENERGY

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ABBREVIATIONS

CC	Climate Change
CCAP	IDB Group Climate Change Action Plan
CO_2^e	Carbon Dioxide equivalent
COP	Conference of Parties
EE	Energy Efficiency
ESPF	IDB Environmental and Social Policy Framework
ESSP	IDB Invest Environmental and Social Sustainability Policy
GHG	Greenhouse Gases
IDB	Inter-American Development Bank
IEA	International Energy Agency
IPCC	Intergovernmental Panel on Climate Change
LAC	Latin America and the Caribbean
LTSs	Long Term Strategies
MDBs	Multilateral Development Banks
NDCs	Nationally Determined Contributions
PA	PA
PBL	Policy-Based Lending
RE	Renewable Energy
UNFCCC	United Nations Framework Convention on Climate Change

I. INTRODUCTION

1.1 This document is a preliminary technical complement to the Paris Agreement Alignment Implementation Approach (PAIA). The PAIA has been developed by the IDB Group (IDB, IDB Invest, and IDB Lab) as a methodological tool to pursue the objective of aligning to the Paris Agreement (PA) new operations and projects that have been reformulated. Both the PAIA and this technical guidance are based on the Joint Framework for the assessment of PA alignment in direct investment operations, developed by Multilateral Development Banks (MDB).[1]

1.2 The PAIA outlines IDB Group's strategy to assess the alignment of operations to the PA with the objective of informing decisions on project activities to be financed and ongoing country dialogue. To do so, it establishes a set of principles to guide the consistent and equitable interpretation of the Joint MDB framework when performing the assessment; and it lays out a series of methodical steps to be followed along the preparation cycle of projects.

1.3 The PAIA builds upon IDB's Environmental and Social Policy Framework (ESPF) and IDB Invest's Environmental and Social Sustainability Policy (ESSP). All operations covered by the ESPF and the ESSP must *comply* with these policies during the preparation, execution, and closing of projects. In contrast, PA alignment assessment is meant to *inform* project design before approval using the information and tools at the disposal of the IDB Group at the time it is made.

1.4 This document contains technical guidance that complements the PAIA for the case of assessing energy-related investments. It provides IDB Group personnel with additional criteria to interpret the Joint MDB Framework, with specific considerations that are relevant to operations and tools at the IDB Group.[2]

1.5 The objective of this guidance is to help IDB Group personnel design and assess operations aligned to the mitigation and adaptation goals of the PA, ensuring they present the necessary information to assess this alignment at approval.

1.6 This document will be revisited by Management on a yearly basis upon its approval and updated as necessary to reflect the lessons learned by the IDB Group and other institutions as they work towards aligning operations and other financial flows with the goals of the PA. Updates will respond to possible adjustments in the MDB Joint Framework, as well as to the need to incorporate the experience during its implementation, consider technological and knowledge advancements in the region, among others.

1.7 **Scope of this document**. This guidance note covers IDB Group operations regarding investment loans, investment grants,[3] (i.e., operations involving capital expenditures, referred to as "direct investments" in the MDB frameworks), as well as policy-based loans and all types of guarantees. It also provides guidance applicable to products with financial intermediaries and corporate finance, which have specific methodological approaches.

1.8 **Relation to other IDB Group documents**. In 2018, the IDB Group prepared the Energy Sector Framework Document (GN-2830-8) –which includes energy sustainability as one of its four pillars and covering energy efficiency (EE), renewable energy (RE), and

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1 Technical Note BB1 and BB2: Joint Framework of the MDBs for the Assessment of Alignment with the Paris Agreement of Direct Investment Operations. (November 2021 working document).

2 In case this document presents discrepancies with the Joint MDB Framework, the second prevails except in cases explicitly justified in this guidance.

3 As established in the PAIA, investment grants with an approved amount greater than US$3 million.

adaptation to climate change (CC)– and the Climate Change Sector Framework Document (GN-2835-8). Both documents emphasize the Bank's commitment to promote EE and RE to achieve sustainable and resilient development regarding CC in LAC. In 2020, the IDB Group Climate Change Action Plan 2021-2025 (CCAP, GN-2848-8) was approved. The CCAP establishes the core elements for achieving low-carbon and climate-resilient development, including aligning operations with the PA.[4] Finally, in April 2022, the Sustainable Energy Sector Guidelines (GN-2613-1) were approved. The Guidelines aim to provide methodological guidance to IDB Group personnel for the design and implementation of investment operations and policy-based loans (PBLs).

1.9 This note builds upon the Sustainable Energy Sector Guidelines (GN-2613-1) and applies them to the interpretation of the PA alignment MDB framework for energy investments. It is consistent with the Energy Sector Framework Document (GN-2830-8), specifically with the principle of energy sustainability by promoting the decarbonization of the energy systems in the region. Likewise, it is consistent with the Climate Change Sector Framework Document (GN-2835-8), by promoting the financing of climate resilient and low-carbon energy infrastructure, and aligned with the objectives of the PA; the Transport Sector Framework Document (GN-2740-12), specifically with climate sustainable transport by promoting the decarbonization and the efficient use of energy through electromobility; the Extractive Industries Sector Framework Document (GN-3028-2), specifically with strengthening institutional capacities, regulatory frameworks, and fiscal regulations that reduce dependency and manage income volatility in the sector; and the Labor Sector Framework Document (GN-2741-9), for the opportunity to generate jobs in clean energy, develop human capital and plan the upskilling and reskilling of the displaced labor force.

II. THE ENERGY SECTOR AND CLIMATE CHANGE

2.1 The United Nations (UN) General Assembly unanimously recognized that energy is the golden thread that connects economic growth, increases social equity, and an environment that allows the world to thrive. It has declared 2014-2024 as the decade of Sustainable Energy for All (SE4All). SE4All has the following three objectives by 2030: (i) reach universal access to modern energy services; (ii) improve EE at double the current global rate; and (iii) double the share of RE in the global energy mix (UN General Assembly, 2013). To achieve these goals in a financial, social, economic, and environmental way, a solid set of norms, regulations, procedures, and methodologies, supported by a highly qualified group of people and well-endowed institutions is needed. Institutional resources and necessary capacities are in place to plan and execute the actions required to achieve an efficient, effective, and sustainable energy sector. The transition to low-carbon energy systems and climate resilience in response to climate change must be seen synergistically with the objectives of energy access, energy sustainability, energy security and energy governance, in a manner that accelerates development and innovation in the sector to achieve the goals of the PA.

A. The energy sector and the mitigation goal of the PA

2.2 Meeting the goals of the PA requires the full decarbonization of existing energy systems in a just, secure, and affordable manner. Decarbonization is understood as a process defined by a country to ensure a fair transition of its economy towards zero net emissions

[4] IDB Group Climate Change Action Plan 2021-2025. IDB Group (2021).

by 2050, and thus avoid being locked into carbon-intensive and polluting development paths, creating financial risks later.

2.3 The energy transition is the path of structural change towards decarbonization. Historically, several transitions have occurred that have significantly changed energy systems over time. For example, until the 1950s the economic model that underpinned energy systems was local and not global. With the advance in generation levels, national systems were integrated and transformed into international systems. The historic energy transitions were protracted events lasting several decades. However, the current transition is taking place under very different policies and technological conditions.[5]

2.4 Several organizations, such as the International Energy Agency (IEA), have stated that the energy transition cannot be achieved without accelerating the decarbonization of energy systems, which requires a progressive abandonment of coal, oil, and natural gas as energy sources. Defining a roadmap to accelerate the decarbonization and energy transition process requires multiple parallel approaches.

2.5 The most significant pillars of the roadmap towards decarbonization of the energy sector include: (i) production of electricity without carbon emissions (this includes RE and network flexibility, which will allow the system to adapt to the variability of renewable sources); (ii) the early, planned and orderly closure of hydrocarbon-based energy production capacities, addressing the systemic, social and energy security impacts of the transition; (iii) electrification of energy demand, or use of green hydrogen where electrification is not possible, including the transport and industry sectors; and (iv) improving efficiency in the use of resources, reducing waste.[6] Although different paths have been proposed to reduce or mitigate global warming, these pillars appear as the best options to achieve the greatest reduction in emissions in the energy sector with the necessary speed. Globally, it is estimated that RE and deep electrification can achieve more than 60% of energy-related CO_2 emission reductions by 2050.[7] In terms of improvement in energy intensity, it must be kept above 3.2% per year to meet climate objectives, compared to 2% per year in previous years. This is possible with a substantial improvement in EE, an electrification of energy uses and a reduction in the role of private vehicles for passenger transport.[8]

2.6 Technology will be an important catalyst for change within energy systems. Currently, available low-carbon technologies are renewable (mainly solar, wind, hydro, geothermal, solar, bioenergy, and marine).[9] These can be complemented with substantial improvements that could occur in energy storage, including batteries or non-conventional solutions (such as the conversion of natural gas plants to hydrogen), carbon capture in industrial processes or demand management technologies. One example is the new balance between demand and supply resulting from the transition from centralized to distributed generation.[10] In a broader sense, the energy transition could also imply a democratization of energy or a trend towards greater sustainability.

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5 How Long Will It Take? Conceptualizing the Temporal Dynamics of Energy Transitions. Energy Research & Social Science. No. 13: 202–215. (2016).

6 Getting to Net-Zero Emissions: Lessons from Latin America and the Caribbean. IDB (2019).

7 See: Highlights and Key Findings: 8–14. Global Energy Transformation - A Roadmap to 2050. IRENA (2019).

8 EE programs, for both supply and demand, have extraordinary potential to contribute to the sustainability of the energy sector in LAC. Due to their high financial viability, they are considered the most cost-effective ways to reduce GHG emissions in the region. The IEA estimates that EE will account for more than half of the global decrease in GHG emissions by 2030 (IEA, 2019).

9 Regarding nuclear energy, the IDB will not intervene in activities related to this technology (as specified in documents DR-791, GN-2609-2, and GN-2830-8).

10 Distributed generation refers to small-scale electricity generation, managed by "prosumers" (consumer units that may be individuals or organizations, grouped or not), located within or close to load centers, which is not supplied

2.7 Despite the historically low carbon footprint of LAC's electricity matrix, forecasts indicate that, under current trends, both energy consumption and GHG emissions will continue to increase in the future. Regarding the electricity sector, it is estimated that in LAC consumption will grow by an annual average of 2.8% in the current decade (2020-2030).[11] The current trend is an increase in the electricity sector's carbon footprint and the use of hydrocarbons in the transport sector. This reinforces the need for urgent climate action to accelerate the energy transition in all countries in the region.

2.8 Two important factors can be highlighted, that affect the increase of the carbon footprint in LAC in future trends scenarios. The first is the increasing dependence of transport systems on less efficient modes in terms of GHG emissions, such as private vehicles[12], due to the increase in income of the emerging classes and the absence of efficient public transport systems. The second is the decrease in the relative participation of hydroelectricity in the energy matrix, due to four main reasons: (i) the favoring in some countries and investors of the installation of thermoelectric generation, given its shorter construction times, lower construction risks, and low initial capital requirements; (ii) the hydro-meteorological changes –that can be attributed to climate variability and in some areas to CC itself– which reduce the generation potential of some of the existing plants; (iii) the mass development of the region's hydropower potential over the last half century has initially covered the river basins with the highest hydroelectric potential, and therefore the most economically viable, leaving undeveloped basins with a relatively lower potential and more expensive and slower development; and (iv) greater awareness of the environmental and social impacts of hydroelectric plants.[13] In the absence of alternatives, in the recent past, to meet the growing demand for energy, these factors led those responsible for energy planning in the region to promote fossil fuels, while renewables are gaining ground with a current trend of decreasing costs.

2.9 One of the main challenges in the decarbonization path of the region is the fact that just some LAC countries have non-renewable natural resources such as fossil fuels to fulfill their energy needs, including energy access gaps, and some of them with the basic infrastructure to produce fuel products (see paragraph 2.17). Therefore, the IDB Group must actively work with member countries to ensure a just transition, to protect the most vulnerable from energy price volatility, to mitigate the possible impacts on tax revenues from the shifts in the economic exploitation of energy resources, and to ensure economies adjust to the global pace of energy transition. Implementing PA alignment implies raising awareness regarding the risk that investments in infrastructure related to fossil fuels have of being stranded (not used and with no possibility of recovering related investments) before the end of their useful life, once the country and the rest of the world advance towards fulfilling the PA objectives.[14] These countries must, therefore, develop adequate strategies to reduce or eliminate the use of fossil fuels or reduce it as much as possible, or convert the infrastructure for fuels lower in emissions, so that their economies can adapt in due time while advancing towards decarbonization with the energy transition. With these

in a centralized manner and with the option of buying or selling electricity on the interconnected system (on-grid) or working in isolation (off-grid).

11 Energy Path 2021 (Forthcoming 2021). IDB.

12 From Structures to Services: The Path to Better Infrastructure in Latin America and the Caribbean. Chapter 10. IDB (2020).

13 The LAC electricity sector depends significantly on hydroelectric plants, which represent more than 50% of the installed capacity and almost 47% of electricity generation in the region. While this helps reduce GHG emissions from the region's electricity sector, it also contributes to the region's vulnerability to CC. Source: *Modernización de Centrales Hidroeléctricas en América Latina y el Caribe*. IDB (2020).

14 Stranded asset implications of the Paris Agreement in Latin America and the Caribbean. Environmental Research Letters (2020).

guidelines, the IDB Group intends to help countries in the region align their activities in the energy sector with the PA, ensuring energy security when doing so.

2.10 Although the IDB Group will mainly promote the decarbonization of the energy sector, it is important to note that the energy transition cannot be immediate and will take time. During the transition, the countries' energy security and capacity to meet a growing demand for energy services that enable constant growth must be ensured. Therefore, investments in infrastructure that use fossil fuels will be analyzed on a case-by-case basis, within the scope of the Sustainable Energy Sector Guidelines (GN-2613-1), which are presented and further detailed in Section III.

B. The energy sector and the adaptation goal of the PA

2.11 The PA also establishes as one of its main objectives to increase adaptation capabilities, to strengthen climate resilience and to reduce vulnerability to the physical risks of CC. Natural disasters and climatic phenomena increase the risks in energy supply security. The recurrence of these factors in LAC can cause direct damage by 2050, estimated between 1.5% - 5% of GDP (Bicalho, 2021). Thus, countries have stressed the importance of integrating resilience into infrastructure investment planning so they can overcome natural contingencies and adapt to changing climatic conditions at a lower cost. Investments in resilience are estimated to have accounted for 5% of regional GDP between 2015-2019.[15]

2.12 Specific aspects of climate change vulnerability relevant to energy investments or supply include: (i) extreme changes in temperature increase the demand of end customers for air conditioning, refrigeration and heating purposes, which places stress on the generation and transmission infrastructure; (ii) changes in precipitation patterns and increases in the frequency and intensity of droughts will negatively impact generation from hydroelectric plants in some regions; (iii) extreme weather events, such as more intense and frequent storms, can reduce the supply and potentially the quality of fossil fuels, the renewable energy supply, and damage the generation and transmission infrastructure, reducing production and compromising the security of the offer; (iv) sudden changes in cloud cover or wind speed can affect the stability of transmission networks with considerable contributions from renewable energies, and longer-term changes in these patterns and in precipitation can affect the viability of certain renewable energy transmission systems; (v) the rise in sea level may affect the energy infrastructure in general and limit the appropriate areas for the location of infrastructure; and (vi) the increase in global temperature can cause changes in wind patterns, which could affect wind projects (ADB, 2021).

2.13 From a demand perspective, vulnerable populations suffer particularly from environmental or external sources that disrupt access to energy sources, such as those linked to CC (for example, hurricanes and drought). Inaccessible cooling and heating, both in chronic (e.g., due to outages) and acute modalities (e.g., due to high costs), can disproportionally affect the poor and do not only result in higher mortality and hospitalization during heatwaves (IEA, 2022) but may have implications for earning potential (Jessel et al., 2019).

2.14 In this context, as of July 2022, the energy sector is indicated as an adaptation priority in at least nine NDCs in the LAC region: Argentina, Colombia, El Salvador, Panama, Paraguay, Peru, Suriname, Uruguay, and Venezuela. These NDCs stress the importance of incorporating climate risk analysis methodologies for planning the construction and operation of infrastructures. They also encourage the development of strategies to ensure

[15] Public Investment in Economic Infrastructure in LAC. http://infralatam.info/

the operability of energy infrastructure under new scenarios of operational and environmental demands, among others.

2.15 Specific action items include, for example, to “Assess the impacts of CC on the energy system, energy demand and on economic activity and fiscal balance”, in order to develop better strategies for the incorporation of renewable sources of low carbon emissions (Argentina NDC, 2021). The diversification of energy sources through sustainable energies, is presented as an adaptation measure aimed at ensuring supply and deepening access to energy the NDCs of both of Argentina and Uruguay (2017). The latter also contemplates financial insurance against droughts and high oil prices in order to protect energy users from extraordinary increases in energy prices, thereby seeking to provide greater financial stability to the energy sector. For its part, the National Adaptation Plan of Paraguay (2022), proposes to make improvements in the electricity transmission and distribution systems, including the protection of hydroelectric dams through the restoration of ecosystems and the strengthening of the transmission and distribution of renewables.

2.16 Consistent with these challenges and priorities, past IDB Group operations have fostered climate resilience measures in the energy sector such as: (i) the development of future CC scenarios to plan energy investments; (ii) the design of energy infrastructure adapted to CC (for example: burying power lines, raising or relocating substations, establishing early warning systems, etc.); and (iii) creating mechanisms for the transfer and/or risk absorption (public-private insurance, compensation schemes after the occurrence of an extreme event). These will continue to be measures promoted in IDB Group operations and will evolve to respond to national priorities in the sector.

C. Synergies between CC mitigation, adaptation, and energy security

2.17 The most vulnerable populations bear the greatest burden from high energy costs and the effects of climate change (Jessel, S. et al, 2019). In the context of the SDG and the PA, the challenge is to ensure the region follows a trajectory towards an economy increasingly lower in carbon, with an energy system that ensures security of supply, resilience, reliability, and affordable energy prices.

2.18 Access to basic energy systems remains a challenge for the region. Despite the advances made in the last decades, there is still a gap to close. In LAC, 18.5 million people still do not have access to electricity, most of whom are poor. Haiti, for example, has an access rate of 39%. With some variations between countries, rural areas are those most behind in the region, and while some countries have almost reached universal electricity service, others have lower rates. It is becoming increasingly difficult to reach universal coverage because there are remote and dispersed areas that cannot be served with the extension of the existing electrical network to reach new users, since this would imply high costs (long distances and raising the voltage) to meet limited consumption. In some cases, although there is electricity coverage, the quality of service is very low (four hours of electricity service or less, uneven voltage, constant supply failures, among others). Consequently, improving service quality is also part of the challenge of increasing its reliability.

2.19 As a result of a set of investment and reform plans, coverage went from 78% in 1990 to 97% in 2018,[16] which places the region only behind North America (excluding Mexico) and the European Union in achieving universal access to electricity coverage. However, its annual per capita consumption is one of the lowest in the world (2,156 kWh), when compared with the world average (3,131 kWh) and with that of other regions, such as East

[16] Energy Outlook of Latin America and the Caribbean 2018. OLADE (2019).

Asia-Pacific (3,678 kWh), the European Union (5,908 kWh), and North America (13,254 kWh).[17] Good access to electricity coverage does not necessarily imply extensive equipment in homes.[18] The use of electrical equipment is associated with the income level of a family, which impacts the cost of purchasing equipment and electricity consumption.[19] In this sense, it is essential to support countries' efforts in achieving universal access to electricity and accompany them in achieving Goal 7 of the United Nations Sustainable Development Goals (SDG), that aims to close the gap in access to electricity by 2030.

2.20 The number of people in LAC without access to modern cooking fuels exceeds 70 million.[20] In most cases, these families are very poor and live in rural areas, sometimes environmentally sensitive areas. In many cases these are also families headed by women. The traditional use of firewood or other solid biomass fuels in open fire pits has several important consequences, including: (i) the risk of respiratory diseases due to the inhalation of combustion gases and particles (internal contamination in homes); (ii) the increase in black carbon emissions to the atmosphere;[21] (iii) deforestation and soil degradation and changes in the hydrological behavior of water basins due to the felling of trees and the extraction of plant biomass for fuel supply; and (iv) the opportunity cost (time) of the people (often women and children) who must collect the firewood, which could be used for other purposes.[22] All of these have systemic impacts on population's CC adaptation capacities.

2.21 Access to energy sources that are modern, reliable, preferably renewable and clean, or to efficient and clean technologies for the use of firewood and other solid biomass fuels, contributes to the quality of life of the poorest families. In general, access to electricity and the availability of energy for domestic use (e.g., cooking, heating) at a reasonable cost and without damage to the health of people with limited resources, has a high priority due to its connection with the fight against poverty, and is also related to improving education and health. This challenge is reflected in several United Nations SDGs, mainly in SDG #7, to ensure access to affordable, reliable, sustainable, and modern energy for all, which is why it is important to accompany the countries in the fulfillment of these goals.

2.22 An opportunity emerges for the LAC region to prioritize investments and policies that concomitantly make energy cleaner, more affordable, and reliable in the face of shocks, including CC impacts. This triple bottom-line approach mainly involves diversifying energy options and shifting to locally available energy sources (IEA,2022). In electricity systems, it covers aspects such as: (i) increasing network flexibility, which includes more robust transmission and energy storage systems; (ii) energy efficiency improvements, particularly in heating and cooling systems; (iii) demand response measures, which aided by technology and financial behavioral incentives can deliver greater flexibility in some energy systems; and (iv) affordable access to decentralized energy solutions, which can help manage energy disruptions expected from the impacts of climate change (Birol, 2021).

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17 Más allá de la cobertura eléctrica. IDB (2020).

18 Efficiency in Latin America and the Caribbean: Progress and Policies. IDB (2019).

19 The use of electrical equipment is associated with the income level of a family, which impacts not only on the cost of purchasing equipment, but also on electricity consumption. The Demand for Energy-Using Assets among the World's Rising Middle Classes: 106 (6): 1366–1401. American Economic Review (2016).

20 The State of Access to Modern Energy Cooking Services. World Bank (2020).

21 The use of firewood for cooking alone represents 25% of all emissions of this GHG. Black Carbon is a powerful GHG and the second largest contributor to CC after CO_2.

22 Clearing up the smoke: Untapping the Potential of Tailored Clean Cooking Programs in Latin America. IDB (2020).

III. ASSESSMENT OF OPERATIONS: ALIGNMENT WITH THE PA MITIGATION GOAL (BB1)

3.1 The joint MDB methodology serves as the basis for determining the alignment of operations with the PA. The application of the guide will result in two possible scenarios: "aligned", or "not aligned". In this context, an operation is "aligned" if it does not go against the mitigation (BB1) and adaptation and resilience (BB2) goals of the PA.[23] This section presents and describes the procedure to determine the alignment with the mitigation goal.

3.2 BB1 focuses on whether the operation in question is consistent with a low GHG development trajectory in the country where the operation is located and does not hinder or harm the transition to a decarbonized economy, both at the country and global levels.

A. Activities in the Energy Sector that the IDB Group will not support

3.3 In the Joint MDB Assessment Framework for Paris Alignment, the mining of thermal coal, the electricity generation from coal, and peat-based extraction and generation, are considered universally not aligned with the mitigation goal of the PA.

3.4 In accordance with the Exclusion List[24] of both the IDB's Environmental and Social Policy Framework (ESPF), and IDB Invest's Environmental and Social Sustainability Policy (ESSP), and the Sustainable Energy Sector Guidelines for the IDB Group (GN-2613-1), the following activities **will not be financed** in PBLs, investment operations (loans, grants, guarantees) and prefeasibility and feasibility studies financed with technical cooperation (TCs) products[25] or other financing sources:

a. **Coal**:[26] Exploration and production (upstream), neither in greenfield nor brownfield;[27] coal export (midstream), import, transport, distribution and generation using coal (midstream and downstream), neither in greenfield nor brownfield;[28] and uses to expand access to energy services.[29]

b. **Oil and gas**: Exploration and production (upstream), neither greenfield nor brownfield.[30]

c. IDB Group will not finance companies (including MSMEs) whose business model contributes directly to the exploration and production (upstream), refining, export,

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23 In operations with activities or use of funds that cannot be defined at the time of approval (e.g., operations with financial intermediaries, corporate loans, etc.), the methodologies specifically defined for this type of operations will be used.

24 The Exclusion List contains activities that are incompatible with the commitments made by the IDB Group to address climate change in matters related to coal, oil and gas.

25 These restrictions do not apply to other types of activities financed by TCs, such as sector dialog and energy planning.

26 A distinction is made between coal, which refers to the fossil fuel that in its natural state is extracted from the subsoil by manual or mechanical procedures in mines or in open pits; and charcoal, which is obtained artificially by burning wood for cooking. Access to energy services for vulnerable populations does not include the financing of extraction and production activities (upstream).

27 Greenfield activities refer to completely new infrastructure. In turn, brownfield activities refer to an existing plant or project, in operation, which would be subject to improvement, remodeling, reuse or expansion.

28 PBLs with significant macroeconomic or development reforms that may indirectly support these activities will be considered on a case-by-case basis.

29 This applies to projects and associated facilities whose main objective is related to the production, commercialization, or use of coal for electricity generation, or with the transmission of energy associated with a coal powerplant (for example, a dedicated transmission line).

30 The IDB Group does not foresee that the link between extraction and production of natural gas and the generation of access to energy services for vulnerable populations be demonstrable through impact assessment tools. For this reason, while the Exclusion Lists of IDB and IDB Invest allow the IDB Group to finance extraction and production (upstream) activities in exceptional circumstances, the use of this exception is not envisioned.

import, transport and distribution or generation with fossil fuels; nor access to technical services, supplies or equipment of high, medium o low complexity and technological specialization in the hydrocarbon sector (midstream, downstream) or by-products of oil and gas such as methane, butane, propane or pentane. These types of companies may be financed when the resources are allocated to energy transition plans aligned with CC commitments at the country level and not to activities excluded by the ESPF or the ESSP.

B. Activities universally aligned with the PA mitigation goal

3.5 **Activities considered universally aligned**. According to Annex 1 of the Joint MDB Assessment Framework for Paris Alignment for Direct Investment Operations, some activities can be considered to be aligned to the mitigation goal of the PA across countries and under all circumstances. In the energy sector, Table 1 captures universally aligned activities as long as (i) their economic feasibility does not depend on the extraction, processing and/or transportation of fossil fuels; (ii) their economic feasibility does not depend on fossil fuel subsidies; and (iii) the operation does not depend significantly on the direct use of fossil fuels.

3.6 In addition, the MDB Joint Framework also suggests that the design of operations should reinforce the preservation of high carbon stocks (HCS),[31] an aspect that should be reviewed in conjunction with the IDB's Environmental and Social Policy Framework (ESPF) and IDB Invest's Environmental and Social Sustainability Policy (ESSP), as applicable.

Table *1*. Activities considered universally aligned in the MDB Joint Framework

Eligible operation type	Conditions and guidance
Generation of renewable energy (e.g., from solar, wind, wave power, river hydroelectric sources, or geothermal) with negligible lifecycle GHG emissions.	Includes generation of heat or cooling
Rehabilitation and desilting of existing hydropower plants, including maintenance of the catchment area (for example, a forest management plan)	Rehabilitation includes works related to water holding capacity of the dam –as long as they do not increase capacity– and works on pipes/turbines to increase productivity and bring additional grid stabilization benefits, and for pumped storage.
District heating or cooling systems with negligible lifecycle GHG emissions.	Using significant renewable energy or waste heat or cogenerated heat, OR including: (a) Modification to lower temperature delta (b) Advanced pilot systems (control and energy management, etc.)
Electricity transmission and distribution, including energy access, energy storage, and demand-side management	

[31] Under this approach, it is recognized that secondary forests provide essential carbon storage services and forest products for local communities that are often not considered to be of conservation value and therefore are not protected.

Eligible operation type	Conditions and guidance
Cleaner cooking technologies	Cleaner cooking technologies substitute the use of traditional solid biomass fuels in open fires; they include sustainable biomass or electricity-based cookstoves
Any conversion to electricity of applications that currently use fossil fuels. For example: from natural gas stoves to electricity-based stoves.	

Source: Joint MDB Assessment Framework for Paris Alignment for Direct Investment Operations, Annex 1.

3.7 **IDB Group activities universally aligned.** Based on Table 1 and the active portfolio of the IDB Group, the following activities do not require a specific assessment to be declared aligned with the mitigation goal of the PA:

a. **Renewable energies**,[32] including wind, geothermal, solar, and wave power, as well as biomass exclusively if it is sustainable (from biogas or from organic waste based on residues, or based on sustainable forestry).[33]

b. **Rehabilitation and modernization of hydroelectric plants with a climate resilience approach**. This includes changing turbine and generator equipment to increase efficiency or increase installed capacity without expanding the reservoir, changes in equipment to digitalize control systems, improvements to the dam and civil works to increase its safety, change in auxiliary equipment (transformers, cranes, gates, control equipment) to extend their useful life.

c. **Construction and rehabilitation of power transmission and distribution networks**. If, according to the ESPF or the ESSP, a transmission line is considered a facility associated with a fossil fuel-based power generation plant, said transmission line will not be considered universally aligned.

d. **Regional integration for energy transport and exchange**. If, according to the ESPF or the ESSP, a cross-border transmission line is considered a facility associated with one or more fossil fuel-based electricity generation plants, said cross-border transmission line will not be considered universally aligned.

e. **Mini-grids based on renewable energies**.

f. **District heating or cooling systems with negligible lifecycle GHG emissions**– that is, as long as they use a significant amount of renewable energy or waste or co-generated heat; or that include: (a) a modification to a lower temperature delta; (b) advanced pilot systems (energy control and management, etc.).

g. **Smart grids,** and digitalization. Investments in data centers will need to be analyzed.[34]

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[32] The IDB Group does not have pre-established thresholds of “insignificant levels of emissions” as indicated in the list in Annex 1 of the MDBs.

[33] In accordance with the Environmental and Social Performance Standard #6 (¶25 and ¶26) of the ESPF; validating that competition is not generated against food crops or that there is any risk of inducing expansion towards areas of high carbon stocks or high biodiversity.

[34] A specific IDB Group sector guidance will be developed for digitalization. The list in Annex 1 of the Joint Framework of the MDBs for Alignment with Paris explicitly excludes data centers, due to their current and increasing intensive energy consumption. In the field of digitalization, these exponential trajectories of energy consumption are also observed in distributed ledger technologies such as blockchain: according to the "Bitcoin Consumption Index" study by the University of Cambridge, this technology consumes more electricity in a year than Argentina.

h. **Energy storage in batteries**.

i. **Cleaner technologies for cooking**, as long as they replace the use of open-air biomass; including improved biomass or electric/induction stoves.

j. **Electrification** of refrigeration, ventilation, air conditioning and heating, including heat pumps.

k. **The decommissioning of fossil fuel power plants**.

l. **Electromobility** (in accordance with the PA alignment technical guidance for transportation). For the financing of SUVs, the lifecycle GHG emissions need to be analyzed and compared to efficiency benchmarks.

m. **Green hydrogen**. Of which yellow hydrogen may be considered a subsector when produced from solar electrolysis.[35]

n. **Energy efficiency** and management of energy supply and demand.

o. **Actions of the just transition agenda**[36] that include premature, planned, and orderly retirement of hydrocarbon or coal-based energy production capacities, addressing the systemic, energy security, and social impacts of the transition.

3.8 The IDB Group will continue to carry out dialogue and technical assistance activities that are necessary to: (i) help countries in the preparation of their LTS; and (ii) contribute to an energy transition that guarantees energy security, affordable prices and a just distribution of costs and benefits, recognizing that fossil fuels, even with a gradually reduced space over time, are part of a necessary energy basket to achieve development objectives.

C. Activities that must validate their alignment with the mitigation goal of the PA

3.9 Based on the projects omitted from the list of universally aligned activities and the active portfolio of the IDB Group, the following types of investments and associated policies **will require compliance with document GN-2613, including a specific assessment of alignment with the CC mitigation goal of the PA.** Please note this list is not exhaustive and may be supplemented over time:

a. **Petroleum-related**: investments in petroleum-based systems used as back-up for isolated renewable energy and/or heating systems. Additionally, and only in situations of energy security crisis, support for exports may be considered with a PA alignment specific assessment: import, transportation, distribution and generation (midstream and downstream), greenfield and brownfield. This includes associated infrastructure or support for policy activities that boost oil systems' productivity.

b. **Gas-related**: export (midstream); import, transportation, distribution and generation (midstream and downstream), greenfield and brownfield are subject to a specific assessment. Also, activities related to **access to energy services** (for example, network expansion) that include the use of oil or gas derivatives.

[35] In instances where yellow hydrogen is produced with inputs from the electric grid, this remains as universally aligned.

[36] A just transition is one that ensures that the costs and benefits of the energy transition are equitably distributed. It includes efforts to address the negative impacts of job losses and industry transitions on workers and communities. It elevates access to opportunities associated with the transition, including decent and sustainable jobs, as well as the growth of green sectors that have risen rapidly on the international agenda since the PA.

c. Construction of **new hydroelectric plants** with reservoir, particularly the aspects of loss of biomass and of water availability due to climate change.

d. First generation **biofuels** (produced from food crops).

e. Technologies for **carbon capture, use and storage** (CCUS) or **gas flaring reduction** in fossil fuel projects.

f. **Non-green hydrogen** (from fossil fuels, including with CCS).

g. **Energy storage** with reversible pumping or with non-green hydrogen.

h. **Significant use of fossil fuels in non-energy intensive industry.** Activities for the use of oil and gas derivatives in industries classified as non-energy intensive[37] will be analyzed on a case-by-case basis, considering electricity and/or heat generation systems in which technical and economic viability does not allow the implementation of technologies that do not significantly rely on fossil fuels.

i. **Energy-intensive industry.** The IDB Group is in the process of developing specific guidance for steel, aluminum, and cement; additional guidance will be developed as needed for this subsector.

j. In addition, based on the MDB guidance, any of the following operations will require a specific analysis: (i) operations whose economic viability depends on external activities for the extraction, processing and transportation of fossil fuels; (ii) operations whose economic viability depends on existing fossil fuel subsidies (e.g., a fishing fleet that would be unviable without fossil fuel subsidies); and (iii) operations that depend significantly on the direct use of fossil fuels (e.g., a production plant or irrigation system that relies entirely or substantially on fossil fuel pumps).

D. Criteria for the specific assessment

3.10 For operations that cannot be considered included in the universally aligned list (section C and others in the energy sector yet to be identified), there are five specific criteria to be analyzed, as noted in Table 2. In order to consider those types of operations as aligned with the mitigation goal of the PA, the answer to ALL questions from the specific assessment must be “No”. Please note that limitations in information availability will not lead to a non-alignment decision, but rather, the assessment will rely on other specific criteria for which information is available.

3.11 This section describes how each one of these general questions by MDBs should be interpreted in the context of energy projects at IDB Group.

Table 2. Specific criteria of the MDB Joint Framework for Alignment with the PA

Specific Criteria (SC)
SC1: Is it inconsistent with the Nationally Determined Contribution of the country? *The NDC of the country should not explicitly or implicitly phase-out this type of activity.*
SC2: Is it inconsistent with the Long-Term Strategy of the country? *The LTS (or similar long-term low-GHG strategy) of the country should not explicitly or implicitly phase-out this type of activity in its lifetime.*

[37] According to the classification of the International Energy Agency https://www.eia.gov/outlooks/ieo/pdf/industrial.pdf

Specific Criteria (SC)
SC3. Is it inconsistent with the global sector-specific decarbonization pathways in line with the PA, considering countries' common but differentiated responsibilities and respective capabilities? *The operation/activity should be checked against widely accepted findings in the global literature to inform the analysis, given the local context and principle of equity.*
SC4: Does it prevent the transition to PA-aligned activities or primarily support or directly depend on non-aligned activities? *The type of operation/ activity should be compared to lower-carbon alternatives and consider the risk of (i) carbon lock-in or (ii) preventing future deployment of Paris-aligned activities.*
SC5: Do transition risks or stranded assets make it economically unviable? *Once CC considerations are included in the economic and/or financial analysis of the operation, it should meet thresholds for viability.*

Note: Insufficient information will not lead to non-alignment. SC4 is expected to be possible to assess in all cases.

3.12 **SC1. Review of the country's Nationally Determined Contribution (NDC).** It involves analyzing the country's NDCs and, if applicable, other national and/or subnational plans or policies that support them, to ensure that the investment does not contravene said plans or policies. In other words, the type of energy investment to be financed would have to be excluded or inconsistent with these instruments to consider the criterion as not met.

3.13 **SC2. Review of the country's Long-Term Strategy (LTS).** It implies analyzing the LTS or other long-term national and/or subnational plans or policies consistent with the mitigation goal of the PA, to ensure that the investment does not contravene said plans or policies. In other words, the type of energy investment to be financed would have to be excluded or inconsistent with these instruments to consider the criterion as not met.

a. If the country has an LTS and an energy sector expansion plan (ESEP) aligned to its LTS, said country meets the criteria (it is assumed that the project is included in the government's expansion plan so that it can be financed by the Bank).

b. If the country has an LTS but the ESEP is not aligned to the LTS, the alignment of the specific project with the LTS should be analyzed. It should be reviewed whether the life cycle emissions of the project are acceptable taking into account the emissions trajectory of the LTS (see SC4).

c. If the country does not have an LTS or equivalent plan, the answer is "Not Applicable".

3.14 **SC3. Review of sectoral low carbon pathways.** For operations in this sector, the trajectories outlined in Table 3 will be analyzed in the context of the operation. The net-zero scenarios of the International Energy Agency (IEA) for developing countries should be considered. This will be complemented by considerations related to the principle of equity and common but differentiated responsibilities, particularly in light of the feasibility analysis under SC4.

Table 3. Low GHG Emissions Development Global Trajectories for Energy

Sector or Sub-sector	Global / Sectoral low carbon pathways	Source
Upstream oil and gas	New projects that rely on an LNG price of more than $10/mmBtu may be stranded over the next decade. See: Caldecott, B. et. Al. "Stranded Assets: A climate Risk Challenge"	Carbon Tracker Initiative "Carbon Cost Supply Curves Series" 2014-2015
	The IEA analysis indicates that to achieve net zero emissions by 2050 globally,[38] from 2021 onwards there is no need for investment in new oil and gas fields, and no new coal mines or mine extensions are required. Globally, existing fossil-fuel energy infrastructure in 2018 may already be at odds with the 1.5 °C climate target.[39] If operated as historically, existing fossil-fuel infrastructure, including power plants, industrial plants, and transport equipment, will cumulatively emit more than 650 $GtCO_2$ over their lifetimes. These so-called committed emissions are already greater than what the IPCC estimates can be emitted to stay below 1.5 °C (420–580 $GtCO_2$). This means that to meet the goals of the PA, the commercial life of some existing infrastructure will need to be curtailed early.	IEA 2021, p. 92 - IEA (2021): Net Zero by 2040 - A Roadmap for the Global Energy Sector.
Midstream and downstream fossil fuels	While the level of uncertainty is high regarding the future of fossil fuels in these scenarios, a clear priority emerges between coal, oil and gas. For European Union Paris Aligned Benchmarks, the subgroup has therefore decided to set stringent exclusion criteria based on revenue thresholds in line with expected drops in use (i.e., 1% for coal, 10% for oil and 50% for natural gas).	EU Technical Expert Group on Sustainable Finance Handbook of Climate transition benchmarks, Paris-Aligned benchmark, and Benchmarks' ESG Disclosures. December, 2019
	In Central and South America, 42 percent of oil, 56 percent of gas, and 73 percent of coal reserves would be 'unburnable' before 2050 in a scenario where there is not widespread CCS deployment.	McGlade and Ekins (2015)
	To be consistent with the PA, 15% of current installed capacity for gas in the region would need early retirement; "more than half (62%) of committed emissions from planned plants would come from natural gas-fired plants. Thus, massive investments in natural gas would not be the solution for an energy transition towards renewable energies consistent with climate objectives."	Rosa Esperanza González-Mahecha et al., "Committed Emissions and the Risk of Stranded Assets from Power Plants in Latin America and the Caribbean," Environmental Research Letters, 2019, https://doi.org/10.1088/1748-9326/ab5476

[38] IEA (2021), Net Zero by 2050 - A Roadmap for the Global Energy Sector https://www.iea.org/reports/net-zero-by-2050

[39] Dan Tong, Qiang Zhang, Yixuan Zheng, Ken Caldeira, Christine Shearer, Chaopeng Hong, Yue Qin and Steven J. Davis (2019), Committed emissions from existing energy infrastructurrevere jeopardize 1.5 °C climate target https://www.nature.com/articles/s41586-019-1364-3

Sector or Sub-sector	Global / Sectoral low carbon pathways	Source
Beyond electrification	"Breakthroughs in decarbonizing non-electric energy use and radical energy demand reductions have the largest potential to deepen emissions reductions beyond what is projected in 1.5°C pathways in the literature."	Kriegler, E. et.al. Pathways limiting warming to 1.5°C: a tale of turning around in no time?(2018) Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences P 20160457 V 376 N 2119 R doi:10.1098/rsta.2016.0457

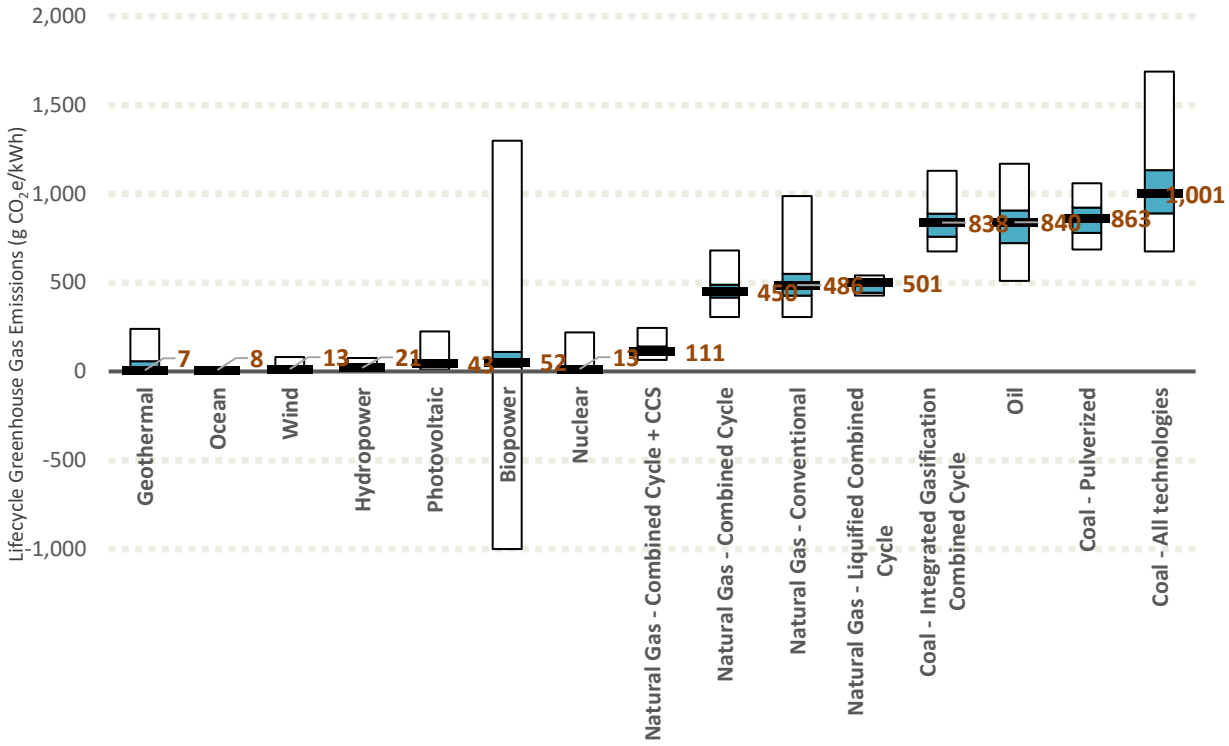
3.15 **SC4 No obstruction of the transition ("carbon lock-in")**: Does the project involve financing facilities with significant CO_2^e emissions that will continue to operate even if there are economically feasible, lower-carbon options available to replace it during its lifetime? To meet this criterion, it is necessary to carry out an analysis of alternatives that considers the committed GHG emissions (*carbon lock-in*) associated with the investment. In this context, the main guiding questions will be:

a. Based on a robust analysis of alternatives, has it been verified that the option to be financed is the only one considered technically and economically viable to provide the same level of energy service?

b. What is the useful life of the asset? Even in the face of the probable existence of lower emission alternatives that could replace it in the coming years (analyze together with 3.18 b), is it expected to continue operating in an intensive manner in GHG emissions by 2050? What kind of arrangements will allow the operation to adapt to reduce emissions throughout its useful life?

c. Does the energy investment to be financed prevent the development of alternatives with lower GHG emissions? For example, by discouraging bidders from entering the market with lower carbon solutions.

Figure 1. Life cycle emissions by type of technology in the energy sector



Source: NREL, Life Cycle Greenhouse Gas Emissions from Electricity Generation: Update (2021) https://www.nrel.gov/docs/fy21osti/80580.pdf. For raw data, visit: https://data.nrel.gov/submissions/171

3.16 **SC4 Specific considerations by type of investment**. The review of criterion SC4 will include the following specific considerations depending on the project type:

a. **Conventional hydroelectric plants and reversible pumping stations**:

1. Have accepted methodologies been applied to estimate GHG emissions from the asset?[40]
2. Is there a risk of generating loss of natural habitat and aquatic biodiversity?[41]
3. Is there a risk of preventing the deployment of biodiversity-based agribusiness activities?

b. **Midstream and downstream from oil or gas.**[42]

1. Has the impact of the investment on aspects of energy security, access to energy and impact on development been analyzed?

[40] For example, the methodology applied by the Climate Bond Initiative includes eligibility criteria of 10 W/m2 and less than 50 grCO_2/MWh.

[41] This aspect will have to be reviewed in light of the environmental and social safeguards contained in the ESPF applicable to IDB and IDB Lab, and in the ESSP applicable to IDB Invest.

[42] This section also applies to heating and cooling generation systems from oil, natural gas and cogeneration; as well as the deployment of cooking, water heating and heating equipment, based on natural gas, liquefied natural gas or liquefied petroleum gas.

2. Is it a project located in a SIDS country,[43] or a country with a human development index[44] lower than the average for developing countries, or a fragile state?[45]

3. *For the specific case of gas-fired power generation:* Is it a peak capacity plant, a gas plant with combined cycle turbines, or a crisis management plant[46] that uses the best available technology?[47] Also, is there a plan to achieve net-zero emissions[48] or to decommission the asset by 2050?

4. *For the specific case of regasification and liquefied natural gas terminals:* is it an asset that will serve exclusively as a facility for the import of gas or LNG and in no case destined for the export of said fossil fuel? Also: is there a plan to achieve net-zero emissions[49] or to decommission the asset by 2050?

c. Carbon Capture and Sequestration (CCS) or Use and Storage (CCUS)

1. Does the deployment of this solution encourage the exploration of fossil fuels, or does it extend the useful life of assets that operate based on them?

2. Does the deployment of this solution limit the market opportunities for alternatives with lower GHG emissions?

d. Yellow hydrogen

1. Has it been calculated that most of the electricity comes from a mostly (>51%) renewable or clean energy matrix, or does the project use renewable power purchase agreements (PPAs)?

2. Is there a possibility to certify hydrogen as low carbon using a guarantee of origin scheme?

e. **Blue hydrogen**

1. Does the deployment of this solution encourage the exploration of fossil fuels or extend the useful life of assets that operate based on them?

2. Does the deployment of this solution limit market opportunities for lower GHG emitting alternatives, including green hydrogen?

3. Is a green hydrogen-based solution economical and technically feasible at the time of implementation?

f. **First generation bioenergy**

1. Does the project ensure that it does not generate competition with food systems?

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43 *Small Island Developing State (SIDS)* based on the *UN list of SIDS.*

44 United Nations Human Development Index (HDI).

45 Fragile status based on OECD list until IDB defines its own list or adopts another.

46 As established by Senior Management.

47 Regional benchmarking of conventional natural gas plants reveals an emission factor of 599 g-CO_2/kWh, while for CCGT natural gas plants the factor is 430 g-CO_2/kWh (MGM Innova, IDBInvest, 2021). These reference values do not consider the variability of the emission actors or efficiency levels for different sizes of generation plants, with better available technologies or achievable peak efficiencies depending on the electrical rating of the asset. Therefore, IDBInvest will verify the proposed concept, technology and equipment on a case-by-case basis to ensure that they meet the criteria of "best available technology", considering specific regional and national conditions, market projections, the average type of plants deployed in the region, and other performance indicators deemed appropriate.

48 GHG emissions scope 1, 2 and 3.

49 GHG emissions scope 1, 2 and 3.

2. Does the project ensure that it does not generate risks of inducing the loss of high carbon stocks?

3.17 **SC5**: **Economic viability given transition risks**. This criterion implies analyzing the risks of the climate transition (that is, those associated with a future scenario that keeps the rise in temperature well below 2°C), and monetizing – to the extent possible – the associated costs and benefits. An operation will be considered "not aligned" if, once the quantitative or qualitative implications of CC have already been incorporated into the analysis, the project does not meet the thresholds of economic and financial viability required by the IDB Group.

3.18 Both the public and private arms of the IDB Group have begun to monitor climate transition risks based on internationally recognized approaches. The main framework of reference is the one established by the Task Force on Climate Related Financial Disclosures, TCFD,[50] which broadly covers three areas of change: (a) shifts in policies and regulations associated with the transition; (b) technological improvements and innovations in the sector; and (c) potential changes in supply (for example, investor decisions) and/or in consumer behavior; that is, market shifts.

3.19 Therefore, to meet this criterion, it is necessary to determine whether there are material transition risks in the subsector of the operation, and if so, incorporate such risks into the financial sensitivity analysis, estimating their impact on the project's feasibility and anticipating the risks of stranded assets.[51] To do this, the main guiding questions will be the following:

a. **What is the contribution of the project to GHG emissions and therefore, to what extent could it be impacted by policies and regulations?** Considering (i) the volume of emissions associated with the investment; and (ii) how would it be affected by policies (for example, a carbon price) or regulatory restrictions (for example, a maximum threshold of GHG emissions) aimed at achieving the goals of the PA? This means that an asset may face risks and even become stranded if there is a legal restriction that prohibits or limits its operation due to carbon intensity. A concrete example of this type of risk is the European "Carbon Border Adjustment Mechanism" strategy.[52] Another example is the elimination of fossil fuel subsidies, which would impose a new cost on companies that depend on them, reducing their future income and, therefore, the current value of their business. To address this risk in electricity generation projects, scenarios will be analyzed that anticipate changes in the evolution of income and in the amount of contracted power and energy dispatched by the asset given these regulatory scenarios.

b. **What is the potential impact of low GHG emission technology improvements in the subsector?** Analyze: (i) current and emerging substitute technologies in the specific market of the operation; and (ii) possible evolution of its technical and economic competitiveness[53] in the short (less than one year) or medium (up to 5 years) term, also in the specific market and considering the costs of CC

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50 See: "Recommendations of the Task Force on Climate-related Financial Disclosures" (2017).

51 "Those that have suffered from unanticipated or premature write-downs, devaluations, or conversion to liabilities due to climate change impacts. These could entail an asset losing value, solvency risks from reduction in credit rating, liquidity risks, lower than expected return on investment.

52 The Carbon Border Adjustment Mechanism (CBAM) is a carbon pricing system for imports into the European Union. Its objective is to adjust the price of certain imported products to the amount of CO_2 emissions incorporated in them, in order to equalize the cost of carbon between EU products and these imports.

53 Said estimates must also consider the probable evolution of operating costs.

externalities (for example, using a shadow carbon price).[54] Based on the foregoing, evaluate whether any of the options could offer the same service as the option being financed, but with lower GHG emissions. The analysis of the projections of CO_2 prices towards 2050 is central, in order to then compare whether technologies that are about to mature in the market become more economically feasible given the expected evolution in operating costs. An example of this is whether the new renewable energy storage technologies credibly dispute the competitiveness of natural gas-based plants in a specific market.

c. **What is the potential impact from changes in these markets?** The transformations related to global decarbonization pathways in the energy sector are already impacting the decisions of investors and governments.[55] To understand the transition risks associated with the evolution of markets, it is necessary to consider their segmentation based on GHG emissions associated to energy assets/solutions considered in the investment. A growth in the differentiation of markets (national and international) associated with the intensity of GHG emissions is anticipated; the same asset/solution produced in different ways (with different emission levels) should have different markets and prices. This market segmentation is a consequence of the companies' strategies (and how they perceive the preference of their consumer market). This would be the case, for example, of public energy companies that give their consumers the option of choosing whether their electricity comes from renewable sources, even if this implies an additional fee. This in turn could affect estimates of financial demand for fossil fuel-based generation.

3.20 **Specific considerations of SC5 by type of investment.** When reviewing this criterion, the following specific considerations by type of investment must be taken into account:

a. **Conventional hydroelectric plants and reversible pumping stations**. Physical risks of CC such as droughts can potentially cause stranded assets.

b. **Midstream and downstream from oil or gas, blue hydrogen, Carbon Capture and Sequestration (CCS) or Use and Storage (CCUS)**. In all cases, the use of a shadow carbon price is required in the economic analysis of the project to reflect climate externalities.

c. **Heating and cooling generation using oil, natural gas or cogeneration**. Regulatory risks linked to public health and technological risks such as early obsolescence should be considered.

d. **Deployment of cooking, water heating and heating equipment, based on natural gas, liquefied natural gas or liquefied oil gas.** Regulatory risks linked to public health, technological risks such as early obsolescence, and long-term unnecessary price volatility for the most vulnerable should be considered.

e. **First generation biofuels.** Risks associated with the volatility of food prices; regulatory risks associated with certifications for the traceability of zero impact on deforestation.

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[54] Although the IDB does not have a mandatory policy or guideline for the use of shadow carbon price, project teams that include it in their analyzes are recommended to use low and high estimates consistent with the Report of the High-Level Commission on Carbon Prices. SPD recommends starting with a price of US$40/tCO$_2$ and US$80/tCO$_2$, respectively, in 2020 and increasing it to US$50/tCO$_2$ and US$100/tCO$_2$ by 2030. The low and high values in the prices of carbon are extrapolated from 2030 to 2050 using the same growth rate of 2.25% per year that is implied between 2020 and 2030, resulting in values of US$78/tCO2 and US$156/tCO$_2$ for 2050.

[55] See: OECD (2021), ESG Investing and Climate Transition: Market Practices, Issues and Policy Considerations, OECD Paris, https://www.oecd.org/finance/ESG-investing-and-climate- transition-Market-practices-issues-and-policy-considerations.pdf

3.21 For more specific guidance regarding the application of specific criteria to ensure alignment with mitigation goal of the PA in private sector energy projects, refer to the document "Private sector guidance for investments in the energy sector".

IV. ASSESSMENT OF OPERATIONS: ALIGNMENT WITH THE PA ADAPTATION GOAL (BB2)

4.1 The evaluation of alignment with PA adaptation goal focuses on establishing whether the operation manages its climate vulnerability and risk[56] and is consistent with a climate-resilient development of the country. Specifically, it focuses on determining whether the long-term achievement of the operation's development objectives is vulnerable to the effects of climate change, and whether the activities are consistent with climate resilience trajectories defined at the national or subnational level. For this purpose, it focuses on three criteria:

a. **Criterion 1–Climate risk and vulnerability context.** Determine if the operation is vulnerable to CC, identifying and evaluating its exposure to physical climate impacts. Depending on the type of operation, these may be impacts on assets, on the services it plans to provide, on human and natural systems, and/or on its beneficiaries. If the operation is considered to be at risk, it continues with Criterion 2. Operations with low or immaterial climate risk can skip Criterion 2 and go directly to Criterion 3.

b. **Criterion 2–Definition of climate resilience measures**. Have climate adaptation and resilience measures been identified and incorporated into the operation to manage physical climate risks and/or to contribute to climate resilience?

c. **Criterion 3–Does not contravene plans for climate resilience.** Depending on relevance and availability, consider policies, strategies, and plans at the territorial, local, national, or regional level, as well as community or private sector priorities. The operation should not be inconsistent with them.

4.2 In the case of the IDB and IDB Lab, the first two of the three criteria must follow what is established in the Bank's policies, in particular in IDB's Environmental and Social Policy Framework (ESPF), which, under the Environmental and Social Performance Standard 4 reinforces the resilience of projects to anticipate and avoid adverse impacts on the project itself in the face of natural disaster hazards and climate change during the project cycle. In these cases, the "Disaster and Climate Change Risk Assessment Methodology for IDB Projects" (DCCRA) will determine those instances where greater consideration of the physical impacts of climate change is necessary to ensure alignment of energy projects. All projects complying with the DCCRA methodology will be considered aligned under the first two alignment criteria with the adaptation goal established by the MDBs. The third criterion will be applied in the formulation of the project in accordance with the provisions of the PAIA, identifying whether the operation is related to the national or subnational priorities of the country in terms of adaptation, and if so, how the planning efforts have been considered.

4.3 In the case of IDB Invest, the alignment in terms of the first two criteria will be done in accordance with the provisions of IDB Invest Environmental and Social Sustainability Policy (ESSP) and IDB Invest Climate Risk Assessment methodology (CRA).

[56] The Disaster and Climate Change Risk Assessment Methodology for IDB projects (DCCRA) includes specific measures according to the type of infrastructure after evaluating the criticality.

A. Considerations for the assessment of alignment with the adaptation goal of the PA in the energy sector

4.4 **To ensure long-term alignment with adaptation goal of the PA, the Joint MDB framework advises on the importance of avoiding maladaptation**.[57] To address the potential risks of maladaptation in the sector, it is considered essential that any project that involves rehabilitation, renovation or construction of hydroelectric energy infrastructure analyzes the need to project future CC scenarios specific to the project; and that, particularly when it is determined that these are located in contexts with a high risk of future drought due to CC, they consider the preparation or review of Comprehensive Basin Management Plans and Comprehensive Water Resources Management Plans as part of the investment. [58]

4.5 For IDB Invest, alignment on adaptation will take an approach based on the scope discussed with clients to take advantage of opportunities to strengthen climate resilience.

[57] Maladaptation refers to climate adaptation actions that increase current or future climate vulnerabilities within the boundaries of an operation, shift vulnerabilities from within the boundaries of an operation to an external/surrounding system (causing adverse effects on social, environmental, economic, or physical aspects of the system), or undermine sustainable development. Maladaptation occurs when an adaptation action undermines the coping capacities of existing systems, diminishes the capabilities of future generations to respond to climate vulnerabilities, or places a disproportionate burden for climate action on present-day or future external actors.

[58] For further reference, see Esquivel et al., 2016. “Vulnerability to Climate Change of Hydroelectric Production Systems in Central America and its Adaptation Options”.

APPENDIX

Matrix for IDB Group Actions – Coal

Value chain

Activity / Segment	Exploration & production (upstream)		Export (midstream)	Import, transport, distribution & generation (midstream y downstream)		Access to energy services	Decommissioning & equitable transition agenda
	Greenfield	*Brownfield*		*Greenfield*	*Brownfield*		
PBLs							
Investment Operations (loans, IGR, guarantees) & pre-feseability/feasibility studies financed with TCs							

Matrix for IDB Group Actions – Oil & Gas

Value chain

Activity / Segment	Exploration & production (upstream))		Export (midstream)	Import, transport, distribution & generation (midstream y downstream)		Access to energy services	Decommissioning & equitable transition agenda
	Greenfield	*Brownfield*		*Greenfield*	*Brownfield*		
PBLs							
Investment Operations (loans, IGR, guarantees) & pre-feseability/feasibility studies financed with TCs							

Green: Activities that can be carried out by the IDB Group.

Yellow: Activities that will be analyzed on a case-by-case basis

Red: Activities that will not be supported by the IDB Group.

Relationship to ESPF Exclusion List.

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