

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

REPUBLIC OF CHILE

**PROGRAM TO SUPPORT THE FAIR, CLEAN, AND SUSTAINABLE ENERGY
TRANSITION II**

(CH-L1165)

LOAN PROPOSAL

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ABBREVIATIONS	
CNE	Comisión Nacional de Energía [National Energy Commission]
DIA 2020	IDB Flagship Publication on Development in the Americas, “From Structures to Services: The Path to Better Infrastructure in Latin America and the Caribbean,” 2020
DIPRES	Budget Office of Chile
ECG	Evaluation Cooperation Group
GDP	Gross domestic product
GHG	Greenhouse gases
MINENERGIA	Ministry of Energy
NDC	Nationally Determined Contribution
PBP	Programmatic Policy-based Loan
PELP	Long-term Energy Planning
PEN	National Energy Policy
SEC	Superintendencia de Electricidad y Combustible [Superintendency of Electricity and Fuel]
VAD	Distribution value-added

PROJECT SUMMARY
CHILE
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Financial Terms and Conditions				
Borrower			Flexible Financing Facility ^(a)	
Republic of Chile			Amortization period:	16 years
Executing agency			Disbursement period:	2 years
The borrower, through the Ministry of Energy (MINENERGIA)			Grace period:	5.5 years ^(b)
Source:	Amount (US\$)	%	Interest rate:	SOFR-based
IDB (Ordinary Capital):	300,000,000	100	Credit fee:	^(c)
			Weighted average life:	10.75 years ^(c)
Total:	300,000,000	100	Currency of approval:	U.S. dollar (US\$)
Project at a Glance				
<p>Project objective/description: The general objective is to support a fair, clean, and sustainable energy transition in Chile. The specific objectives are: (i) to improve the regulatory framework in support of citizen-centric modernization of the energy sector; (ii) to support policy reforms aimed at accelerating decarbonization of the energy matrix; and (iii) to enable and promote technological innovation in the energy sector.</p> <p>This operation is the second and final in a programmatic policy-based series consisting of two contractually independent but technically connected loans.</p>				
<p>Special contractual conditions precedent to the first disbursement of the loan: The sole disbursement of the loan proceeds will be subject to fulfillment of the policy reform conditions set forth in the Policy Matrix (Annex II) and any other conditions of the loan contract (paragraph 3.3).</p>				
<p>Exceptions to Bank policy: None.</p>				
Strategic Alignment				
Challenges: ^(d)	SI <input checked="" type="checkbox"/>		PI <input checked="" type="checkbox"/>	EI <input type="checkbox"/>
Crosscutting themes: ^(e)	GE <input checked="" type="checkbox"/>	and DI <input type="checkbox"/>	CC <input checked="" type="checkbox"/>	and ES <input checked="" type="checkbox"/>
				IC <input checked="" type="checkbox"/>

^(a) Under the terms of the Flexible Financing Facility (document FN-655-1), the borrower has the option of requesting changes to the amortization schedule, as well as currency, interest rate, commodity, and catastrophe protection conversions. The Bank will take operational and risk management considerations into account when reviewing such requests.

^(b) Under the flexible repayment options of the Flexible Financing Facility, changes to the grace period are permitted provided that they do not entail any extension of the original weighted average life of the loan or the last payment date as documented in the loan contract.

^(c) The credit fee and inspection and supervision fee will be established periodically by the Board of Executive Directors as part of its review of the Bank's lending charges, in accordance with applicable policies.

^(d) SI (Social Inclusion and Equality); PI (Productivity and Innovation); and EI (Economic Integration).

^(e) GE (Gender Equality) and DI (Diversity); CC (Climate Change) and ES (Environmental Sustainability); and IC (Institutional Capacity and Rule of Law).

I. DESCRIPTION AND RESULTS MONITORING

A. Background, problem addressed, and rationale

- 1.1 This operation is the second of two operations in a series of programmatic policy-based loans (PBPs). The series started with loan contract 5278/OC-CH (PBP I) for US\$50 million. The loan contract for PBP I financed policy measures linked to: (i) improving the regulatory framework in support of citizen-centric modernization of the energy sector; (ii) accelerating the decarbonization of the energy matrix; and (iii) enabling and promoting technological innovation in the energy sector. This operation continues the support for the reforms initiated in PBP I, approved in June 2021 and disbursed in December 2021.
- 1.2 **Macroeconomic situation.** In 2018, Chile achieved annual per capita income, corrected for purchasing power parity, of US\$25,283, among the highest in Latin America and the Caribbean. However, since late 2019, its economy has been impacted by a social crisis and subsequently by the COVID-19 pandemic. Thus, in 2019, growth of gross domestic product (GDP) was 0.9%, and in 2020, GDP declined 5.8%.¹ There was also a significant impact on the labor market, with a drop in employment of around 20% during the June-August quarter in 2020.² To address both crises, the Chilean government increased the effective fiscal deficit to 7.3% of GDP in 2020, and it is estimated to close 2021 at 7.1%.³ For that reason, the gross central government public debt, as a percentage of GDP would rise to 38.6% in 2024⁴ from 27% prior to the social crisis.⁵ This represents a critical period for Chile. Nevertheless, the energy sector—particularly the electricity subsector—has become a pillar of the country's economic and social development. Therefore, energy transformation, particularly renewable energies and the decarbonization of the energy matrix, will play an essential role.⁶
- 1.3 **Organization of the energy sector.** Chile is a pioneer in liberalization of the electricity market worldwide and transformation of the electricity subsector. The country went from an integrated public structure to a competitive market structure with vertical separation of activities (generation, transmission, and distribution), which remain almost completely under the responsibility of private companies.⁷ The key entities in the energy sector are: (i) the Ministry of Energy (MINENERGIA), the lead agency for the sector, responsible for formulating, adopting, directing, and

¹ Central Bank of Chile.

² International Labour Organization. [Chile: efectos de la pandemia generaron consecuencias sin precedentes en el mundo del trabajo](#). (23 November 2020).

³ [Informe de Finanzas Públicas \(July 2021\)](#).

⁴ [Informe de Finanzas Públicas \(July 2021\)](#).

⁵ Ministry of Finance, Informe de Estadísticas de la Deuda Pública septiembre de 2019.

⁶ Chapter 2 of the IDB flagship publication, Development in the Americas 2020 "[From Structures to Services: The Path to Better Infrastructure in Latin America and the Caribbean](#)" (DIA 2020) demonstrates the importance of infrastructure services, including the energy sector, for economic growth. Chapter 9 also shows the significance of renewable energy for the energy transition under way and the future of the energy sector. Cavallo et al. 2020.

⁷ The Chilean market is: (i) an open market with free competition rules in the generation segment (with private companies and sales contracts for regulated and unregulated customers); and (ii) a regulated natural monopoly in the segments of distribution (operating as a concession system) and transmission (with contracts awarded through tendering).

coordinating policies, plans, and programs for the energy sector; (ii) the National Energy Commission (CNE), the sector's decentralized public regulatory agency; and (iii) the Superintendency of Electricity and Fuel (SEC), which oversees compliance with regulatory standards. At present, the installed capacity is primarily made up of coal (18%), natural gas (15%), hydropower (26%), solar (15%), wind (10%), liquid fuels (15%), and biomass (1%).

- 1.4 **Regulatory and policy reform in the energy sector.** Chile has committed to develop a safe, quality, reliable, efficient energy sector that is compatible with the environment and the carbon neutrality targets assumed in its Nationally Determined Contribution (NDC) by 2050. Specifically, its commitments are aimed at improving its regulatory and energy policy frameworks, increasing the incorporation of renewables in the energy matrix, strengthening innovative technologies based on clean energy, and promoting the decarbonization of its economy, all within a process of inclusive citizen participation that has been accelerating over time. The approval of recent laws to promote competition in the distribution segment, the push to replace firewood consumption with electricity in households (referred to as the residential thermal matrix), the rational and efficient use of energy resources, strong policy signals to close the gender gap, ambitious climate change targets (Chile will be carbon neutral by 2050 and will move toward a 100% renewable, zero-emissions electricity matrix), along with voluntary agreements to exit coal-fired power plants and regulations to decarbonize ground transportation and promote new energy technologies, are the powerful regulatory instruments that Chile has developed to date. It was in this context that the Bank approved PBP I, whose measures were structured within a frontier policy matrix, laying the groundwork for ambitious policy actions for the second and final operation (PBP II). The progress made since the approval of PBP I is detailed below, as are the gaps identified for this second operation, and the accelerated milestones that PBP II is expected to fulfill, thus completing the reforms initiated under PBP I.
- 1.5 **Diagnostic assessment, challenges in the energy sector, and gap analysis.** Chile's achievements in recent years demonstrate the country's commitment to moving forward with a profound energy transition process and being able to have a clean, sustainable, and decarbonized energy matrix. However, the sector still faces three challenges. **Challenge 1:** having a long-term energy policy and regulatory framework that allow the sector to modernize and guarantee affordable electricity service with clean generation (displacing polluting fuels such as firewood). **Challenge 2:** decarbonizing to achieve carbon neutrality, associated primarily with the phasing out of coal-fired power plants, under fair conditions for the affected workers, and incorporating variable renewable energies under adequate conditions for the proper functioning of the power grid. **Challenge 3:** implementing a framework that enables new technologies, in some cases nonexistent technologies, as in the case of green hydrogen.
- 1.6 **Challenge 1: Need to modernize the regulatory framework and update the long-term energy policy.** Both the existing regulatory framework and the long-term energy policy need to incorporate the new conditions and the changes in the sector, so they translate into better conditions for end users and improve the affordability of the service.

- 1.7 **Update of the National Energy Policy (PEN):** In 2015, the Chilean government prepared the PEN, the first long-term State policy for the energy sector, resulting from a participatory, citizen-centric planning process. The PEN aimed to ensure universal access by 2035 to modern, reliable, and affordable energy services, and by 2050, 70% of electricity would be generated from renewable sources. Subsequently, the 2018-2022 Energy Roadmap was prepared, which set forth the programmatic work for that period, representing another step in the transformation of the energy sector. Although both policy documents incorporate ambitious commitments, in the last six years, the energy sector has changed significantly and rapidly, and the comprehensive vision of this sector's future needs to be updated.⁸
- 1.8 Between 2019 and 2021, MINENERGIA undertook a participatory process for the first update of the PEN with wide-ranging citizen workshops including experts, representatives from academia, and civil society. This process resulted in highlighting the importance of including the following in the energy policy: (i) efforts to move forward on: (a) carbon neutrality targets; (b) penetration of renewables in power generation; and (c) reduction of greenhouse gas emissions;⁹ with the reduction of local pollution from the use of wet firewood and better regulation of firewood as a fuel; (ii) the commitments for all citizens to have equitable, affordable access to energy services¹⁰ (and to reduce energy poverty,¹¹ in which 60% of housing built does not have insulation and consumes 30% of what it should for heating in order to be comfortable); (iii) the modernization of the energy sector as a driver of economic development with new technologies; and (iv) measures to advance on the sustainability of energy development and to close the gender gap. A new consensus-based vision of the energy sector and the commitments to address these challenges should be reflected in an updated PEN through 2050.
- 1.9 **Need for regulatory modernization of the distribution segment.** Until 2019, modernization of the distribution segment was pending, which limited the transfer of the benefits of the sector's progress to end users. To remedy these shortcomings, PBP I supported key measures to advance regulatory modernization, such as the approval of Law 21,194, which cut the profitability of distribution companies. This Law established the legal framework for incorporating the benefits stemming from the current conditions of access to financing, technological development, and the maturity of the distribution industry into the methodology for calculating the distribution value added (VAD). PBP I also supported the regulation necessary for the application of new provisions to the

⁸ Anticipating this, the PEN established a periodic review of the policy every five years in order to maintain its validity over time as an instrument to guide the sector's development.

⁹ Chile committed to a greenhouse gas (GHG) emissions budget that would not exceed 1,100 Mt CO₂ eq., between 2020 and 2030, with peak GHG emissions in 2025, and achieving a level of GHG emissions of 95 Mt CO₂ eq. by 2030. The NDC also includes the commitment of a reduction of at least 25% of total black carbon emissions by 2030, with respect to 2016.

¹⁰ The affordability of electricity service in Chile is a challenge for the low-income population. In Santiago, the poorest households devote a significant part of their income to payments for electricity (nearly 8.3%, a high percentage with respect to other cities in Latin America and the Caribbean). IDB. [Más Allá de la Electricidad: Cómo la energía provee servicios en el hogar](#) (September 2020).

¹¹ Energy poverty is related to various indicators ranging from the quality of the housing where people live, to the quality of the energy services to which they have access, the amount of energy they consume during the year, and even their level of literacy with respect to certain concepts.

calculation of the VAD for the period 2020-2024,¹² including the definition of typical distribution areas; and the contracting of the study to calculate the components of the VAD,¹³ which determined the cost components of a model company for each of the defined typical distribution areas. For the benefits stemming from the new Law 21,194 to ultimately be reflected in users' rates and close the affordability gap, the CNE needed to propose specific new rate formulas for each distribution company based on the study for the calculation of the VAD components.

- 1.10 **Need to reduce electricity price volatility.** The cost of the electricity that is passed on in the rates of regulated customers is established based on the prices of the contracts resulting from the long-term supply tenders and is impacted by variations determined by fuel prices and fluctuations in the value of the dollar.¹⁴ By means of Law 21,185, supported by PBP I, a transitional price stabilization mechanism was created that reduces this volatility by anticipating the effect of the lower prices of new supply contracts, particularly those associated with photovoltaic solar power plants to begin operations in future periods. Subsequently, MINENERGIA approved the decree to simplify the process of implementing the stabilization mechanism, and the CNE released the technical report containing the calculation of the average regulated prices and the adjustment factor. To complete implementation of this mechanism, MINENERGIA needs to issue the decree setting the average regulated prices for each distribution company. Thus, customers will see the benefits of the Law reflected in their service rate, a key step in reducing the affordability gap for electricity service.
- 1.11 **Need to increase competition in electricity services for end users.** PBP I supported the submission of the bill on "Electricity Portability" to the National Congress, separating the activity of marketing from that of distribution and creating the concept of an energy marketer, enabling regulated users to have the ability to select the company that provides their service. To achieve immediate implementation of this new structure, once the Law is approved, it is critical for MINENERGIA to move forward in parallel to define the content of future regulatory instruments such as those related to the implementation of energy marketing; relations between the various actors (marketer, customer, distribution company); and the conditions for the new transactions. This regulation will enable a more expeditious implementation of the Law and a more dynamic marketplace.
- 1.12 **High dependence on wet firewood for residential heating.** One third of households nationwide use firewood for heating, exposing nearly 9.7 million people to high levels of air pollution (PM 2.5). These households are primarily concentrated in the cities of the central-south (from the O'Higgins region to Aysén¹⁵) where 85% of emissions of particulate matter (PM) come from burning

¹² The typical areas of distribution were established using a methodology grouping companies whose VADs are similar (considering the background on investment, costs, and sales of the concession holders) and the definitive technical bases for the calculation of the components of the VAD.

¹³ CNE. [Resolution 3](#): (27 August 2020).

¹⁴ The median market price increased an average of 5.9% in the updates between October 2018 and October 2020, with variations between -1.4% and 7.8%. This price is used to index the regulated price of energy (source: CNE).

¹⁵ Over 90% of homes using firewood for heating are concentrated in Chile's central-south. (Source: [Política de la Leña y sus Derivados para Calefacción](#). Government of Chile).

firewood (6% of final consumption in Chile).¹⁶ PBP I supported the first version of the Residential Energy Transition Strategy with the establishment of guidelines to follow for non-firewood heating alternatives,¹⁷ and this operation proposes the next step to develop the specific regulations for such alternatives.

- 1.13 An initial alternative is “district energy,”^{18 19} which helps reduce local pollution by replacing thousands of low-efficiency wood-fired heaters while also moving toward electrification. The following significant barriers to its development have been identified: (i) the lack of a regulatory framework that recognizes thermal energy as part of the energy sector and defines regulations for its production and marketing; (ii) the need to obtain permits to perform installation and maintenance work underneath streets and public spaces; and (iii) limited competition with the replacement market. In this regard, regulations with the force of law must be defined to regulate district energy by setting its rules for operation and promoting its expansion to replace the use of firewood.
- 1.14 A second alternative is the regulation (also with the force of law) of firewood as a fuel for residential use and the establishment of conditions for its use for the following reasons: (i) the existence of a highly informal and fragmented market; (ii) the lack of minimum technical specifications for quality and metrics; (iii) the lack of biomass processing centers to conduct a certification process; (iv) the lack of regulatory measures to support producers; and (v) the lack of regulation on oversight and sanctions for the harmful use of biofuels.
- 1.15 Lastly, there is the challenge associated with the need to establish guidelines and measures to promote the development and use of clean energy for heating and cooling. The existing gaps for the development of these applications²⁰ include: (i) the low presence of sustainable heating sources; (ii) barriers to the penetration of sustainable technologies (23% in the residential sector have insulation in the roof and walls, and 14% have insulation in the roof); and (iii) the lack of comprehensive regulation in a crosscutting area for health, education, and housing.
- 1.16 **Closing the gender equality gap.** The first Energy and Gender Agenda of 2017 promoted the autonomous development of women in the energy environment and actions for inclusion to reduce gender gaps. In 2019, the diagnostic assessment of barriers and gaps by MINENERGIA on private companies in the energy sector showed that just 23% of the workforce is made up of women, and in leadership positions, they hold just 10% of jobs, such as chief executive officer (CEO). Therefore, PBP I supported the increase of women’s participation in the energy

¹⁶ In Latin America and the Caribbean, the nine cities most impacted by firewood as a residential heating source are in Chile: Osorno, Coyhaique, Valdivia, Padre Las Casas, Temuco, Santiago, Linares, Rancagua, and Puerto Montt.

¹⁷ For example, support was provided for a discount in electricity rates for heating with the purpose of enabling offers to residential users by generation companies, to provide energy alternatives for heating at prices competitive with firewood.

¹⁸ Defined as the network distribution of thermal energy obtained from thermal generation plants connected to the same network to provide heating services (district heat), air conditioning, and hot water to a set of customers or consumers located in the same buildings.

¹⁹ For the user, connecting to a district energy network means having a single provider and service, eliminating the separate purchase of firewood or gas for heating and hot water.

²⁰ The International Energy Agency (IEA) estimates that 77% of thermal consumption corresponds to the burning of fossil fuels, 12.5% to the burning of traditional biomass (firewood), 10% to modern renewable sources, and 1.8% to renewable electricity.

sector with a public- and private-sector governing instrument that enabled changes through commitments, mechanisms, and interventions to increase gender parity.

- 1.17 To continue closing the gender gap, MINENERGIA began the process of identifying wage gaps within the institution, determining their size, and establishing improvement plans, aimed at achieving wage equality in the framework of current legislation.²¹ Ten years later, according to data from Comunidad Mujer, in 2019, there was still a 21% wage gap between men and women in identical positions. A study by Chile's Budget Office (DIPRES) in 2015 found that women employees of the central government administration receive on average 20.2% less than their male counterparts, which is basically explained by differences in the distribution by grades on the salary scale²² between men and women. For that reason, MINENERGIA committed to closing the wage and grade gaps in the Office of the Deputy Secretary of Energy and updating its management policy with a gender perspective. This commitment also requires continuing to include gender parity mechanisms in administrative and technical bidding processes, using technical evaluation criteria to promote gender equity, as well as promoting parity in the composition of members on regional civil society boards and the CNE.
- 1.18 **Challenge 2. Need to decarbonize the energy matrix.** In 2017 Chile ratified the Paris Agreement,²³ which has the objective of limiting average global warming to between 1.5°C and 2°C compared to preindustrial levels, requiring the reduction of GHG emissions to zero by 2050.²⁴ In its NDC, the Chilean government committed to achieving net zero emissions by 2050.²⁵ This means drastically reducing emissions from the use of energy, agriculture, industrial processes, and waste, and offsetting the remainder with afforestation.²⁶ To achieve carbon neutrality, Chile needs to develop electricity generation scenarios aligned with this target, accelerate the phasing out of coal-fired power plants, promote energy efficiency, electrification, and green hydrogen, carry out a fair energy transition process for affected workers, increase the flexibility of the grid to incorporate more renewables, and adapt transmission planning to enable intermittent renewable energy sources and storage.
- 1.19 **Need to generate energy scenarios aligned with the objectives of decarbonization.** In 2018, the energy sector produced the predominant share of 77.4% of GHG emissions,²⁷ of which 29% were from power generation, and the

²¹ The existence of significant inequalities in terms of remuneration between the sexes is one of the most frequent features of global labor markets. In 2009, Law 20,348 on Wage Equality was enacted, establishing that employers must comply with the principle of equal pay between men and women doing the same work.

²² Decree-Law 249, of 1974, of the Ministry of Finance.

²³ [Paris Agreement. United Nations \(2015\).](#)

²⁴ IPCC, 2021: Summary for Policymakers. In: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change.

²⁵ Government of Chile, 2020. [Nationally Determined Contribution \(NDC\) of Chile. 2020 update.](#) Santiago, Chile.

²⁶ Vogt-Schilb, Adrien, Maria-Eugenia Sanin, and Bridget Hoffman. "Services in a Net-Zero-Carbon World: Good for the Environment, the Economy, and the People." In [From Structures to Services: The Path to Better Infrastructure in Latin America and the Caribbean](#), edited by Eduardo A. Cavallo, Andrew Powell, and Tomás Serebrisky. Inter-American Development Bank, 2020.

²⁷ MMA, 2020. Informe del Inventario Nacional de GEI serie 1990-2018. Ministry of Environment of Chile, Santiago, Chile.

rest mainly from the transportation subsector, which uses mostly fossil fuels.²⁸ To achieve carbon neutrality, Chile has to drastically reduce emissions from the energy sector by 2050.²⁹ PBP I supported the sector analysis to determine sector targets for mitigation aligned with the NDC. In turn, the General Electricity Services Law established the development of a five-year long-term energy planning process (PELP) led by MINENERGIA, which aims to project the country's energy supply and demand over a 30-year horizon, including scenarios for electricity generation. The current PELP 2018-2022 does not propose scenarios consistent with the goal of carbon neutrality. To be consistent with the NDC, the PELP 2023-2027 needs to incorporate scenarios aligned with these targets.

1.20 Need to establish guidelines for the use of Article 6 of the Paris Agreement.

The absence of international carbon markets may hinder the reduction of emissions by the energy sector in a cost-effective manner.³⁰ Article 6 of the Paris Agreement establishes limits for the use of international markets by countries to comply with their NDCs. The prior operation supported the establishment of an interministerial working group to work on this issue. Notwithstanding the foregoing, Chile has no guidelines to define potential national policy on the use of this article, although historically, the Chilean government has participated in the Kyoto Protocol Clean Development Mechanism, the precursor of Article 6.

1.21 Need to accelerate the timeline for phasing out coal-fired power plants.

Coal-fired power plants are the energy source with the highest level of CO₂ emissions in the world; closing them is an urgent, cost-effective measure to reach net-zero emissions.³¹ In Chile, coal represented 35% of electricity generation in 2020³² and 25% of the country's total GHG emissions.³³ An orderly transition toward a coal-free electricity sector requires planning for the gradual phasing out of coal-fired power plants, taking into account their impact on the cost, safety, and reliability of electricity generation.³⁴ In this regard, Chile established a Decarbonization Roundtable, made up of MINENERGIA and power generation companies, which defined the Phase-out and/or Reconversion Plan for Coal-fired Units, including the phasing out of 1,731 MW in an initial phase by 2024. With support from the prior operation, MINENERGIA signed agreements with four generation companies for the phasing out of power plants and ratified them in 2020 by means of an exceptional decree (to date, 573 MW have been phased out). New evidence suggests that the accelerated phasing out of the power plants would enable even more certain fulfillment of the NDC's emissions reduction targets, given the

²⁸ IDB. [*Opciones para lograr la carbono-neutralidad en Chile: una evaluación bajo incertidumbre*](#), (August 2021).

²⁹ Benavides et al. 2021.

³⁰ CPLC, 2021. The Role of Carbon Pricing in the Transition to Net Zero Emissions. Carbon Pricing Leadership Coalition.

³¹ Garg, A., Steckel, J.C., 2017. Bridging the gap – Phasing out coal, in: The Emissions Gap Report 2017: A UN Environment Synthesis Report. United Nations Environment Programme; Date, R.P., Asia, N.O., East, M., 2019. Global and regional coal phase out requirements of the Paris Agreement: Insights from the IPCC Special Report on 1.5 C.

³² See: [Generadoras de Chile: Generación Eléctrica en Chile](#).

³³ [Carbono-neutralidad en el sector energía](#).

³⁴ Date, R.P., Asia, N.O., East, M., 2019. Global and regional coal phase out requirements of the Paris Agreement: Insights from the IPCC Special Report on 1.5 C.; IEA, 2021. Net Zero by 2050. International Energy Agency.

uncertainties regarding the capacities of other sectors, particularly the forestry and transportation sectors, to reduce their emissions sufficiently.³⁵

- 1.22 **Need to design a fair transition strategy.** One barrier to the closure of coal-fired power plants is their impact on employment in their areas of influence. Although renewable energies are more employment-intensive than fossil fuels, the transition creates winners and losers.³⁶ To ensure that decarbonization does not work to the detriment of social performance, governments need to design fair transition strategies, that is, ensure that the workers adversely affected by the transition have a voice in the public decision-making process and benefit from compensation, for example, monetary compensation for the loss of their job or support for finding another.³⁷ In Chile, 4,400 people were working in coal-fired power plants in 2019.³⁸ The country does not have a strategy to compensate them. The prior operation supported the organization of consultative workshops with the counterparties directly affected by the closure of the plants, to generate input for the preparation by MINENERGIA of a fair transition strategy and to support the creation of new jobs.
- 1.23 **Need for a more flexible power grid supported by updated policy instruments.** The phasing out of coal-fired power plants, the increase in intermittent solar and wind generation, and the electrification of energy applications require a more flexible power grid to guarantee safe, efficient, and sustainable operations under the grid's new conditions.³⁹ PBP I supported the Flexibility Strategy for the National Electricity System (SEN), which identified a series of measures needed to make market signals and regulations available, enabling the development and use of the required flexibility. The strategy included three main pillars: (i) market design for the development of a flexible system; (ii) regulatory framework for storage systems and flexible new technologies; and (iii) flexible operation of the system. This strategy's implementation phase requires moving forward with the review and updating of the specific regulatory instruments and technical standards that regulate: (i) the operation of the electricity market; (ii) the transfer of power between generation companies (establishing long-term signals creating an incentive for investment in technology); and (iii) transmission and transmission planning systems (which enhance the treatment of energy storage systems in transmission planning).
- 1.24 In addition, the market for complementary services, which enables the system's flexible operation, started operation in January 2020. This market has room to improve its regulatory framework to promote the participation of intermittent renewable energies and energy storage systems and to improve price and competition levels.⁴⁰ It is in this context that the initial analysis of the results of this market is proposed.

³⁵ IDB, 2021. [Options to Achieve Carbon Neutrality in Chile: An Assessment Under Uncertainty](#).

³⁶ Saget, C., Vogt-Schilb, A., Luu, T., 2020. [El empleo en un futuro de cero emisiones netas en América Latina y el Caribe](#). IDB; ILO.

³⁷ Idem.

³⁸ Viteri, A. [Impacto económico y laboral del retiro y/o reconversión de unidades a carbón en Chile](#). IDB (October 2019).

³⁹ IEA. [Introduction to System Integration of Renewables](#), IEA, Paris (2020).

⁴⁰ Idem.

- 1.25 **Alignment of transmission expansion for decarbonization of the power grid:** Energy planning should include scenarios to achieve carbon neutrality by 2050, and the main input is to define the expansion of electricity transmission in a cost-efficient manner, taking into account the needs for flexibility and resilience in the power grid to favor the use of intermittent renewables. The prior operation supported the priority works for the expansion of the transmission network, and this operation considers the continuation of the same policy measure to move toward the viability of phasing out coal-fired plants and connecting new renewable energy power plants to the grid for future transmission.
- 1.26 **Challenge 3. Need for a framework that enables and promotes energy innovation.** This last challenge underscores the importance of the role of new technologies in the energy sector, particularly for electromobility and the deployment of green hydrogen in Chile, which is viable due to its enormous potential in solar and wind-fueled renewable energy of 1,823.6 GW.⁴¹ The previous operation supported key innovation measures such as the new Energy Efficiency Law, which sets energy efficiency standards for electric motor vehicles and charging standards for electric vehicles, as well as the first national green hydrogen strategy to position Chile as one of the leading countries in the development of the green hydrogen market. PBP II continues what was started under PBP I with pioneering policy measures in electromobility and green hydrogen aimed at achieving carbon neutrality.
- 1.27 **Need to accelerate the change to electromobility.** The Chilean government has distinguished itself in the region as a pioneer in actions to promote electromobility, with the presentation in 2017 of the National Electromobility Strategy.⁴² However, more than four years after the document's launch, there are gaps to be addressed more ambitiously and new challenges, making its revision and update necessary in 2022.
- 1.28 As a complement to the strategy and its update, regulatory measures must be promoted to enable the adoption of electromobility. It is urgent to establish mechanisms for setting energy efficiency standards for vehicles, which currently do not exist and follow from the implementation of the new Energy Efficiency Law. The energy efficiency performance standards for conventional vehicles are key for making electromobility increasingly competitive with conventional technologies under identical conditions. Moreover, the interoperability of vehicle charging systems needs to be promoted, thus bolstering charging stations that work for a wide range of systems and to facilitate access and connection by electric vehicle users to the charging network. Lastly, on the fiscal front, measures are needed that favor and create an incentive for the purchase of electric vehicles over fossil fuel-powered vehicles.
- 1.29 **High usage fleets, such as taxis and shared taxis, have a particular impact on accelerating changes toward electromobility.** To drive the conversion of the fleet in this segment, pilot programs with special incentives for the purchase of electric vehicles could spark changes in the short term. Moving forward with the electrification of smaller public transportation, that is taxis and shared taxis, is part

⁴¹ [Programa Energías Renovables y Eficiencia Energética](#) – 4e.

⁴² At present, Chile has 200 public charging stations, 1,696 electric vehicles, and 775 electric buses, far from the targets set for a fleet of 5.7 million private vehicles and 17,000 electric buses.

of the 2021 Public-Private Commitment to Electromobility⁴³ signed by the government and the private sector. The Commitment establishes the importance of developing regulations and technical standards that enable electromobility, not only for individuals, but also for smaller public transportation.

- 1.30 **Need to develop regulations for green hydrogen and approve regulatory conditions for pilot projects.** In 2020, Chile published the National Green Hydrogen Strategy,⁴⁴ which was supported as a policy measure under PBP I. In order to be able to move forward with the implementation of this strategy, a fundamental challenge is related to the regulation governing the production and use of green hydrogen, particularly at the level of law. Moreover, there is no guide for the implementation of green hydrogen (since there are no regulations for green hydrogen facilities in terms of design and development). Lastly, establishing a market for green hydrogen in Chile requires pilot and demonstration projects to overcome the barriers of: (i) information asymmetry; (ii) technological and financial risks; (iii) cost gaps; and (iv) competition with fossil fuels.
- 1.31 **Rationale and proposed intervention.** The diagnostic assessment and the identification of existing challenges and their respective causes demonstrated the need to update the long-term energy policy and modernize the energy sector's regulatory framework, decarbonize the energy matrix,⁴⁵ and foster innovation in the energy sector. Overcoming these challenges will achieve a fair, clean, and sustainable energy transition, therefore reinforcing its role in triggering economic development and quality of life for Chile's population. In this context, and to complete the reforms started and consolidate the progress made, the Government of Chile requested the Bank's support for the second loan in this programmatic series.
- 1.32 **Effectiveness of sector policy reforms.** According to the Organisation for Economic Co-operation and Development, regulatory reforms complement fiscal and monetary policies by creating suitable conditions for the sustainable development of countries. Sector policies should evolve at the same pace as economies transform, to ensure that infrastructure does not become a bottleneck but rather a driver of a country's economic development. Evidence has shown that stable, well-designed sector policies are essential to improve the performance of the electricity sector.
- 1.33 **The Bank's experience in the sector and lessons learned:** The Bank has experience with energy reform programs in Chile ("Sustainable Energy Program" (loan 3821/OC-CH) of 2016 and the recent PBP I (loan 5278/OC-CH), as well as in Ecuador (loan 5044/OC-EC), Colombia (loan 4773/OC-CO), and the Dominican Republic (loan 4649/OC-DR)). The lessons learned from these operations have been incorporated into the design of this operation, particularly with respect to: (i) the importance of Bank support (in this case, to the Chilean

⁴³ The [Public-Private Commitment to Electromobility](#) aims to develop actions and projects that help in the short term to cultivate the advantages of electromobility in Chile and promote this change in national transportation. This commitment has been incorporating new public and private actors since it was first signed in 2017.

⁴⁴ This strategy's main objectives are to: (i) have 5 GW of electrolysis capacity built and in development by 2025; (ii) be the world's most competitive producer of green hydrogen by 2030; and (iii) be among the top three exporters of green hydrogen and its derivatives in 2040.

⁴⁵ [See the following link](#) containing the rationale for the creation of between 32,000 and 40,000 direct and indirect jobs. These could be created by phasing out coal-fired power plants within the context of decarbonization in Chile, resulting in between US\$1.7 billion and US\$1.8 billion in value added in 2030.

government, through five technical cooperation operations for operational support⁴⁶) with specific actions financing implementation of the reforms; (ii) the definition of policy measures targeting the sustainability of the energy sector; and (iii) ownership of the reforms by the decision-makers.

- 1.34 The support provided by these technical cooperation operations helps the Chilean government with the implementation of the energy sector reforms to achieve carbon neutrality in the sector by 2050. These activities include: (i) support for the Energy Efficiency Law, which developed various scenarios resulting in important inputs that helped MINENERGIA set targets for the next five years, and support for the 2022 electromobility strategy, which helped determine the best measures to create incentives for the penetration of electric cars and buses (ATN/OC-18207-CH); and (ii) support for the development of a green hydrogen market in Chile, which has consisted in analyzing the viability of the production, marketing, and export of green hydrogen, including pre-feasibility studies for export terminals in Antofagasta and Magallanes (ATN/JF-18347-CH).
- 1.35 **Bank knowledge:** In addition, this operation was prepared with the IDB's knowledge in terms of support for the implementation of long-term decarbonization strategies⁴⁷ (in this case, Chile's NDC and its target of achieving net-zero emissions in 2050) and, in particular, the study on options for achieving carbon neutrality, conducted with the support of the French Climate Fund (ATN/FR-18228-RG).⁴⁸ The operation was also designed based on the knowledge in the IDB publication, [DIA 2020: From Structures to Services: The Path to Better Infrastructure in Latin America and the Caribbean](#), which identifies: (i) the need to move toward more affordable energy services in order to ensure that citizens have access to better services and the importance of tailoring rates to the new market reality; (ii) the regulation of the sector for the long term through the incorporation of technology for efficient decarbonization; and (iii) the need for collective evolution to prepare the sector for the future. In this sense, Chile has been making major strides in technological transformation to accelerate decarbonization (it is the country with the highest expectations for GHG emissions reduction in the electricity sector through 2030) and transform the transportation sector and the use of energy in industry. Therefore, this operation proposes policy solutions to the challenges that Chile faces and moves forward with the future vision of the energy sector outlined in DIA 2020.

⁴⁶ "Support for the Citizen-centric Modernization of the Energy Sector of Chile" (ATN/OC-18207-CH, US\$250,000), which highlights the support in terms of digitalization, flexibility, energy efficiency, electromobility, and heating and cooling technologies; (ii) "Promotion for the Development of a Green Hydrogen Market in Chile" (ATN/JF-18347-CH, US\$500,000), which is conducting studies to create a green hydrogen market; and (iii) "Support for a Fair, Clean, and Sustainable Energy Transition in Chile" (ATN/OC-18851-CH, ATN/OC-18852-CH, US\$800,000) to strengthen activities related to energy poverty, biofuels, and affordability. In addition, the Bank is providing support to Chile through two regional technical cooperation operations, "Support for Electromobility Initiatives in Latin America and the Caribbean" (ATN/OC-17390-RG, US\$650,000) and "Support for the Preparation of Energy Projects Aimed at Employment and Economic Recovery in Latin America and the Caribbean" (ATN/OC-18070-RG, US\$1.4 million) to estimate: (i) the impact of electromobility on the demand and required investment in the power grid; and (ii) the development of future hydrogen hubs in Chile, respectively.

⁴⁷ Inter-American Development Bank and Deep Decarbonization Pathways for Latin America and the Caribbean. ["Getting to Net-Zero Emissions: Lessons from Latin America and the Caribbean \(Executive Summary\)." IDB, December 2019.](#)

⁴⁸ IDB, 2021. [Options to Achieve Carbon Neutrality in Chile: An Assessment Under Uncertainty.](#)

- 1.36 This operation also complements the various interventions undertaken by the IDB Group in Chile. IDB Invest has supported various actors in the energy sector in areas associated with this operation, including power generation companies with financing for renewable energy projects (five plants with nearly 630 MW in 2020), including some that replace coal-based generation, and liquidity lines to facilitate the implementation of the price stabilization mechanism (US\$250 million).⁴⁹ It is also evaluating financing of the new Kimal – Lo Aguirre direct current transmission line, an investment of more than US\$1.5 billion, key for the Chilean power grid's decarbonization strategy. IDB Invest also continues to evaluate renewable energy projects and will soon consider green hydrogen projects (in collaboration with ENE). IDB Lab has supported various initiatives in Chile in the area of renewable energies, energy efficiency, and electromobility in order to improve the competitiveness of smaller companies, jump-start the innovation ecosystem, and improve citizens' quality of life. Together with the Bank's Transport Division, IDB Lab has been a pioneer in the development of a demonstration project in autonomous mobility: ATN/ME-17476-CH "Latin American Hub for Autonomous Vehicles" and has analyzed various financing opportunities for financial institutions that are promoting financing for electric vehicles to self-employed workers.
- 1.37 **Collaboration with the Ministry of Energy and other agencies.** To fulfill its strategic guidelines, since energy is an element that cuts across peoples' lives and activities, MINENERGIA (through its Office of International Affairs) is working actively in collaboration with other public institutions to promote the sustainable development of the energy sector in environmental, economic, and social areas, and to fulfill its international commitments ([optional link 3](#)).
- 1.38 **The Bank's strategy with the Republic of Chile:** The operation is aligned with the IDB Group Country Strategy with Chile 2019-2022 (document GN-2946) with the strategic objective of reducing electricity costs for businesses and households through the adoption of policy measures to regulate the energy market and improve the competitiveness of electricity service. The operation is also included in the 2022 Operational Program Report (document GN-3087).
- 1.39 **Strategic alignment:** The operation is consistent with the second Update to the Institutional Strategy 2020-2023 (document AB-3190-2) on the development challenge of social inclusion and equality by supporting the process of citizen participation in policy formulation to modernize the energy sector and the challenge of productivity and innovation by supporting technological innovation based on electromobility and sustainable energies for residential use, such as heating and cooling and green hydrogen. The operation is aligned with the crosscutting themes of institutional capacity and the rule of law, by improving the sector's regulatory framework through public consultation processes to update the PEN and draft laws and the transparency of the rate structure to improve the affordability of electricity service and the regulation of sustainable alternatives to firewood; climate change and environmental sustainability, by ensuring energy transition policy measures to reduce GHG emissions and decarbonize the sector; and gender equality, with the update of a human resources policy that promotes gender equity, closing the wage gaps between women and men, incorporating gender criteria in MINENERGIA's

⁴⁹ The energy sector represents nearly 72% of the IDB Invest portfolio with transactions such as Engie Decarbonization Instrument (US\$125 million), Enel Chile Liquidity Facility (US\$100 million), and Electricity Tariff Stabilization Liquidity Facility I (US\$66 million).

public bidding processes, and requiring gender parity in the key entities in the energy sector. It is also aligned with the Corporate Results Framework 2020-2023 (document GN-2727-12) through indicator 5 by providing households with improved access to energy services with clean and renewable energies (in place of firewood); indicators 16 and 18 by updating a personnel management and development policy to promote gender equity and by establishing gender parity on regional civil society boards for the energy sector; and indicator 22 with the increased share of renewable energies. The operation is also consistent with the Energy Sector Framework Document (document GN-2830-8) and the Climate Change Sector Framework Document (document GN-2835-8) in the areas of sustainability and renewable energies, with the Strategy for Sustainable Infrastructure for Competitiveness and Inclusive Growth (document GN-2710-5) and the IDB Integrated Strategy for Climate Change Adaptation and Mitigation and Sustainable and Renewable Energy (document GN-2609-1) by supporting the Chilean government to promote policies aimed at mitigating GHG emissions through the development of zero-carbon technologies and carbon neutrality. The operation is aligned with the priority lines of action of the Gender and Diversity Sector Framework Document (document GN-2800-8) and the Gender Action Plan (document GN-2531-19) recently revised and updated by the IDB.⁵⁰ According to the [Multilateral Development Banks' joint methodology for estimating climate finance](#), it is estimated that 80% of the operation's resources will be invested in mitigation activities due to the policies that support the decarbonization of the energy sector and electromobility. These resources contribute to the IDB's climate finance target: 30% of the volume of annual approvals. Lastly, the program is aligned with Vision 2025 by including policy measures related to areas of opportunity in: (i) the digital economy, by promoting technological innovation in the energy sector, through the promotion of electromobility and green hydrogen projects; (ii) actions to address climate change, through support for accelerating the decarbonization of the energy matrix, with measures that promote the country's energy transition; and (iii) gender and diversity, through measures aimed at reducing wage gaps and improving women's participation in the energy sector.

- 1.40 **Consistency with the Public Utilities Policy.** The program is consistent with the objectives of the Public Utilities Policy (document GN-2716-6). The program complies with the principles of this policy with regard to: financial sustainability, since the policy measures allow for more efficient costs, which are recovered through energy rates; social sustainability by enabling more affordable electricity service and greater citizen participation with the possibility of selecting the service provider; and environmental sustainability with the implementation of measures to decarbonize the electricity generation matrix.

B. Objectives, components, and cost

- 1.41 **General objective.** The program's general objective is to support Chile's fair, clean, and sustainable energy transition. The specific objectives are: (i) to improve the regulatory framework in support of citizen-centric modernization of the energy sector; (ii) to support policy reforms aimed at accelerating decarbonization of the energy matrix; and (iii) to enable and promote technological innovation in the energy sector. The program comprises the following four components:

⁵⁰ [Update to the Gender Action Plan for Operations 2020-2021.](#)

- 1.42 **Component I: Macroeconomic stability.** This component targets consistency in the macroeconomic environment with the achievement of the program's objectives as established in the Policy Matrix and the Policy Letter.
- 1.43 **Component II: Citizen-centric modernization of the energy sector.** This component considers 12 policy measures to support the energy sector's modernization: (i) approve the PEN and publish this PEN on MINENERGIA's institutional website (policy measure 2.1); (ii) undertake critical rate-setting processes that will allow the benefits of the modernization of distribution regulations and the introduction of the price stabilization mechanism to be reflected in the rates for regulated users (2.2 and 2.3); (iii) prepare the regulatory bases for the implementation of energy marketing associated with the bill on "Electricity Portability" (2.4); (iv) accelerate citizen participation in the use of clean and sustainable energies that displace polluting fossil fuel sources (2.5, 2.6, and 2.7); and (v) close the gender gap by promoting wage equality, the inclusion of more women in the energy sector, and gender parity in institutions associated with the energy sector (2.8, 2.9, 2.10, 2.11, and 2.12). This component incorporates three new policy measures (2.1, 2.7, and 2.12); modifies two policy conditions (2.2 and 2.4); and maintains seven conditions agreed in the first operation (2.3, 2.5, 2.6, 2.8, 2.9, 2.10, and 2.11).
- 1.44 The first policy measure under this component, not considered in the first operation, arises from the need to make adjustments to the National Energy Policy stemming from the advances in the energy transition process, and address new challenges such as the target of carbon neutrality by 2050. The Chilean government has committed to moving forward on: (i) environmental sustainability (as a carbon neutral country in 2050, increasing the penetration of renewables and reducing polluting energies such as wet firewood and fossil fuels); (ii) social and territorial sustainability (ensuring equitable and fair access to services); and (iii) economic sustainability (associated with innovation and the adoption of new energies). This operation will support the approval and publication of the PEN 2050 (first five-year update) (2.1).
- 1.45 The second commitment, which was adjusted, is related to the progress in the implementation of the modernization of the rate structure stipulated in Law 21,194. Originally, the preparation by MINENERGIA of the decree associated with the rate-setting process for the VAD had been considered for the period 2020-2024, taking into account the provisions of this new law. This measure was revised and amended to reflect the crucial prior process corresponding to the final report from the study on calculating the components of the VAD by the CNE, which determined the rate formulas to be applied by each distribution company for its end users during the period 2020-2024, based on the new methodology established by the Law, and on the basis of which MINENERGIA can prepare the rate decree. Therefore, receipt by MINENERGIA of this final report by the CNE is proposed as a policy measure (2.2).
- 1.46 The third policy measure remains unchanged and supports the implementation of the transitional price stabilization mechanism established in Law 21,195, which seeks to simplify and make the average regulated price for the period more transparent. This measure contributes to the Chilean government's commitment to make the electricity service more affordable, with a rate that anticipates the benefits generated by the introduction of more competitive prices in 2021

stemming from new long-term energy contracts, particularly those involving renewable sources. This measure will consist in the publication of the decree establishing the average regulated price for electricity supplies for customers subject to price regulation and the adjustment factor with the application of the transitional price stabilization mechanism considered in Law 21,185 (2.3).

- 1.47 The fourth commitment, which was adjusted, is related to the regulation of the bill on "Electricity Portability." The original measure considered the publication of the regulatory standards related to the law, which was adjusted to reflect the key work to be done by MINENERGIA in parallel while approval by Congress is completed. This work involves the design of the specific rules for the implementation of energy marketing, for which MINENERGIA is contracting the transitional regulation study (2.4).
- 1.48 The fifth and sixth policy measures remain unchanged and are framed within ambitious commitments by the Chilean government to reduce the use of firewood and promote the use of sustainable energies in households, by enabling heating alternatives and the regulation of the use of solid biofuels. These measures consist in, respectively: (i) the preparation of the proposed bill to regulate district energy and its formal submission to the Office of the Chief of Staff of the President (2.5); and (ii) the submission to the National Congress of the instructions for the bill regulating the use of firewood as a fuel for residential use and the conditions for its marketing (2.6).
- 1.49 The seventh policy measure is new and captures the rapid steps taken by MINENERGIA to establish the regulatory framework for the penetration of renewable heating and cooling technologies with the publication on its institutional website of the first National Heating and Cooling Strategy (2.7), which sets forth the strategic pillars and guidelines for work, as well as the measures to adopt for the development of such technologies (a key advance for the incorporation of renewable energies into the electricity matrix, its increasing flexibility, and improved management of residential supply/demand).
- 1.50 Lastly, this component considers five measures to continue closing the gender gap and promote the inclusion of more women in the energy sector started under PBP I. Policy measures 2.8, 2.9, 2.10, and 2.11 remain unchanged and attest to the soundness of the agreed upon commitments throughout these two policy-based operations. These conditions are: (i) to have updated the Personnel Management and Development Policy for the Office of the Deputy Secretary of Energy within MINENERGIA, including the gender perspective to promote gender equity in the organization (2.8); (ii) to have prepared the analysis allowing the identification of potential gender wage gaps in the Office of the Deputy Secretary of Energy (2.9); (iii) to include in the resolutions of the Office of the Deputy Secretary of Energy approving administrative and technical public bidding documents for the contracting of services a technical evaluation criterion promoting gender equity in the energy sector through the inclusion of women on these service teams (2.10); and (iv) to have MINENERGIA issue calls for the renewal of four regional civil society boards, maintaining the requirement for gender parity in the composition of their members for purposes of ensuring the participation of women on these consultative bodies (2.11). A new policy measure has been added to this set of gender measures to expand the requirement for gender parity to the level of

the CNE with the inclusion, for the first time, on its Civil Society Board, of the same number of women and men on this consultative body (2.12).

- 1.51 **Component III: Support for the decarbonization of the energy matrix.** This component considers nine conditions to support a transition toward a decarbonized electricity sector: (i) the formulation of energy scenarios and projections consistent with carbon neutrality for the update of the PELP (3.1); (ii) the proposal of guidelines for the national policy on the use of Article 6 of the Paris Agreement (3.2); (iii) the acceleration of the timeline for phasing out coal-fired power plants (3.3); (iv) the preparation of the first fair transition strategy (3.4); (v) the implementation of the first actions related to the Flexibility Strategy (3.5, 3.6, 3.7, and 3.8); and (vi) regulations associated with the planning of electricity transmission to facilitate connections of intermittent renewable energies and the storage of electricity (3.9). This component maintains four policy measures agreed upon in the first operation (3.2, 3.4, 3.5, and 3.9) and strengthens five (3.1, 3.3, 3.6, 3.7 and 3.8).
- 1.52 The first measure under this component has been strengthened. MINENERGIA is expected to prepare energy scenarios and projections consistent with the NDC and carbon neutrality for the update of the PELP 2023-2027 and publish the report containing these scenarios. This measure includes the development of three scenarios: (i) slow recovery from COVID-19 (reduction of 37% of GHG in 2050); (ii) path to carbon neutrality (-56% of GHG in 2050); and (iii) accelerating the energy transition (-64% in 2050). All scenarios reach their peak in emissions in 2024, in line with the target in Chile's NDC. In PBP I, this measure had been drafted as the preparation of a plan for carbon neutrality; the new language focused on the preparation and publication of these scenarios for the PELP (3.1) allows the measure to be more ambitious and incorporate the objective of carbon neutrality in the existing institutional processes governing the energy sector. The scenarios enable the identification of the actions required in terms of regulations, infrastructure, technology adoption, and operation of the electricity system to allow the transformation of the energy sector into one that sustains a carbon neutral economy in 2050 in a cost-effective manner, with a focus on a reliable, resilient energy supply.
- 1.53 The second measure remains unchanged. It is associated with the proposed guidelines to be prepared by MINENERGIA for the national policy on the use of Article 6 of the Paris Agreement (3.2). The Paris Agreement authorizes the use of international carbon markets for the reduction of GHG emissions, and the Chilean government has recognized the relevance of Article 6 in its NDC. The Interministerial Working Group that supported PBP I suggested that the guidelines should address methodological considerations, conditions for participation, accounting mechanisms, traceability, and transparency, together with the identification of gaps and how to close them. This is the framework for establishing the proposed guidelines for the national policy on the use of Article 6 of the Paris Agreement.
- 1.54 The third measure has been strengthened with the continuation of the voluntary commitment to phase out coal-fired power plants with the approval by Exceptional Supreme Decree of an addendum incorporating the phase-out of four new units into the timeline for the closure of operations of these plants (3.3).

- 1.55 The fourth commitment was maintained and adjusted to reflect the rapid progress on the measures to support the closure of coal-fired plants toward a broader strategy for a fair transition. In this regard, in order to continue promoting a fair energy transition that incorporates equitable social and environmental development, while promoting job creation, MINENERGIA is expected to have published the Fair Transition Strategy in the Energy Sector, supporting the process of the closure and new use of coal-fired power plants (3.4). This proposal puts people at the center, with fair, enabling, participatory, inclusive, and sustainable actions and measures, while promoting the creation of jobs that improve people's quality of life and safeguard the rights of the most vulnerable affected people. It has been estimated that more than 43,000 new quality jobs in renewables could be created in the regions where the coal-fired plants are located, along with more than 13,000 direct and indirect jobs.⁵¹
- 1.56 The fifth measure (3.5) remains unchanged. The electricity provided by the coal-fired plants that will be going offline will be replaced by power from the variable renewable energy power plants. Therefore, maintaining the stability of the power grid will require greater flexibility to ensure its proper operation and maintain the balance between supply and demand.⁵² To this end, this PBP supports the publication of the resolution approving the Technical Standard on Coordination and Operation (3.5) of the National Electric System.
- 1.57 The sixth and seventh measures (3.6 and 3.7) were revised and strengthened as they were moving forward faster than projected. In the case of measure 3.6, the "Regulation on Power Transfers established in the General Electricity Services Law" has been prepared (and submitted to the Office of the Comptroller General of the Republic), repealing the previous regulations. This regulation will support the sound operation of the generation market and investment in technologies that provide flexibility to the electric system with the creation of an objective for adequacy metrics for the SEN and the preparation of a methodology for power allocation. In the case of measure 3.7, the "Regulation of Transmission Systems and Transmission Planning" will be published with the objective of establishing the provisions applicable to the open access system governing transmission systems, the transmission planning process, and the process for bidding on expansion works (the National System Coordinator will establish a system for granting priority to connection requests to ensure the integrity of the order in which requests are made and will be able to extend deadlines with justification).
- 1.58 The eighth commitment is a new policy measure proposed under this PBP II operation with the analysis of the results of the complementary services market (3.8). This measure is also part of the Flexibility Strategy considered key under this analysis to manage the variability and uncertainty of variable renewable resources and demand.
- 1.59 Lastly, the ninth measure remains as proposed in PBP I and represents the continuity of the policy actions begun by MINENERGIA to determine the expansion works for the national and regional transmission systems corresponding to the expansion plan for 2020 (3.9). This condition also includes the incorporation of the transmission systems in the development hubs, as well as the energy storage

⁵¹ MINENERGIA. [*Estrategia de Transición Justa en el Sector Energía \(parte 1\)*](#). 2021.

⁵² IDB. [*La Red del Futuro. Desarrollo de una Red Eléctrica Limpia y Sostenible para América Latina*](#).

systems, and establishes the bidding conditions, participants, works, and awarding of the works with supervision of the projects.

- 1.60 **Component IV: Innovation in new energy technologies.** The component considers eight policy measures to support technological innovation: (i) approval in 2022 of the National Electromobility Strategy (4.1); (ii) new regulations to define rules for implementation of electric vehicles (4.2, 4.3, and 4.4); (iii) launch of the program for the replacement of high usage vehicles (4.5); (iv) start of the regulation on green hydrogen (4.6); and (v) regulatory support to promote the first green hydrogen projects in the country (4.7 and 4.8). This component adds five new policy measures (4.1, 4.4, 4.5, 4.7, and 4.8) and strengthens three (4.2, 4.3, and 4.6).
- 1.61 The first measure corresponds to the approval in 2022 of the National Electromobility Strategy (4.1) and its publication on MINENERGIA's institutional website. This update incorporates measures to accelerate the development of electromobility (supported by ATN/OC-18207-CH), such as crosscutting measures for electric vehicles, charging infrastructure, standardization and interoperability, and measures for public transportation with taxis and buses.
- 1.62 The second and third commitments were strengthened in this operation, since the objectives proposed under PBP I for this operation were already achieved. In the case of policy measure 4.2, MINENERGIA has already prepared the proposed regulations establishing the procedure for energy efficiency standards in vehicles and closed the public consultation process at the start of 2022, so this measure was strengthened with the approval process of this regulation as a policy measure for PBP II. In the case of measure 4.3, the proposed regulation on the interoperability of the electric vehicle charging system was also already done and the public consultation stage closed, so MINENERGIA has begun the process of approving this regulation as a policy measure. These new actions reflect a greater level of progress than was planned under PBP I for this second operation.
- 1.63 The fourth and fifth measures were added, reflecting the speed of the development of the regulations and implementation of electromobility. Policy measure 4.4 consists in MINENERGIA's participation in the drafting of the regulation (Resolution of the Internal Revenue Service) changing the useful life and accelerated depreciation of hybrid zero-emissions electric vehicles (declining from 7 to 3 years and from 2 to 1 year, respectively). The fifth policy measure (4.5) marks the start with the support of the Chilean Energy Efficiency Agency of the first phase of the program to renew the high usage fleet with electric vehicles in the Metropolitan Region of Santiago. This direct support measure for consumers allows the replacement of basic yellow-top taxis (50) with green-top electric taxis, including the purchase of a home electric charging station for the drivers, as well as the monitoring and maintenance of the purchased vehicle for one year.
- 1.64 With respect to green hydrogen, the previous operation considered for PBP II the start of the studies to support the regulation of this energy sector. This policy measure was strengthened with the submission to the National Congress of a bill promoting the production and use of green hydrogen (4.6) (supported by ATN/JF-18347-CH).
- 1.65 The seventh and eighth measures are new in this operation and were added on the basis of the commitment that the Chilean government assumed with the implementation of the conditions to accelerate the creation of a green hydrogen market. In this regard, the following is expected: (i) the SEC will have published a

support guide, prepared jointly with MINENERGIA, to request authorizations of special green hydrogen projects, orienting individuals and companies interested in implementing green hydrogen projects and facilitating the processing of the requests (4.7); and (ii) the documentation will be prepared for the first call for financing for green hydrogen projects⁵³ with the support of MINENERGIA (4.8), and this documentation will include MINENERGIA as a member of the evaluation committee.

C. Key results indicators

- 1.66 To measure the expected effects of the reform measures in the medium term, a Results Matrix was prepared jointly with MINENERGIA, indicating the outcomes and outputs expected from the program, which are: (i) reduction of the SEN's CO₂ equivalent emissions factor per MWh; (ii) increased competition of the electricity service (increase in model distribution companies and increase in customers switching residential energy sources); (iii) increased workforce participation by women in the energy sector; (iv) increased share of renewable energy in the generation matrix; and (v) the introduction of innovative technologies in the energy sector.
- 1.67 **Beneficiaries.** The program will benefit all of the country's inhabitants with the provision of a more sustainable, affordable, and cleaner electricity service.

II. FINANCING STRUCTURE AND MAIN RISKS

A. Financing instruments

- 2.1 This operation was designed as a programmatic policy-based loan (PBP), and it is the second and last of two operations that are contractually independent but technically linked, each with a single disbursement. Its structure is consistent with the guidelines established in Policy-based Loans: Guidelines for Preparation and Implementation (document CS-3633-2).
- 2.2 The programmatic policy-based loan instrument is suitable because it: (i) promotes ongoing policy dialogue with the Chilean government authorities; (ii) facilitates monitoring; (iii) provides feedback and updates the reforms with findings stemming from the first PBP; (iv) adapts to the country's changing circumstances and the change of administration; and (v) supports medium- and long-term reforms with the timelines necessary to implement such reforms. It also provides an opportunity to evaluate the progress and make adjustments based on the knowledge acquired.
- 2.3 **Scale of the operation.** The amount of financing for this second operation is US\$300 million from the Regular Ordinary Capital resources. As established in paragraph 3.27(b) of Policy-based Loans: Guidelines for Preparation and Implementation (document CS-3633-2), the amount is determined by the country's broad fiscal resource needs. This amount accounts for 1.42% of the borrowing authorization consulted in the Public Sector Budget Act for 2022.

⁵³ The party selected will be responsible for ensuring that the project is viable from a social and environmental viewpoint and will comply with all current environmental and social legislation in Chile, in particular Law 19,300 on General Environmental Conditions and its regulations.

B. Environmental and social risks

- 2.4 Pursuant to Directive B.13 of the Environment and Safeguards Compliance Policy (Operational Policy OP-703), this operation does not require ex ante impact classification. The operation supports the establishment of policies, standards, management tools, and other institutional strengthening actions and, accordingly, no direct, significant adverse socioenvironmental impacts are anticipated.

C. Fiduciary risks

- 2.5 No fiduciary risks were identified. The operation's proceeds will go to the treasury single account at the General Treasury of the Republic in order to meet the country's financing requirements. To that end, the borrower has the necessary financial management instruments and control systems.

D. Other key issues and risks

- 2.6 A medium-low governance system risk has been identified related to the political changes associated with the change of government and which could affect the realization of the program's policy measures. Nonetheless, to mitigate this risk, the project team is working closely with MINENERGIA to ensure the timely fulfillment of each policy measure and the commitment of the Chilean government to achieve a fair, clean, and sustainable energy transition.
- 2.7 **Sustainability:** The Government of Chile has provided firm support for the actions promoted under this programmatic series and no additional expenditures by the government are anticipated for the fulfillment of these actions, underscoring its commitment to the country's fiscal sustainability. The sustainability of the reforms is framed by three fundamental pillars: (i) the Chilean government's commitment to the sector reform as "State policy," reflected in the 2018-2022 Energy Roadmap, the PEN 2050, and the voluntary carbon-neutrality agreements; (ii) the fulfillment of the reforms proposed for this second operation; and (iii) the Policy Letter.

III. IMPLEMENTATION AND MANAGEMENT PLAN

A. Summary of implementation arrangements

- 3.1 The borrower will be the Republic of Chile, which will execute the operation through MINENERGIA and is responsible for: (i) promoting the achievement of the policy objectives; (ii) providing evidence of fulfillment of the agreed upon policy conditions; and (iii) compiling and providing the information allowing the Chilean government and the Bank to measure and evaluate the program's results.
- 3.2 **Coordination mechanisms.** MINENERGIA has an Office of International Affairs, which coordinates with its internal divisions for all areas included in this programmatic series, as well as with external agencies, and works in close coordination with DIPRES. MINENERGIA will monitor fulfillment of the policy measures. Through periodic meetings, analyses, and monitoring, MINENERGIA will coordinate the consolidation of the sector reform with the CNE and the SEC,

and with the Ministry of Environment for the issues of decarbonization and the Ministry of Transportation for electromobility.⁵⁴

- 3.3 **Special contractual conditions precedent to the first and only disbursement of the loan: the only disbursement of the loan proceeds will be subject to fulfillment of the policy reform conditions as established in the Policy Matrix (Annex II) and the other conditions set forth in the corresponding loan contract.**

B. Summary of arrangements for monitoring results

- 3.4 The program's monitoring is defined by the verification of the policy measures agreed upon as disbursement conditions and described in the Results Matrix and the Means of Verification Matrix ([required link 2](#)). Fulfillment of the output indicators will be confirmed with the information detailed in the Means of Verification Matrix. This contains all actions to be implemented under the program, the entities responsible for achieving them, and the specific information that will enable the Bank to verify their fulfillment. The outcomes of the policy changes promoted will be monitored using the information provided by MINENERGIA as reported in the Results Matrix and the [Monitoring and Evaluation Plan](#).
- 3.5 Based on the recommendations of the Office of Evaluation and Oversight (OVE) in its 2011 Evaluability Review of Bank Projects⁵⁵ and the results of the Review of Good Practice Standards for the Evaluation of Policy-based Lending, prepared by the Evaluation Cooperation Group (ECG) comprised of the independent evaluation offices of multilateral development banks,⁵⁶ as described in paragraph 1.3 of the Review of the Development Effectiveness Matrix for Sovereign Guaranteed and Non-Sovereign Guaranteed Operations (document GN-2489-5), indicating, inter alia, that there is no need to include an analysis of efficiency in the use of financial resources,⁵⁷ it was decided not to perform an economic analysis for loans of this type, as reported to the Bank's Board of Executive Directors. Accordingly, this loan operation does not include an economic analysis, and no such analysis is considered for purposes of measuring the evaluability score in the program's Development Effectiveness Matrix.

IV. POLICY LETTER

- 4.1 The [Policy Letter](#) reiterates the Chilean government's commitment to the objectives and actions considered for the programmatic series and the consistency of the policy measures for the fair, clean, and sustainable energy transition.

⁵⁴ MINENERGIA collaborates closely with these agencies and ministries through sector roundtables and technical meetings, and has demonstrated a great capacity for interagency coordination on issues of electromobility, decarbonization, advances with the NDC, and private companies in the energy sector.

⁵⁵ Document RE-397-1: "Currently, economic analysis section is computed as the maximum between the CBA (cost/benefit analysis) and the CEA (cost-effectiveness analysis). Yet neither a CBA nor a CEA is applicable to PBLs (policy-based loans) and PBP (programmatic policy-based loans)."

⁵⁶ *Good Practice Standards for the Evaluation of Public Sector Operations*. Evaluation Cooperation Group, Working Group on Public Sector Evaluation, 2012 Revised Edition. February 2012.

⁵⁷ According to the ECG, policy-based loans should be evaluated for relevance, effectiveness, and sustainability. Efficiency was not included as a criterion because policy-based loans are sized according to the country's financing gap, independent of project benefits.

Development Effectiveness Matrix		
Summary		CH-L1165
I. Corporate and Country Priorities		
Section 1. IDB Group Strategic Priorities and CRF Indicators		
Development Challenges & Cross-cutting Issues	<div>-Social Inclusion and Equality</div> <div>-Productivity and Innovation</div> <div>-Gender Equality and Diversity</div> <div>-Climate Change</div> <div>-Institutional Capacity and the Rule of Law</div>	
CRF Level 2 Indicators: IDB Group Contributions to Development Results	<div>-Households with improved access to energy services (#)</div> <div>-Women beneficiaries of economic empowerment initiatives (#)</div> <div>-Countries with strengthened gender equality and diversity policy frameworks (#)</div> <div>-Targeted beneficiaries of public services that have been adapted for diverse groups (#)</div> <div>-Emissions avoided (annual tons CO2 equivalent)</div> <div>-Installed power generation capacity from renewable sources (MW)</div>	
2. Country Development Objectives		
Country Strategy Results Matrix	GN-2946	(i) Reduce electricity costs for businesses and households
Country Program Results Matrix	GN-3087	The intervention is included in the 2022 Operational Program
Relevance of this project to country development challenges (If not aligned to country strategy or country program)		
II. Development Outcomes - Evaluability		
3. Evidence-based Assessment & Solution		Evaluable
3.1 Program Diagnosis		8.1
3.2 Proposed Interventions or Solutions		2.5
3.3 Results Matrix Quality		1.6
4. Ex ante Economic Analysis		4.0
5. Monitoring and Evaluation		N/A
5.1 Monitoring Mechanisms		9.5
5.2 Evaluation Plan		4.0
III. Risks & Mitigation Monitoring Matrix		
Overall risks rate = magnitude of risks*likelihood		Low
Environmental & social risk classification		B.13
IV. IDB's Role - Additionality		
The project relies on the use of country systems		
Fiduciary (VPC/FMP Criteria)	Yes	Financial Management: Budget, Treasury, Accounting and Reporting, External Control, Internal Audit.
Non-Fiduciary		
The IDB's involvement promotes additional improvements of the intended beneficiaries and/or public sector entity in the following dimensions:		
Additional (to project preparation) technical assistance was provided to the public sector entity prior to approval to increase the likelihood of success of the project	Yes	Yes. CH-T1228 CH-T1235 CH-T1253

Evaluability Assessment Note: The objective of this Programmatic policy-based loan (PBP) is to support a fair, clean, and sustainable energy transition. To this end, three specific objectives are contemplated: i) ameliorate the regulatory framework of the energy sector to advance in its modernization with a citizen seal; (ii) support policy reforms aimed at accelerating the decarbonization of the energy matrix; and (iii) enable and promote technological innovation in the energy sector.

The program diagnosis appropriately assesses the situation of the energy sector in the country which in general backs up the proposed interventions. In this regard, quantitative evidence is provided regarding the main challenges of the sector in its energy transition process as well their respective causes. Neither the POD nor its annexes present empirical evidence about the effectiveness of this type of interventions based on rigorous impact evaluations.

In general, the results matrix reflects the vertical logic described in the POD, covering the inputs, outcomes, and results. The indicators in the results matrix meet the SMART criteria and include the sources and means of verification that will be used to measure them.

The monitoring and evaluation plan is adequate. The main evaluation questions are adequate, and a schedule is contemplated with the activities and timeline to gather the necessary data. Finally, the program will evaluate the results achieved using the before-after comparison without attribution.

POLICY MATRIX

Objective: The general objective of the operation (program) is to support a fair, clean, and sustainable energy transition in Chile. The specific objectives are: (i) to improve the regulatory framework in support of citizen-centric modernization of the energy sector; (ii) to support policy reforms aimed at accelerating decarbonization of the energy matrix; and (iii) to enable and promote technological innovation in the energy sector.

Components/Policy objectives	Policy conditions		Status of fulfillment of the policy conditions for programmatic loan II¹
	Programmatic loan I	Programmatic loan II	
I. Macroeconomic stability			
1. Macroeconomic stability	The macroeconomic environment is conducive to the achievement of the program's objectives and consistent with the Policy Letter.	1.1.1 The macroeconomic environment is conducive to the achievement of the program's objectives and consistent with the Policy Letter.	FULFILLED
II. Citizen-centric modernization of the energy sector			
2. To improve the regulatory framework in support of citizen-centric modernization of the energy sector		2.1 The National Energy Policy 2050 will be approved, by MINENERGIA decree, in its first five-year update, which will have been published² on its institutional website.	FULFILLED (Q1 2022)
	A law cutting the profitability of distribution companies, improving the electricity distribution rate-setting process, and requiring public utility distribution concession holders to work exclusively in electricity distribution will have been published³ in the Official Gazette. The National Energy Commission will have begun the rate-setting process, with the contracting of a study to establish the distribution value added for 2020-2024, for purposes of determining the price structure at the distribution level and with new rate options that acknowledge users' different needs and their new relationship with energy.	2.2 MINENERGIA will have received the study's final report for the calculation of the components of the distribution value added (VAD) for 2020-2024.	FULFILLED (Q4 2021)

¹ This information is merely indicative at the date of this document. In accordance with document CS-3633-2 (Policy-based Loans: Guidelines for Preparation and Implementation), compliance with any specified disbursement conditions, including maintenance of an appropriate macroeconomic policy framework, will be verified by the Bank when the borrower submits the corresponding disbursement request and will be reflected in a timely manner in the disbursement eligibility memorandum.

² In this policy matrix, the term "publication" or "published" includes the stages of drafting, development, and, as applicable, approval and publication of the referenced policy measure.

³ In this policy matrix, the term "publication" or "published" includes the stages of drafting, development, and, as applicable, approval and publication of the referenced policy measure.

Components/Policy objectives	Policy conditions		Status of fulfillment of the policy conditions for programmatic loan II ¹
	Programmatic loan I	Programmatic loan II	
	<p>A law creating a transitional price stabilization mechanism for electricity for customers subject to rate regulation will have been published in the Official Gazette.</p> <p>An exceptional resolution of the National Energy Commission will have been published in the Official Gazette establishing the technical provisions for the implementation of a transitional price stabilization mechanism for electricity.</p>	<p>2.3 A decree by MINENERGIA will have been published in the Official Gazette setting: (i) the average regulated price (PNP) for the supply of electricity to customers subject to price regulation; and (ii) the adjustment factor due to the application of the transitional price stabilization mechanism set forth in Law 21,185.</p>	FULFILLED (Q1 2022)
	<p>A bill on electricity portability will have been submitted to the National Congress, proposing the creation of the energy marketer, information manager, and customer segments.</p>	<p>2.4 MINENERGIA will have signed a contract to undertake a study on transitional regulations for the implementation of energy marketing.</p>	FULFILLED (Q1 2021)
	<p>An exceptional resolution of the National Energy Commission will have been published in the Official Gazette establishing the conditions for making offers for increased energy consumption to get residential energy consumers to switch sources.</p>	<p>2.5 MINENERGIA will have prepared a proposed bill on district energy that will have been submitted to the Office of the Chief of Staff of the President.</p>	FULFILLED (Q2 2021)
	<p>An exceptional resolution of the National Energy Commission will have been published in the Official Gazette establishing the conditions for submitting offers for increased energy consumption to get residential energy consumers to switch sources.</p>	<p>2.6 The President of the Republic will have submitted to the National Congress instructions for the bill regulating the use of firewood as a fuel for residential use and the conditions for its marketing.</p>	FULFILLED (Q2 2021)
	<p>The Ministry of Energy will have published on its institutional website a residential energy transition strategy in order to transition towards a cleaner, safe, and more efficient residential thermal matrix.</p>	<p>2.7 MINENERGIA will have published on its institutional website the National Heating and Cooling Strategy, which has the objective of establishing strategic pillars and guidelines for work, as well as measures that should be adopted in the short, medium, and long terms for the development and penetration of sustainable energies for heating and cooling with a comprehensive and participatory perspective.</p>	FULFILLED (Q2 2021)

Components/Policy objectives	Policy conditions		Status of fulfillment of the policy conditions for programmatic loan II ¹
	Programmatic loan I	Programmatic loan II	
	The Ministry of Energy will have published on its institutional website a 2019-2022 action plan for the participation and gradual workforce integration of more women in the energy sector.	2.8 The Personnel Management and Development Policy for the Office of the Deputy Secretary of Energy will have been updated, by means of an exceptional resolution of the Office of the Deputy Secretary of Energy, including the gender perspective to promote gender equity within the institution.	FULFILLED (Q4 2021)
		2.9 MINENERGIA will have prepared a report of results including an analysis identifying potential gender-based wage gaps in the Office of the Deputy Secretary of Energy.	FULFILLED (Q4 2020)
	The Ministry of Energy will have included in the resolutions approving the administrative and technical competitive bidding conditions for the contracting of services a technical criterion for evaluation that promotes gender equity in the energy sector by means of the inclusion of women on the teams for those services.	2.10 In the resolutions of the Office of the Deputy Secretary of Energy approving the administrative and technical competitive bidding conditions for the contracting of services, MINENERGIA will have included a technical criterion for evaluation that promotes gender equity in the energy sector by means of the inclusion of women on the teams for those services.	FULFILLED (Q4 2021)
	The Ministry of Energy will have included in the registration for organizations for the Regional Civil Society Board a gender parity requirement for the appointment of the organizations' representatives serving on the Regional Civil Society Board for purposes of ensuring women's participation on this consultative body.	2.11 MINENERGIA will have issued calls for the renewal of four Regional Civil Society Boards, with the requirement of gender parity in the composition of their members for purposes of ensuring the participation of women on these consultative bodies.	FULFILLED (Q3 2021)
		2.12 The National Energy Commission will have established its Civil Society Board with gender parity, thus promoting the participation of women on this consultative body.	FULFILLED (Q2 2021)
III. Support for decarbonization of the energy matrix			
3. To support policy reforms aimed at accelerating decarbonization of the energy matrix	The Ministry of Energy will have published on its institutional website a document on carbon neutrality in the energy sector, including the sector analysis undertaken to determine the sector targets for mitigation for Chile's Nationally Determined Contribution (NDC).	3.1 MINENERGIA will have prepared scenarios and energy projections consistent with the commitments under Chile's Nationally Determined Contribution (NDC) and carbon neutrality for the update of the Long-term Energy Plan (PELP) and will have published the preliminary report containing these scenarios on its institutional website.	FULFILLED (Q3 2021)
	The Ministry of Energy will have taken part in the establishment of an interministerial working group responsible for developing proposed guidelines for the national policy on the use of Article 6 of the Paris Agreement.	3.2. MINENERGIA will have prepared proposed guidelines for the national policy on the use of Article 6 of the Paris Agreement within the framework of Chile's Nationally Determined Contribution (NDC).	FULFILLED (Q4 2021)

Components/Policy objectives	Policy conditions		Status of fulfillment of the policy conditions for programmatic loan II ¹
	Programmatic loan I	Programmatic loan II	
	The Ministry of Energy will have approved, by exceptional decree, the agreements between the government and five private electricity generation companies for the phasing out of coal-fired power plants for purposes of decarbonizing the energy matrix.	3.3 An addendum incorporating the phasing out of four new thermoelectric generation units into the timeline for the closure of operations of coal-fired thermoelectric power plants will have been approved, by exceptional decree of MINENERGIA.	FULFILLED (Q3 2021)
	The Ministry of Energy will have started the process of preparing a fair energy transition strategy with participatory workshops and a virtual seminar, incorporating equitable social and environmental development, while promoting job creation in the transition to carbon neutrality.	3.4. MINENERGIA will have published on its institutional website, the "Strategy for a Fair Transition in the Energy Sector, Part I: Supporting the Closure and New Uses for Coal-fired Power Plants in Chile."	FULFILLED (Q4 2021)
	The Ministry of Energy will have published on its institutional website a flexibility strategy for the national electric system, considering: (i) measures for the market design to develop a flexible system; (ii) the regulatory framework for storage systems and new flexible technologies; and (iii) the flexible operation of the electric system.	3.5. The resolution of the National Energy Commission on the Technical Standard on Coordination and Operation of the National Electric System will have been published in the Official Gazette.	FULFILLED (Q3 2021)
		3.6 A supreme decree of MINENERGIA will have been submitted to the Office of the Comptroller General of the Republic to approve the Regulation on Power Transfers established in the General Electricity Services Law.	FULFILLED (Q1 2022)
		3.7 The MINENERGIA decree approving the "Regulation of Transmission Systems and Transmission Planning" will have been published in the Official Gazette with the objective of establishing the provisions applicable to the open access system governing transmission systems, the transmission planning process, and the process for bidding on expansion works.	FULFILLED (Q2 2021)
	An exceptional decree of the Ministry of Energy will have been published in the Official Gazette determining the expansion works for the national and regional transmission systems corresponding to the expansion plan for 2019.	3.8 MINENERGIA will have prepared a report containing an analysis of the operation of the market for supplementary services.	FULFILLED (Q4 2021)
		3.9 An exceptional decree of MINENERGIA will have been published in the Official Gazette determining the expansion works for the national and regional transmission systems corresponding to the expansion plan for 2020.	FULFILLED (Q3 2021)

Components/Policy objectives	Policy conditions		Status of fulfillment of the policy conditions for programmatic loan II¹
	Programmatic loan I	Programmatic loan II	
IV. Innovation in new energy technologies			
4. To enable and promote technological innovation in the energy sector	A law on energy efficiency will have been published in the Official Gazette, which: (i) establishes that the Ministry of Energy will regulate the interoperability of the charging system for electric vehicles; and (ii) includes the metrics to be used for the determination of energy efficiency standards for the motor vehicle fleet.	4.1 The National Electromobility Strategy will have been approved, by exceptional resolution of MINENERGIA, and it will have been published on its institutional website.	FULFILLED (Q1 2022)
		4.2 MINENERGIA will have started the approval process for the regulations establishing the procedure for setting vehicular energy efficiency standards and rules for their application.	FULFILLED (Q1 2022)
	An exceptional resolution of the National Energy Commission will have been published in the Official Gazette revising the technical standard for quality of service for distribution systems, incorporating chargers for electric vehicles into the distribution network.	4.3 MINENERGIA will have started the approval process for the regulations on the interoperability of the charging system for electric vehicles.	FULFILLED (Q1 2022)
	An exceptional resolution of the Superintendency of Electricity and Fuel will have been published in the Official Gazette establishing the requirements for the electric vehicle charging infrastructure in the form of regulatory technical specifications.	4.4 An exceptional resolution of the Internal Revenue Service will have been approved amending the normal useful life and accelerated depreciation of electric, hybrid, and zero-emissions vehicles, and MINENERGIA will have participated in its preparation.	FULFILLED (Q1 2021)
		4.5 With the support of the Chilean Energy Efficiency Agency, MINENERGIA will have begun the first phase of the program to replace high-usage vehicles (“Mi Taxi Eléctrico”), replacing 50 combustion engine vehicles such as basic taxis with 100% electric vehicles in the Metropolitan Region of Santiago.	FULFILLED (Q1 2021)
	The Ministry of Energy will have published on its institutional website a proposed national green hydrogen strategy to further its development and help achieve the target of carbon neutrality under Chile’s NDC.	4.6 A bill promoting the production and use of green hydrogen will have been submitted to the National Congress. 4.7 The Superintendency of Electricity and Fuel will have published on its institutional website a support guide, prepared jointly with MINENERGIA, to request authorizations for special green hydrogen projects, aimed at individuals and companies interested in implementing green hydrogen projects, facilitating the processing of the requests. 4.8 The Corporación de Fomento de la Producción [Corporation for Production Promotion] (CORFO), with the support of MINENERGIA, will have prepared the documentation for the first call for financing for green hydrogen projects in Chile and this documentation will include MINENERGIA representatives on its Evaluation Commission.	FULFILLED (Q4 2021) FULFILLED (Q2 2021) FULFILLED (Q2 2021)

RESULTS MATRIX

Project objective:	The specific objectives are: (i) to improve the regulatory framework in support of citizen-centric modernization of the energy sector; (ii) to support policy reforms aimed at accelerating decarbonization of the energy matrix; and (iii) to enable and promote technological innovation in the energy sector. The general objective is to support a fair, clean, and sustainable energy transition in Chile.
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GENERAL DEVELOPMENT OBJECTIVE

Indicators	Unit of measure	Baseline	Baseline year	Target	Expected year achieved	Means of verification	Comments
General development objective: to support a fair, clean, and sustainable energy transition in Chile.							
The National Electric System's (SEN's) CO ₂ equivalent emissions factor per MWh	Tons CO ₂ eq./MWh	0.4187	2018	0.40	2022*	National Energy Commission (CNE) / MINENERGIA Study and Policy Division	

SPECIFIC DEVELOPMENT OBJECTIVES

Indicators	Unit of measure	Baseline	Baseline year	Final target	Final year	Means of verification	Comments
Specific development objective 1: To improve the regulatory framework in support of citizen-centric modernization of the energy sector							
Number of typical areas of characterization for model distribution companies	#	6	2018	12	2022	CNE rate studies / MINENERGIA Electricity Markets Division	
Number of customers switching residential energy sources	#	0	2018	5,000	2022	Superintendency of Electricity and Fuel (SEC) / Electricity Markets Division	
Number of institutions engaged in the public-private plan seeking to increase women's workforce participation in the energy sector	#	0	2018	64	2022	"Energía + Mujer" Public-Private Action Plan 2019-2022	

Indicators	Unit of measure	Baseline	Baseline year	Final target	Final year	Means of verification	Comments
Specific development objective 2: To support policy reforms aimed at accelerating decarbonization of the energy matrix							
Percentage share of non-conventional renewable energy in electricity generation	%	18	2018	21	2022	CNE / Electricity Markets Division	
Percentage share of renewable energy in electricity generation	%	44	2018	45	2022*	CNE / Electricity Markets Division	
Percentage share of installed capacity of coal-fired power plants ¹	%	18	2018	16	2022	CNE / Electricity Markets Division	¹ Generation units with strategic reserve status are not considered for purposes of this calculation.
Specific development objective 3: To enable and promote technological innovation in the energy sector							
Existence of an enabling legal framework for electromobility	Legal framework for electromobility	0	2018	1	2022	Exceptional resolutions of MINENERGIA	
Existence of the National Green Hydrogen Strategy	National Green Hydrogen Strategy	0	2018	1	2022	National Green Hydrogen Strategy enacted	

* The average of the years 2021-2022 will be used to calculate the target in the last year of the project.

OUTPUTS²

Indicators	Unit of measure	Baseline	Baseline year	2022	End of PBP II 2022	Means of verification	Comments
Component II: Citizen-centric modernization of the energy sector							
2.1 Update of the PEN 2050	Energy Policy	0	2018	1	1	Decree 10/2022 and publication of the PEN	
2.2. Final report of the study calculating VAD components 2020-2024	Study	0	2018	1	1	Final report	
2.3 Decree (PNP)	Decree	0	2018	1	1	Decree 8 T	
2.4 Contract for study on transitional regulation for implementation of energy marketing	Decree	0	2018	1	1	Exceptional Supreme Decree 39/2021	
2.5 Proposed bill on district energy	Bill	0	2018	1	1	Communication submitting bill on district energy	
2.6 Document with instructions for the bill regulating the use of firewood	Official letter	0	2018	1	1	Official letter of the President of the Republic (064-369).	
2.7 National Heating and Cooling Strategy	Strategy	0	2018	1	1	Publication of the strategy	
2.8 Update of the Personnel Management and Development Policy of the Office of the Deputy Secretary of Energy to promote gender equity	Policy	0	2018	1	1	Exceptional Resolution 148/2021	
2.9 Results report including an analysis of gender-based wage gaps	Report	0	2018	1	1	Results report	
2.10 Resolutions with technical evaluation criterion to promote gender equity	Resolutions	0	2018	2	2	Resolutions ID 584105-2-LQ21 and ID 584105-14-LP21	

² See details on the indicators and means of verification (with their links) for outputs in the [Means of Verification Matrix](#).

Indicators	Unit of measure	Baseline	Baseline year	2022	End of PBP II 2022	Means of verification	Comments
2.11 Calls for Regional Civil Society Boards with gender parity requirement	Calls	0	2018	4	4	Calls for Regional Civil Society Boards	
2.12 CNE Civil Society Board with parity	Minutes	0	2018	1	1	Minutes of the first meeting of the CNE Civil Society Board for the period 2021-2022	
Component III: Support for the decarbonization of the energy matrix							
3.1 PELP update	Preliminary report	0	2018	1	1	Publication of the preliminary report for the PELP	
3.2 Proposed guidelines for the national policy on the use of Article 6	Document	0	2018	1	1	Proposed guidelines	
3.3 Addendum incorporating 4 new units for the closure of coal-fired power plants	Decree	0	2018	1	1	Exceptional Supreme Decree 174/2021	
3.4 Strategy for a Fair Transition in the Energy Sector, Part I: Supporting the Closure and New Uses for Coal-fired Power Plants in Chile	Strategy	0	2018	1	1	Publication of the Strategy for a Fair Transition	
3.5 Technical standard on coordination and operation of the SEN	Standard	0	2018	1	1	Exceptional Resolution 253/2021	
3.6 Regulations on Power Transfers	Regulations	0	2018	1	1	Decree 3/2022	
3.7 Decree on the Regulation of Transmission Systems and Transmission Planning	Decree	0	2018	1	1	Publication of Decree 37/19	
3.8 Initial analysis of the operation of the complementary services market	Document	0	2018	1	1	Report	
3.9 Exceptional decree determining expansion works for the national and regional transmission systems in 2020	Decree	0	2018	1	1	Publication of Exceptional Decree 185/2021	

Indicators	Unit of measure	Baseline	Baseline year	2022	End of PBP II 2022	Means of verification	Comments
Component IV: Innovation in new energy technologies							
4.1 National Electromobility Strategy approved in 2022	Strategy	0	2018	1	1	Ministerial Exceptional Resolution 8/2022	
4.2 Regulations for setting vehicular energy efficiency standards	Regulations	0	2018	1	1	Decree 14/2022	
4.3 Regulations for the interoperability of the electric vehicle charging system	Regulations	0	2018	1	1	Decree 12/2022	
4.4 Participation by MINENERGIA in the preparation of the Internal Revenue Service resolution amending the normal useful life and accelerated depreciation of electric, hybrid, and zero-emissions vehicles	Minutes	0	2018	1	1	Meeting minutes	
4.5 First phase of the program to replace high-usage vehicles ("Mi Taxi Eléctrico")	Decree	0	2018	1	1	Supreme Decree 13 of 2020	
4.6 Bill promoting the production and use of green hydrogen	Bill	0	2018	1	1	Message 391/369 to the National Congress	
4.7 Support guide for requesting authorizations of special green hydrogen projects	Guide	0	2018	1	1	Publication of the guide	
4.8 Bid documentation for the first call for financing for green hydrogen projects	Bid documentation	0	2018	1	1	Bid documentation with MINENERGIA as part of the Evaluation Commission	

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

PROPOSED RESOLUTION DE-___/22

Chile. Loan ___/OC-CH to the Republic of Chile. Program to Support
the Fair, Clean, and Sustainable Energy Transition II

The Board of Executive Directors

RESOLVES:

That the President of the Bank, or such representative as he shall designate, is authorized, in the name and on behalf of the Bank, to enter into such contract or contracts as may be necessary with the Republic of Chile, as borrower, for the purpose of granting it a financing to cooperate in the execution of the Program to Support the Fair, Clean, and Sustainable Energy Transition II. Such financing will be for an amount of up to US\$300,000,000 from the Ordinary Capital resources of the Bank, and will be subject to the Financial Terms and Conditions and the Special Contractual Conditions of the Project Summary of the Loan Proposal.

(Adopted on ___ 2022)