

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

CHILE

**PROGRAM TO SUPPORT A FAIR, CLEAN, AND SUSTAINABLE ENERGY
TRANSITION**

(CH-L1159)

LOAN PROPOSAL

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ABBREVIATIONS

CEN	Coordinador Eléctrico Nacional [National Electrical Coordinator]
CNE	Comisión Nacional de Energía [National Energy Commission]
CO ₂	Carbon dioxide
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
MINENERGIA	Ministry of Energy
NDC	Nationally Determined Contribution
SEC	Superintendencia de Electricidad y Combustible [Superintendency of Electricity and Fuel]

PROJECT SUMMARY

CHILE PROGRAM TO SUPPORT A FAIR, CLEAN, AND SUSTAINABLE ENERGY TRANSITION (CH-L1159)

Financial Terms and Conditions				
Borrower			Flexible Financing Facility ^(a)	
Republic of Chile			Amortization period:	20 years
Executing agency			Disbursement period:	2 years
The borrower, acting through the Ministry of Energy			Grace period:	5.5 years ^(b)
Source	Amount	%	Interest rate:	LIBOR-based
IDB (Ordinary Capital):	US\$50,000,000	100	Credit fee:	(c)
Total:	US\$50,000,000	100	Inspection and supervision fee:	(c)
			Weighted average life:	12.75 years
			Currency of approval:	U.S. dollars
Project at a Glance				
<p>Program 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 first 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 policies: None</p>				
Strategic Alignment				
Challenges: ^(d)	SI	<input checked="" type="checkbox"/>	PI	<input checked="" type="checkbox"/>
			EI	<input type="checkbox"/>
Crosscutting themes: ^(e)	GD	<input checked="" type="checkbox"/>	CC	<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, and commodity 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 the applicable policies.

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

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

I. DESCRIPTION AND RESULTS MONITORING

A. Background, problem to be addressed, and rationale

- 1.1 **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. Therefore, according to the Central Bank, GDP growth for 2019 was 1.1%. For 2020, a year-on-year GDP decrease of between 5.75% and 6.25% is projected, based on the monetary policy report for the fourth quarter of 2020. This is the largest drop in 35 years (Central Bank).¹ According to the public finance report for the third quarter of 2020 from the Budget Office of Chile (DIPRES),² this would be accompanied by an effective fiscal deficit of 8.2% in 2020 and an estimated 4.3% in 2021, and gross central government public debt would rise, as a percentage of GDP, from 27% prior to the social crisis to 36.4% in 2021 and a peak level of 44.6% in 2024, according to the September 2019 public finance report from DIPRES. This economic slowdown is a critical period for Chile. Nevertheless, the energy sector, particularly its electricity subsector, has become a pillar of the country's economic and social development. As a result, energy transformation, and especially renewable energy, will play an essential role.³
- 1.2 **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.⁴ In the energy sector, the Ministry of Energy (MINENERGIA) is the lead agency responsible for formulating, adopting, leading, and coordinating policies, plans, and programs for the energy sector; the National Energy Commission (CNE) is the public, decentralized body that regulates the sector; and the Superintendency of Electricity and Fuel (SEC) oversees compliance with the regulations.
- 1.3 **Energy policy.** In 2018, the Government of Chile launched the 2018-2022 Energy Roadmap. This focuses on modernizing the regulatory and policy framework for the sector, improving quality of life for the citizenry, developing a long-term electricity policy, advancing nonconventional renewable energy (such

¹ [Informe de Política Monetaria \(December 2020\)](#).

² [Informe de Finanzas Públicas \(third quarter 2020\)](#).

³ Chapter 2 of IDB Flagship Publication on Development in the Americas, "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 of this book shows the significance of renewable energy for the energy transition under way and the future of the energy sector. Cavallo et al., 2020, [From Structures to Services: The Path to Better Infrastructure in Latin America and the Caribbean](#).

⁴ 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).

as solar, wind, and biomass), and promoting innovative technologies based on clean energy sources, efficient transportation, and decarbonization associated with the target of carbon neutrality. To move ahead with these commitments, the government developed several policy instruments, including: (i) an update of the distributed generation law, enabling users to self-supply their consumption up to 300 kilowatts and introduce the surpluses into the grid; (ii) an update of the Nationally Determined Contribution (NDC); and (iii) an electromobility strategy in 2017, resulting in increased installed capacity of: (a) solar and wind energy, which increased from 0.6% to 21.4% over the past 10 years; (b) distributed solar generation, which quadrupled between 2018 and 2020; and (c) total renewable energy, which reached 44% in 2019. Electricity generation that year was mainly derived from coal (37%), natural gas (19%), hydropower (27.4%), solar (8.1%), wind (6.2%), and biomass (2.3%) sources (see [optional link 2](#) for additional details).

- 1.4 **Diagnostic assessment, sector challenges, and gap analysis.** Despite the Chilean government's achievements, the sector faces significant challenges in its energy transition process: (i) a regulatory framework that helps create enabling regulatory conditions to modernize the sector and guarantee affordable electricity service⁵ with clean generation (displacing polluting and inefficient fuels such as firewood); (ii) decarbonization across the board to achieve carbon neutrality;⁶ and (iii) a framework that enables and promotes new energy technologies.
- 1.5 **Challenge 1. Need to modernize the regulatory framework of the energy sector.** Although Chile's electricity coverage is 99.6%, access to energy services is defined not only by access to infrastructure but also by the affordability of these services. Nationwide, on average, households in the lowest socioeconomic levels spend more than 13% of their income on energy, while households in the highest levels spend less than 5%.⁷
- 1.6 **Need for regulatory modernization of the distribution segment.** The affordability concern was raised by the public in the second half of 2019 in response to a 9.2% rate increase originally slated for January 2020. The roots of this problem lay in constraints in the sector's regulatory framework, which was heavily focused on the generation and transmission segments (with no

⁵ The affordability of electricity service in Chile is a challenge for the low-income population. In Santiago, the poorest households spend a significant percentage of their income on electricity bills (about 8.3%, a high percentage compared to other cities in the region). This data is based on household spending surveys from 2017 for Mexico City; 2018 for Lima and Santiago; and 2019 for São Paulo.

⁶ While the COVID-19 pandemic had an impact on the energy sector, mainly in July, Chile has recovered to the level prior to the pandemic. The demand decrease was lower than the average for other countries in the region, with a maximum decrease of 6.78% (compared to Costa Rica, 13.26%; Mexico, 13.23%; and Brazil, 15.31%). In the energy sector, the measures implemented included the deferment of unpaid bills for the most vulnerable population and the postponement of electricity tendering to obtain more efficient prices for regulated customers.

⁷ Spending per household was estimated based on electricity prices as of December 2018. Annual average spending for a family was US\$605,126 per household (approximately US\$50,000/month). The end uses with the highest annual costs, on average, were heating (US\$169,025), domestic hot water (US\$149,876/year), and refrigerators (US\$59,470). Based on thermal-zone groups, annual spending ranges from US\$452,399 in the north-central area to US\$823,434 in the southern area.

modernization of the distribution segment) through: (i) Law 19.940 (2004), regulating electricity transmission activities to become a public service; (ii) Law 20.018 (2005), introducing amendments to incentivize investment in energy generation through bidding to provide supply to regulated users, to ensure the reliability and safety of the service; and (iii) Law 20.936 (2016), implementing new conditions for electricity transmission; establishing compensation through single-access fees, centralized planning of transmission, and tendering for works; and creating the National Electrical Coordinator (CEN). As a result, the distribution segment has not yet been modernized, and this has prevented the benefits of progress in the sector from reaching end users.

- 1.7 The modernization of the distribution segment requires: (i) reviewing the methodology for calculating the earnings of distribution companies by updating the capital cost index (set at 10%), as it is not aligned with the reality of current access to finance conditions and does not reflect the technological development and maturity of the distribution industry;⁸ (ii) improving the rate-setting process for distribution, with the National Energy Commission (CNE) placed in charge of leading rate studies instead of companies; and (iii) adapting the distribution value added to the challenges of the distribution grid and its new operating dynamics for the 2020-2024 rate period.
- 1.8 **Need to increase competition in energy sector services for end users.** The second gap identified in achieving affordable service relates to limited competition, which is a result of: (i) the fact that current regulations do not give regulated end users the right to choose their electricity provider; and (ii) the lack of regulatory separation between distribution as a power-grid infrastructure business (which acts as a monopoly), the sale of electricity related to energy trading, and the management of customer information and data protection.
- 1.9 **Need to reduce the volatility of energy prices.** Rates are adjusted twice per year by means of average node price decrees, based on competitive long-term supply contracts and reflecting variations determined by the prices of various fuels and fluctuations in the value of the dollar.⁹ The result is that 100% of the costs of energy generation are passed through to end users. To address the concerns of the public and reduce this volatility, it is essential to establish a mechanism to stabilize prices and ensure a more affordable service.
- 1.10 **Heavy reliance on firewood for residential heating.** Although important progress has been achieved in the energy matrix, there have not been significant changes in pollution, owing to the sources of energy being consumed to heat households. Nationwide, a third of households (about two million homes) use firewood for heating, mainly concentrated in the cities of the center-south region

⁸ This review is necessary to adequately equalize market conditions, efficiency signals, and minimum costs to benefit users, as well as to provide adequate compensation for the investments of private companies.

⁹ The average market price increased on average 5.9% for the latest four updates (October 2018 to October 2020), with fluctuations between -1.4% and 7.8%. This price is used to index the node price of energy (Source: [National Energy Commission](#)).

of the country (from O'Higgins to Aysén),¹⁰ where 85% of particulate matter emissions come from firewood combustion (6% of Chile's final consumption).¹¹

- 1.11 The problem of reliance on firewood has several causes: (i) the cultural habit of consuming firewood, which is the most used energy source for heating (74% of residential energy consumption), and obstacles in changing this culture; (ii) the artificially low prices of firewood due to the lack of regulations and the challenges of internalizing the adverse impacts of its use (for example, for Coyhaique, US\$19/million Btu for firewood versus US\$24/million Btu for electricity); and (iii) homes requiring high energy consumption to achieve the desired level of comfort (53% of family homes were built before 2001, without thermal insulation standards).
- 1.12 Therefore, it is essential for the Chilean government to implement measures to make better use of firewood and regulate its market, as well as to provide alternatives through clean technologies that promote diversification of the residential heating matrix and amend regulations to establish conditions enabling users to carry out residential energy conversions¹² in their households.
- 1.13 **Gaps in the participation of women in the energy sector.** MINENERGIA began discussing gender equality issues through internal work in its human resources area in 2015-2016. Subsequently, from its planning area, as part of work in the first Cross-Sector Gender Forum that the Chilean government hosted through the Ministry of Women to promote the inclusion of national policies on gender in every sector. There have been several training sessions with international and regional cooperation institutions such as the Latin America Energy Organization and the Deutsche Gesellschaft für Internationale Zusammenarbeit. These resulted from the need to prepare the first Energy and Gender Agenda, which was completed in 2017. That first agenda included: (i) promotion of the autonomous development of women in the energy environment; (ii) inclusion of the gender variable in energy policy; (iii) strengthening of the capacities of women in energy; and (iv) actions for inclusion to reduce gender gaps, mainstream gender considerations, and sustainably advance the incorporation of women in all levels and positions at MINENERGIA.

¹⁰ More than 90% of households using firewood for heating are concentrated in the center-south area of Chile. Source: [Política de la Leña y sus Derivados para Calefacción](#). Government of Chile.

¹¹ Nine of the cities in Latin America that are most impacted by having firewood as an energy source for residential heating are in Chile: Osorno, Coyhaique, Valdivia, Padre Las Casas, Temuco, Santiago, Linares, Rancagua, and Puerto Montt.

¹² Residential energy conversion consists of offering incentives to regulated customers, in order to increase the electricity consumption resulting from the conversion away from firewood.

- 1.14 In 2019,¹³ a diagnostic assessment of barriers and gaps in private companies of the energy sector was prepared. It found that women only accounted for 23% of the workforce, occupied 10% of leadership positions such as chief executive officer, and held 57% of administrative positions. The current wage gap is that women's salaries are at least 24% lower. Therefore, it is essential to increase the participation of women in the energy sector utilizing a public- and private-sector instrument to gradually change the culture under an umbrella measure that includes the commitments, mechanisms, and interventions to increase gender parity.
- 1.15 **Challenge 2. Need to decarbonize the energy matrix.** The second challenge is to accelerate the decarbonization process of the energy matrix. This involves changes in long-term energy policy, including measures such as the gradual retirement of coal-fired power plants, which in 2019 generated 36.7% of the energy¹⁴ and were responsible for 25% of greenhouse gas emissions.¹⁵ The decarbonization of the energy matrix is also associated with the crosscutting climate change reforms that need to be promoted to reduce greenhouse gas emissions,¹⁶ foster carbon neutrality, and achieve Chile's NDC targets.^{17,18}
- 1.16 **Challenges in meeting Chile's commitments to reduce greenhouse gas emissions.** Most greenhouse gas emissions come from the energy sector.¹⁹ This positions MINENERGIA as the central actor in the country's efforts to meet the commitments that Chile made under the Paris Agreement.²⁰ In this agreement, the Government of Chile affirmed its intent to reduce poverty, lessen inequality, and continue progressing toward sustainable, competitive, inclusive, resilient, and carbon-neutral development by 2050. The challenge of meeting Chile's NDC target and achieving carbon neutrality by 2050 requires the formulation of energy

¹³ The Public-Private Plan included 10 areas of work with input on issues from the Gender Parity Initiative, the Women's Empowerment Principles/United Nations, and Chilean standard NCH 3262, which were then validated by the industry. Companies in Chile are not required to follow any rules or standards, and therefore participation and commitments are voluntary. Several energy companies in Chile are part of the Gender Parity Initiative and have committed to progressively improving gender aspects with respect to salaries, women's leadership in decision-making positions, and job options in the supply chain. The progress in MINENERGIA is aligned with the proposals of the Gender Parity Initiative.

¹⁴ Source: [energy generators in Chile](#).

¹⁵ [Carbano-neutralidad en el sector energía](#).

¹⁶ To date, the energy sector accounts for 78% of carbon dioxide (CO₂) greenhouse gas emissions—including the electricity sector, with electricity generated from coal, natural gas, and others (32%); transportation (24%); industrial and mining (14%), and construction (7%). The remainder of the emissions are from waste (5%), industrial processes (6%), and agriculture (11%). Source: [Carbano Neutralidad en el Sector Energía. Proyección de Consumo Energético Nacional 2020](#) (page 7).

¹⁷ Chile established ambitious targets for the reduction of greenhouse gas emissions: in 2015, the target set was zero emissions by 2100 with a maximum temperature of +2°C. In 2020, Chile agreed to reach carbon neutrality by 2050 with maximum temperature of +1.5°C.

¹⁸ "Long-term strategies can guide the design of more ambitious NDCs, help governments to anticipate costs, manage trade-offs, and ensure a just transition to net-zero emissions, while identifying the immediate policy reforms and investment priorities necessary to unlock the transformation." [Getting to Net-Zero Emissions: Lessons from Latin America and the Caribbean](#).

¹⁹ [Tercer Informe Bienal de Actualización](#).

²⁰ [Paris Agreement. United Nations \(2015\)](#).

scenarios that enable the modeling of different potential paths for emissions in the future. This means comparing a benchmark scenario with current policies versus a scenario that applies additional policies to reach carbon neutrality. In the benchmark scenario, it is estimated that Chile will be emitting about 130 metric tons of CO₂ in 2050. Assuming that the forestry sector continues capturing 65 metric tons of CO₂ in 2050, there will be a reduction gap of 65 metric tons of CO₂ in 2050.²¹ This will come mainly from the energy sector, given the significance of this sector in the country's total emissions. The main contributions will be to work on the analysis, formulation, and implementation of measures to meet the emissions reduction targets by sector in Chile.²² These targets are reflected in the large number of inputs that MINENERGIA provides for the preparation of the NDC. Given the central role that MINENERGIA plays in leading the country's decarbonization, along with the Ministry of Environment, this agency participated in the official submission of an update for Chile's first NDC to the United Nations Framework Convention on Climate Change.²³

- 1.17 In addition, Chile actively participated in the Clean Development Mechanism of the Kyoto Protocol, generating considerable experience at the private and public levels to advance measures to reduce greenhouse gas emissions,²⁴ such as taxes on emissions from mobile and fixed sources, modified in January 2020²⁵ with a new offsetting mechanism.²⁶ However, in the context of Article 6 of the Paris Agreement, which goes one step further in establishing international carbon markets and creates the foundation for a revised global system of greenhouse gas emissions trading systems (and affirms the voluntary nature of these measures in each country), Chile lacks guidelines to define a national policy in the future on use of the Article, including the advisability of setting a carbon price or other measures that would reflect the social cost of carbon. This gap is also related to the discussions on implementation of Article 6 of the Paris Agreement and to others regarding the potential creation of multilateral or bilateral greenhouse gas emissions trading systems, which could impact the target of achieving carbon neutrality by 2050.

²¹ MINENERGIA. [*Carbono Neutralidad en el Sector Energía. Proyección de Consumo Energético Nacional 2020.*](#)

²² An additional challenge in the efforts under way by the sector and MINENERGIA to promote and implement measures and to expand the scope of the scenarios evaluated will be including the impacts of climate change, particularly those related to the generation and transportation of energy and its final consumption, and to review how they affect the implementation of the measures and therefore, carbon neutrality. This means including the concept of resilience in the scenarios and in long-term energy planning.

²³ [*Chile's Nationally Determined Contribution: Update 2020.*](#)

²⁴ Including mechanisms that impose a price on carbon, whether through direct or indirect taxes, emissions trading systems, offsets, etc.

²⁵ [*Law 21210*](#) modernizing tax legislation.

²⁶ The offsetting mechanism conditions a reduction in the amounts owed by taxpayers and derived from emissions on the implementation of projects to reduce emissions of the same contaminant, provided that such emissions are additional, quantifiable, verifiable, and ongoing.

- 1.18 **Need to reduce the share of coal in electricity generation.** Chile's energy transition requires a major decarbonization process in order to achieve carbon neutrality by 2050. Retiring coal-based plants is one of the most effective measures to both reduce greenhouse gas emissions and improve local environmental conditions and health.²⁷ The gap analysis indicated the need for the Chilean government to have a gradual elimination plan for coal-based plants. This includes, by 2024, retiring plants generating capacity of 1,731 megawatts, which account for 37% of total installed capacity for coal-based generation. The remaining capacity would be eliminated by 2040.²⁸
- 1.19 **Need for a more flexible power grid.** The elimination of coal-based plants for power generation—which currently provide a base load and inertia to the system—and the increased share of renewable energy (such as photovoltaic solar, wind, and distributed power generation), along with more active demand, require a more flexible power grid that ensures safe, efficient, and sustainable operations under these new conditions. Therefore, an update of the regulatory framework to establish market signals is necessary, to enable the addition of new technologies that provide flexibility.
- 1.20 **Alignment of the transmission expansion for decarbonization of the power grid.** Energy planning should include scenarios to achieve carbon neutrality by 2050. This includes key actions, such as eliminating coal-fired plants for electricity generation and adding new renewable energy projects, setting the foundations to analyze greenhouse gas emission reductions. In turn, the results of this energy planning should be the main input to define the expansion of electricity transmission in a cost-efficient manner that addresses the challenges of the system's needs for flexibility and resilience under new operating conditions. Lastly, based on this planning, the priority works to expand the transmission grid should be defined. These would make it possible to retire coal-fired power plants and connect new renewable energy plants.
- 1.21 **Prioritization of the commitment to citizen participation in the energy transition.** The social crisis of 2019 underscored the importance of the citizen participation process in preparing policy measures and of not excluding anyone from this energy transition and protecting everyone's rights, including those of the most vulnerable people.²⁹ Retiring coal-fired power plants and transitioning toward carbon neutrality will have impacts on the locations of current and new energy infrastructure. Therefore, it is essential to develop a fair, sustainable transition strategy that includes equitable social and environmental development, promoting job creation in the transition to carbon neutrality.

²⁷ Rauner, S.; Bauer, N.; Dirnmaichner, A.; Van Dingenen, R.; Mutel, C.; Luderer, G. Coal Exit Health and Environmental Damage Reductions Outweigh Economic Impacts.

²⁸ [Long-term energy planning - Emissions from the energy sector](#). MIENERGIA.

²⁹ MINENERGIA, in line with the Chilean government, has a solid commitment to citizen participation in the preparation of its energy policies and strategies. Therefore, it created the Division of Community Participation and Relations. This ministry also has three citizen participation mechanisms: (i) the Civil Society Council; (ii) public consultations; and (iii) the Participatory Public Account. MINENERGIA is currently updating its Long-Term Energy Policy ([optional link 2](#)) with citizen participation. ([Iniciativas de participación ciudadana en el MME](#)).

- 1.22 **Challenge 3. Need for a framework that enables and fosters energy innovation.** The third and last challenge relates to the changes needed to enable energy innovations by identifying new energy vectors such as green hydrogen. Chile could become a leader in this field, since it has great potential to produce renewable-based green hydrogen.³⁰ This is estimated at 160,000 tons per year, at competitive prices similar to California's.³¹ Likewise, electrification of ground transportation is a key segment to reduce greenhouse gas emissions. According to the IDB's DIA 2020 flagship publication "From Structures to Services: The Path to Better Infrastructure in Latin America and the Caribbean,"³² structural changes in the energy sector resulting from decarbonization and technological innovation open up opportunities for Latin American countries but also generate challenges associated with the technological uncertainty arising from innovations. The institutional and regulatory priority that Chile's government has placed on moving ahead with electromobility and green hydrogen demonstrates its commitment to the decarbonization process of the energy sector.
- 1.23 **Limited progress in electromobility.** The Chilean government has stood out in the region for being a pioneer in channeling actions to foster electric mobility. In 2017, the National Strategy for Electromobility was presented. This is a multisector instrument for the energy, transportation, and environment sectors to define targets, establishing strategic elements and coordination mechanisms to foster electric mobility in the country. With this strategy, targets for the use of electric vehicles were set for the first time. According to these targets, 100% of urban public transportation would be electric by 2040 and 40% of the private vehicle fleet would be electric by 2050. To date, Chile has 200 public charging stations, 1,696 electric vehicles, and 775 electric buses. This is still far from the established targets for a fleet of 5.7 million private vehicles and 17,000 electric buses.³³
- 1.24 Continuing the support for developing electric mobility, the 2018-2022 National Government Program indicated that electric mobility presents an opportunity for innovation and technology development for the country. This program promotes electromobility in public transportation and fosters more efficient, less polluting mobility. In addition, the sector program "Energy roadmap for citizen-centric modernization" establishes sector-level targets. These include having 10 times more electric vehicles in 2022 compared with 2017 and 150 charging stations for electric vehicles by 2019, as shown in the Public-Private Commitment for

³⁰ Chile aims to surpass 85% in generation based on renewable sources by 2030 and 95% by 2050, under a carbon-neutral scenario.

³¹ [Path to Hydrogen Competitiveness: A Cost Perspective](#). Hydrogen Council (2020).

³² Cavallo et al. 2020 [From Structures to Services: The Path to Better Infrastructure in Latin America and the Caribbean](#).

³³ The strategic elements include regulation and issuance of standards, public transportation as a development engine, fostering research and development of human capital, the initial drive toward electric mobility, and transfer of knowledge and information.
(<https://www.ine.cl/estadisticas/economia/transporte-y-comunicaciones/permiso-de-circulacion/parque-de-vehiculos>).

Electromobility of that year. This establishes the importance of developing regulations and technical standards that enable electric mobility, both in public transportation and individual mobility, particularly regarding standards to access the electric charging network and the technical standards for charging facilities for electric vehicles.

- 1.25 To move ahead and expand to large-scale electromobility in Chile, these should be defined: (i) energy efficiency standards for motorized vehicles; (ii) infrastructure requirements for charging electric vehicles; and (iii) the technical regulation that includes these charging systems in electricity distribution systems.
- 1.26 **Role of green hydrogen in the energy transition.** As one of the leaders in creating a green hydrogen market, Chile is in a privileged position because of its low production costs and availability of renewable energy resources. Specifically, its potential to generate electricity from renewable sources is 70 times the current installed capacity (to date, the solar and wind generation capacity account for 21% of the total, with more than US\$20 billion in investment projects for renewable energy). Based on the study of gaps prepared by MINENERGIA for 2050, the potential market includes: (i) the capture of 50% of the market in Japan and South Korea and 20% of the Chinese market for imports of hydrogen; (ii) the production of 25 million tons of hydrogen per year; (iii) an estimate of US\$30 billion in revenue per year for the country; and (iv) a market in which Chile supplies 5% of worldwide demand for hydrogen. To continue progressing, Chile needs a national strategy for green hydrogen, to foster its development and create the market conditions to attract private investors.
- 1.27 **Rationale and proposed intervention.** The diagnostic assessment and the identification of existing challenges and their respective causes demonstrated the need to modernize the regulatory framework, decarbonize the energy matrix,^{34,35} and foster innovation in the energy sector.³⁶ Overcoming these challenges will achieve a fair, clean, and sustainable transition, therefore reinforcing its role in triggering economic development and quality of life for Chile's population. In this context and to move forward and implement this transition, the Government of Chile requested the Bank's support for the preparation of a programmatic

³⁴ The validity of the intervention is based on the case of Ontario, where the share of coal in the electricity matrix went from 25% to 0% between 2007 and 2014, generating a 17% reduction in greenhouse gas emissions ([The End of Coal: Ontario's Coal Phase-Out](#)). Also, the United Kingdom, where the reduction in the share of coal in electricity generation (which was 7% in 2017) resulted in a 50% reduction in greenhouse gas emissions in the energy sector.

³⁵ 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 retiring coal-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: <https://publications.iadb.org/publications/english/document/Jobs-in-a-Net-Zero-Emissions-Future-in-Latin-America-and-the-Caribbean.pdf>.

³⁶ Chapter 9 of the DIA 2020 demonstrates the need to modernize the regulatory framework of the energy sector in Latin American and Caribbean countries. This modernization is necessary to enable countries to benefit from the great potential of innovation but also to prevent the disruptions that innovation could generate in the sector. Cavallo et al., 2020, [From Structures to Services: The Path to Better Infrastructure in Latin America and the Caribbean](#).

- policy-based loan consisting of two individual operations, the first of which is the program proposed in this document.
- 1.28 **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.
- 1.29 **The Bank's experience in the sector and lessons learned.** The Bank has extensive experience with energy reform programs in the region as well as in Chile with the "Sustainable Energy Program" (loan 3821/OC-CH). This operation was approved in 2016 and completely disbursed under the modality of policy-based loans with multiple tranches. There were two consecutive tranches, each for US\$50 million. This program supported the development of the National Energy Policy, with results that included: (i) Law 20.805 on Tendering for Electricity Supply for Regulated Customers, which facilitates the inclusion of renewable energies in the energy matrix; (ii) Law 20.928 on Rate Equity, which made it possible to adjust and reduce energy rates in areas with higher electricity generation; (iii) Law 20.936, which established a new Electricity Transmission System; (iv) administrative orders to strengthen regional energy integration; and (v) new authority for MINENERGIA as a planning entity and the CNE as a regulatory entity.
- 1.30 Successful results included electricity supply auctions (contracts awarded in August 2016) that attracted 84 companies, which presented 686 supply offers, equivalent to seven times the tendered energy (a total of 85,278 gigawatt-hours per year). In addition, the average price per contract awarded was US\$47.60 per megawatt-hour, 63% below the 2013 average of US\$129 per megawatt-hour. The success of the supply auctions was also reflected in the diversification of Chile's energy matrix. Chile was able to achieve the target of 20% from nonconventional renewable energy sources, originally planned by 2025³⁷ pursuant to Law 20.698, five years early. Of note among the lessons learned from program 3821/OC-CH is the importance of interagency coordination and assignment of roles required during the design and execution. MINENERGIA and the CNE acted, respectively, as the institution responsible for preparing and coordinating energy sector policies and the technical agency responsible for analyzing prices, rates, and technical standards in the sector.
- 1.31 The Bank also has experiences and lessons learned in policy-based support in the sector, such as those from a previous Chile operation (3821/OC-CH) and others. The latest were in Ecuador (5044/OC-EC), Colombia (4773/OC-CO), and Dominican Republic (4649/OC-DR). The most noteworthy lessons that were

³⁷ Law 20698: [*Propicia la Ampliación de la Matriz Energética, Mediante Fuentes Renovables No Convencionales*](#). Library of the National Congress of Chile.

- considered in the design of this operation are: (i) establish from the beginning a defined schedule and clearly assigned responsibilities; (ii) provide close support from the Bank to the government during the implementation process of institutional changes and policy measures, through technical assistance; (iii) design the program so that policy measures, particularly regulatory measures, are implemented gradually; (iv) ensure sustainable impacts through substantive policy commitments, such as decrees; and (v) consider the country's social and political situation to foster viable reforms and ensure their successful implementation.
- 1.32 With respect to this operation, policy measures were identified on the priority issues that are part of the strategic dialogue with MINENERGIA, as well as the operational and knowledge work led by the Bank, which culminated, in 2020, with the approval of three technical cooperation operations that support implementation of the programmatic policy-based series with key deliverables:³⁸ (i) Support for the Citizen-centric Modernization of the Energy Sector of Chile (ATN/OC-18207-CH) (US\$250,000); (ii) Decarbonization and Decontamination Solutions for Chile: Geothermal Energy Solutions (ATN/OC-17996-CH) (US\$400,000);³⁹ and (iii) Promotion for the Development of a Green Hydrogen Market in Chile (ATN/JF-18347-CH) (US\$500,000).
- 1.33 In addition, the operation was prepared with the Bank's most recent knowledge of the sector, specifically from the DIA 2020, which identifies instruments, policies, regulations, and innovations needed to have more affordable, decarbonized, and user-centered public services. The DIA 2020 underscores the importance of improving service affordability. Therefore, this operation focuses on rate reform in the distribution segment, increased competition in sales and distribution, and development of new services.⁴⁰ In addition, the DIA 2020 highlights technological and digital innovation, which are included in this operation through new regulations that empower end users to choose their electricity provider, enabled by the data and information technologies made available by energy sellers. This publication also makes a case for accelerating decarbonization, which involves creating regulatory instruments to ensure that the system continues to be reliable in providing electricity, given the increase in variable renewable sources such as solar and wind. Accordingly, this operation

³⁸ Deliverables include studies on digitalization, energy efficiency, electromobility, flexibility with renewables, firewood replacement, and prefeasibility studies for developing the green hydrogen market and its regulatory framework.

³⁹ Component II of this operation includes the electrification of residential heating with nonconventional renewable energy sources, including the geothermal source financed under this technical cooperation operation.

⁴⁰ The DIA 2020 identifies affordability as a challenge for the electricity sector, so that people can use electricity. It recommends that electricity rates are adapted to reflect the costs and risks of services. Rates should be adapted as efficiently as possible to the sector's transformation and technological innovations, seeking to ensure the long-term sustainability of the sector and avoiding distortions. This publication also argues that the sector's efficient transformation should be driven by competition in services associated with empowering consumers. One of the central elements in this process is giving consumers the right to select their provider. The policy reforms for Component II move ahead in this direction, seeking more affordability, empowering end consumers, and electrifying residential services.

will foster flexibility to enable increased integration of variable energy.⁴¹ In addition, the DIA 2020 shows that promoting the electrification of residential energy services (such as heating) is one of the main mechanisms for energy transition toward decarbonization of the sector. On this last point, Chile has been taking strong steps to introduce new large-scale distributed technologies. Another key issue in the DIA 2020 is achieving higher levels of decarbonization for users. This requires electrification of other sectors such as transportation and different business models, policies, and regulations that enable new energy supply segments that did not previously exist, such as services to charge electric vehicles and production of green hydrogen.⁴² In summary, the operation offers solutions to challenges that are aligned with and informed by the future vision of the energy sector that is outlined in the DIA 2020.

- 1.34 IDB Invest⁴³ has provided relevant support to various energy sector actors, including companies that generate and distribute electricity. Electricity generators received support through financing of renewable power generation projects (US\$200 million in 2020 and US\$180 million in 2017) and through liquidity lines to meet the resource needs of companies resulting from the price stabilization mechanism (US\$250 million). With respect to the decarbonization agenda, IDB Invest is financing a project activity to retire a coal-fired power plant and replace it with a renewable-power plant. The CO₂ emissions prevented by retiring the coal-fired power plant have economic value and decrease the cost of financing the renewable-power plant.
- 1.35 IDB Lab has supported various initiatives in Chile in the areas of renewable energy, energy efficiency, and electromobility. These are intended to improve the competitiveness of smaller companies, revitalize the innovation ecosystem, and improve people's quality of life. These are noteworthy: (i) ME-9862-CH, Promotion of Market Opportunities for Clean Energies; (ii) ME-11395-CH, Strengthening Small Producers to Sell Certified Firewood; (iii) ME-13466-CH, Innovative Technologies to Improve Energy Efficiency in the Fresh Fruit Sector; and (iv) ATN/ME-17476-CH, Autonomous Vehicle Hub and Innovation Challenge. IDB Lab also pioneered a green hydrogen project in Costa Rica

⁴¹ The DIA 2020 shows the need to direct infrastructure policies toward carbon neutrality, as a result of the Paris Agreement. There are two groups of mechanisms to be considered complementarily: price mechanisms (such as coal prices) and quantity restrictions (such as retiring high-emissions technologies like coal-power plants). Also, to achieve decarbonization of the energy matrix, this publication recommends searching for flexible mechanisms for the power grid and having a process of social inclusion. The decarbonization process will create winners and losers, and it is essential that the policies associated with this decarbonization do not increase inequalities. This was analyzed during the diagnostic assessment for challenge 2. The policy measures of Component III address the issues that this analysis showed.

⁴² The DIA 2020 underscores the importance of promoting new flexible technologies for the future of the electricity sector and the electrification of the transportation sector, which plays a central role in energy decarbonization. The proposed operation addresses this. Component IV includes policy measures to promote green hydrogen and improve regulations to incentivize an increase in electric vehicles.

⁴³ With these transactions, IDB Invest supports the decarbonization of the energy matrix and the long-term sustainability of the sector.

(ME-16972-CR, Path to Decarbonization: Promoting a Hydrogen Economy in Costa Rica).

- 1.36 **Cooperation of MINENERGIA with other agencies.** To address its strategic guidelines, given that energy is a crosscutting element in the lives and activities of people, MINENERGIA (acting through its Foreign Affairs Office) actively cooperates with other public institutions to promote sustainable development in the energy sector with respect to environmental, economic, and social considerations and to fulfill its international commitments (for more details, see [optional link 2](#)).
- 1.37 **The Bank's strategy with 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 by adopting policy measures to regulate the energy market and improve competition in electricity services. The operation is included in the 2021 Operational Program Report (document GN-3034).
- 1.38 **Strategic alignment.** The operation is consistent with the Second Update to the Institutional Strategy 2020-2023 (document AB-3190-2) in terms of the development challenge of social inclusion and equality, by supporting the process of citizen participation in formulating policies to modernize the energy sector, and the development challenge of productivity and innovation, by supporting technological innovation based on electromobility and nonconventional renewable energy sources such as green hydrogen. The operation is aligned with the crosscutting themes of institutional capacity and rule of law, by enhancing the sector's regulatory framework to improve the electricity service's affordability, empower users to choose their own provider, increase competition in the sector, and support regulations to proceed with the electrification of residential heating; with climate change and environmental sustainability, by ensuring energy transition policy measures to reduce greenhouse gas emissions and decarbonize the sector; and with gender equality and diversity, by promoting the inclusion of more women in the sector's jobs and decision-making through measures such as a public-private action plan for job placement of women and the incorporation of gender criteria into MINENERGIA's competitive bidding processes (see [optional link 3](#)). The operation is also aligned with the Corporate Results Framework 2020-2023 (document GN-2727-12) through indicator 5, by increasing the "number of customers participating in residential energy conversions." Also, indicators 16 and 18, by increasing the "number of institutions joining the public-private plan to increase the workforce participation of women in the energy sector," and indicator 22, by increasing the "percentage share of renewable energy." In addition, the operation is consistent with the Energy Sector Framework Document (GN-2830-8) and the Climate Change Sector Framework Document (GN-2835-8) in the areas of sustainability and renewable energy, as well as with the IDB Infrastructure Strategy: Sustainable Infrastructure for Competitiveness and Inclusive Growth (GN-2710-5) and the IDB Integrated Strategy for Climate Change Adaptation and Mitigation, and Sustainable and Renewable Energy (GN-2609-1), by supporting the Chilean government in promoting policies to mitigate greenhouse gas emissions through the development of zero-carbon technologies and progress toward carbon neutrality. The operation is aligned with the priorities of the

Gender and Diversity Sector Framework Document (GN-2800-8) and the Gender Action Plan (GN-2531-19), which the Bank recently reviewed and updated.⁴⁴ [According to the joint methodology of the multilateral development banks for tracking climate change finance](#), 63.64% of program resources will be invested in climate change mitigation activities. These resources contribute to the IDB climate financing target of 30% of annual approvals.

- 1.39 **Consistency with the Bank's Public Utilities Policy.** The program is consistent with the objectives of the Public Utilities Policy (document GN-2716-6). It fulfills the principles of this policy with respect to financial sustainability, since policy measures enable more efficient costs, which are recovered through electricity rates; social sustainability, with more affordable electricity services and wider citizen participation by enabling the selection of service providers; and environmental sustainability, with the implementation of measures to decarbonize the electricity generation matrix. Likewise, to fulfill the conditions specifically established in the Public Utilities Policy (section IV of document GN-2716-6), for this policy-based operation, cost-benefit evaluations of the reforms were prepared, as well as an analysis of its financial sustainability (see [optional link 1](#)).

B. Objectives, components, and cost

- 1.40 **General objective.** The general objective of the 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.
- 1.41 **Component I: Macroeconomic stability.** This focuses on consistency within the macroeconomic environment by achieving program objectives established in the Policy Matrix and the sector Policy Letter.
- 1.42 **Component II: Citizen-centric modernization of the energy sector.** This component will support the adoption of policies intended as follows: (i) to improve regulation of the distribution market, enhance the rate-setting process, and establish regulatory standards to stabilize electricity prices for regulated customers; (ii) to improve competition in the electricity market by separating the distribution and marketing functions, while advancing digitalization of the sector by enabling portability for regulated users; (iii) to encourage citizen participation in the use of clean energies that displace fossil fuels and polluting energy sources (such as firewood for heating) through residential energy conversions; and (iv) to promote the inclusion of more women in the energy sector.
- 1.43 To improve regulation of the distribution market, the following activities are planned: (i) publication of a law to lower the earnings of distribution companies

⁴⁴ [Update to the Gender Action Plan for Operations 2020-2021.](#)

- from 10% to a market rate, within a range of between 6% and 8% (after taxes);⁴⁵ (ii) to improve the rate-setting process for electricity distribution so that the CNE is responsible for conducting rate studies (instead of companies and separating accounts associated with distribution, making the process more participatory and transparent); and (iii) to require concessionaire companies of the public service of distribution to have an exclusive line of business for electricity distribution (condition 2.1 of the Policy Matrix). The CNE will also launch the rate-setting process by commissioning a study to establish the 2020-2024 distribution value-added, to determine the pricing structure for distribution and with new rate options that recognize different user needs and their new relationship with energy, providing signals of efficiency and value for money (2.2 of the Policy Matrix). For the second operation in the programmatic series, there will be a single policy measure that provides continuity to these two measures, to draft a decree associated with the rate-setting process for the 2020-2024 distribution value-added, considering the new legal provisions (2.1.1 and 2.2.1 of the Policy Matrix).
- 1.44 To promote competition, improve service quality, and pass on to users the benefits of technology advances (including their digitalization), the plan is to present to the National Congress legislation on “electricity portability” that would propose the creation of the energy seller (separating the role of managing infrastructure from that of trading electricity), the information manager, and customer segments (2.3 of the Policy Matrix). With this new law, users would be expected to play a more active role in managing their electricity consumption by selecting their provider⁴⁶ and getting access to lower prices and better customer service, an option that is currently only available to large consumers. This law also modernizes supply tendering mechanisms, making them compatible with the energy sales activity and the information manager, and enables equitable access to information for users, ensuring data protection. For the second operation in the programmatic series, a policy measure is envisaged to publish regulatory standards for the portability of electricity (2.3.1 of the Policy Matrix).
- 1.45 To continue improving rate affordability for end users, the publication of legislation creating a transitional mechanism to stabilize electricity prices for customers subject to rate regulation is proposed as a policy measure (2.4 of the

⁴⁵ Pursuant to this law, the asset update rate is calculated following a methodology that considers current market conditions, with a minimum and maximum range instead of a fixed rate. The Capital Asset Pricing Model, which is used internationally to determine the compensation of electricity distribution companies, is utilized. Its applicability to Chile was evaluated with a study, Calculation methodology for the update rate for an efficient electricity distribution company. Source: [*Informe final. Metodología de cálculo para la tasa de actualización de una empresa eficiente de distribución eléctrica.*](#)

⁴⁶ This law will support the digitalization of the electricity service. It will enable consumers to select among various options for their supply through the information manager, who will ensure that all potential providers can securely access data regarding the energy consumption of users. This is key information for providers to design service options based on user needs. Users in turn will be able to select their electricity supply service from their computers or through mobile applications, which will be enabled by making information available to providers. Digitalization of the electricity service under this law will also facilitate progress for internet of things services inside households, with users able to choose their energy provider.

Policy Matrix). This mechanism will help prevent the increase that results from rising exchange rates,⁴⁷ thanks to the entry into effect, as of 2021, of new energy supply contracts with lower prices, mainly for renewable energy projects. Associated to this law, an exempt resolution will be published by the CNE that establishes the technical provisions to implement this transitional mechanism to stabilize electricity prices (2.5 of the Policy Matrix). For the second operation in the programmatic series, to complete the regulations to implement electricity price stabilization, there will be a single policy measure: to approve the decree to simplify implementation of the law and establish the average node price for 2020-2021 (2.4.1 and 2.5.1 of the Policy Matrix).

- 1.46 Concerning the increased use of clean, modern energy sources in households as a key part of the energy transition process, an exempt resolution will be published by the CNE establishing the conditions for preparing (2.6 of the Policy Matrix) and presenting (2.7 of the Policy Matrix) offers to supply increases in energy consumption for residential energy conversions.⁴⁸ Moreover, a residential energy transition strategy will be published on the MINENERGIA website in order to move toward a cleaner, safer, and more efficient⁴⁹ residential thermal matrix (2.8 of the Policy Matrix). This measure will enable heating sources other than firewood, such as district-based electricity and energy (district-based heating and cooling),⁵⁰ regulate the market of solid biofuels, and promote efficient equipment and buildings. For the second operation in the programmatic series, the following measures are planned, to address the deficit caused by eliminating firewood as an energy source for heating: (i) preparation of draft legislation on district-based energy for submittal to the Office of the Minister and Secretary-General of the Presidency (2.6.1 of the Policy Matrix); (ii) preparation of supporting documentation for the legislative work on the bill on solid biofuels to facilitate the residential energy transition (2.7.1 of the Policy Matrix); and (iii) initial preparation

⁴⁷ Pursuant to this law, the energy rate charged by distribution companies to regulated customers (households and small enterprises) will be set in Chilean pesos at the rate level as of May 2019 and will remain unchanged until year-end 2020. This will effectively establish rates for end users that are below the average of energy buying and selling contracts with generation companies. During that period, generating agents will receive lower payments and the resulting balances will be deferred, with users not having to pay interest. As of 2021 and until December 2027, the stabilized price will be adjusted according to Chile's inflation.

⁴⁸ "Residential energy conversion" is defined as the process in which electricity is used as the main supply source for heating systems instead of firewood.

⁴⁹ Therefore, during winter, Chile implemented an incentive for the electricity used for heating to be less expensive than for other types of consumption. The strategy also needs to be coordinated with other ministries for a fair transition, including job opportunities for those working in the firewood business. Specifically, the strategy is planned with a rationality based on incrementality, citizen participation processes, and support from the State. Therefore, the planned transition from the current situation is toward a market that includes fuels that meet certain characteristics to safeguard people's health and the environment.

⁵⁰ This corresponds to the distribution of thermal power through grids in multiple buildings of a district or city, to be used for purposes including heating, air-conditioning, and domestic hot water.

of the implementation proposal for residential energy transition in three selected comunas (2.8.1 of the Policy Matrix).⁵¹

- 1.47 Lastly, this component includes three conditions to close the gender gap and promote the inclusion of more women in the energy sector. They are: (i) publication on the MINENERGIA website of an action plan for 2019-2022⁵² for the progressive workforce participation and job placement of more women in the energy sector (2.9 of the Policy Matrix) (these measures will improve recruitment and selection systems for women and minimize barriers to entry in the lines of business, support, and the entire value chain of the energy industry, including educational and academic levels); (ii) inclusion, in the resolutions approving the administrative and technical conditions for competitive bidding to procure services, of technical evaluation criteria that promote gender equity in the energy sector through the inclusion of women in the teams providing these services (2.10 of the Policy Matrix); and (iii) incorporation, in the application form for organizations to the Regional Civil Society Council, of a gender parity requirement for the designation of representatives for the organizations that comprise the Regional Civil Society Council for purposes of achieving the participation of women on this advisory council (2.11 of the Policy Matrix). For the second operation in the programmatic series, the following gender measures are planned: (i) inclusion of a gender focus in the new people management policy (2.9.1 of the Policy Matrix); (ii) preparation of an analysis of wage gaps at MINENERGIA (2.9.2 of the Policy Matrix); (iii) continued inclusion of technical evaluation criteria that promote gender equity in competitive bidding in the energy sector, through the inclusion of women in the teams providing these services (2.10.1 of the Policy Matrix); and (iv) continued inclusion of selection criteria that promote gender parity in the makeup of the members of national and regional civil society councils (2.11.1 of the Policy Matrix).
- 1.48 **Component III: Support for decarbonization of the energy matrix.** This component will support the adoption of policies and measures intended as follows: (i) to make progress on Chile's Nationally Determined Contribution (NDC) and the mitigation target of the updated NDC; (ii) to establish an interministerial working group to generate proposed guidelines for a national policy on use of Article 6 of the Paris Agreement; (iii) to accelerate the retirement of coal-fired power plants through agreements with power generation companies; (iv) to promote the large-scale penetration of renewable sources into the energy matrix and make progress on the long-term expansion plan; and (v) to strengthen participation of the community and civil society by prioritizing equity and a fair transition.

⁵¹ The residential energy conversion will begin with a first phase that prioritizes the cities with the highest air pollution, starting with a pilot in three cities. Based on the pilots, a plan will be prepared for the remaining cities during the second half of 2021.

⁵² This action plan goes beyond the traditional action plan included in Bank operations where the sector ministry prepares a plan with specific actions. The proposed action plan, in addition to specific actions, includes a voluntary agreement between MINENERGIA and Chilean private energy companies, under which the latter commit to improving the hiring of women in their companies, leveling the wage gap between men and women, and offering leadership positions to women.

- 1.49 Under this component, a document on Carbon Neutrality in the Energy Sector⁵³ that includes the sector analysis conducted to determine the sector mitigation targets for Chile's NDC will be published on the MINENERGIA website (3.1 of the Policy Matrix). This document also includes methodology work and projections of energy consumption in Chile, as well as mitigation measures and analysis to enable the country to achieve carbon neutrality by 2050. For the second operation in the programmatic series, the plan is for MINENERGIA to prepare and publish a carbon neutrality plan (3.1.1 of the Policy Matrix).
- 1.50 This component also includes the participation of MINENERGIA in the creation of an interministerial working group to generate proposed guidelines for the national policy on use of Article 6 of the Paris Agreement (3.2 of the Policy Matrix). The purpose of this group will be to evaluate the ability of various public policies to reflect the social price of carbon. The Ministry of Foreign Affairs, the Ministry of Environment, and the Ministry of Finance will participate. For the second operation in the programmatic series, there are plans to prepare proposed guidelines for the national policy on use of carbon pricing instruments in the context of Chile's NDC (3.2.1 of the Policy Matrix).
- 1.51 As mentioned in the DIA 2020, support for decarbonization, in addition to an institutional commitment to achieve the NDC targets, also requires eliminating the technologies with the highest level of CO₂ emissions. The approval, by exempt decree, of agreements between the Government of Chile and five private power generation companies to retire coal-fired power plants, for the purpose of decarbonizing the electricity matrix, is expected (3.3 of the Policy Matrix). The process of retiring coal-fired power plants has started. During the first phase ending in 2024, 11 coal-fired power plants will be retired from the system. These account for 31% of the installed capacity for this type of power generation.⁵⁴ For the second operation in the programmatic series, this voluntary commitment to retire coal-fired power plants, as established in the schedule for the first phase by 2022, will be fulfilled (3.3.1 of the Policy Matrix).
- 1.52 In addition, to ensure that inequalities are not exacerbated by transformation of the energy matrix, MINENERGIA, through participatory workshops and a virtual seminar, is expected to initiate the preparation process for a strategy for a fair energy transition. This will include equitable social and environmental development, promoting job creation in the transition to carbon neutrality (3.4 of the Policy Matrix).⁵⁵ For the second operation in the programmatic series, the fair transition strategy will be published on MINENERGIA's website (3.4.1 of the Policy Matrix).
- 1.53 The electric power generated by these coal-fired power plants will be replaced mainly by plants generating energy from variable renewable sources. The power grid will require more flexibility to ensure its adequate operation and maintain a

⁵³ MINENERGIA. [Carbono Neutralidad en el Sector Energía. Proyección de Consumo Energético Nacional 2020.](#)

⁵⁴ MINENERGIA. [Plan de Retiro y/o reconversión de Unidades a Carbón.](#)

⁵⁵ MINENERGIA. [Estrategia de Transición Justa en Energía.](#)

balance between supply and demand.⁵⁶ Therefore, a flexibility strategy for the national electricity system will be published to the MINENERGIA website that will include: (i) market design measures to develop a flexible grid; (ii) a regulatory framework for storage systems and new flexible technologies; and (iii) flexible operation of the power grid (3.5 of the Policy Matrix). For the second operation in the programmatic series, policy measures will support implementation of this strategy: (i) launch of implementation of the flexibility strategy and public consultation processes on technical standards and regulations defined for the first year of strategy implementation (3.5.1 of the Policy Matrix); (ii) preparation of regulations on power and transmission planning (3.5.2 of the Policy Matrix); and (iii) monitoring of the complementary services market to identify improvements to the regulatory framework and/or implementation of the market (3.5.3 of the Policy Matrix).

- 1.54 Lastly, the final measure in this component will advance the expansion plan for long-term transmission works and consists in the publication of an exempt decree establishing the expansion works for the national and regional transmission grids corresponding to the expansion plan for 2019 (3.6 of the Policy Matrix). This planning plays a central role in optimizing the infrastructure works to expand the network under the new operational conditions, based on the retirement of coal-fired power plants and entry of more renewable energy sources. For the second operation in the programmatic series, an exempt decree will be published establishing the expansion works for the national and regional power transmission grids corresponding to the expansion plan for 2020 (3.6.1 of the Policy Matrix).
- 1.55 **Component IV. Innovation in new energy technologies.** This component will support the adoption of a regulatory framework and policies that promote innovative, pioneering technologies by: (i) promoting electromobility through an energy efficiency law; and (ii) enabling and facilitating the incorporation of new sources of renewable energy and energy vectors, such as green hydrogen, into the energy matrix.
- 1.56 Measures to proceed with preparation of an attractive, innovative regulatory framework to promote new technologies such as electromobility consist of: (i) publication of a new law on energy efficiency that establishes that MINENERGIA will regulate the interoperability of the charging system for electric vehicles and that includes the metric that will be used to define energy efficiency standards for the motorized vehicle fleet (4.1 of the Policy Matrix); (ii) publication of an exempt decree from the CNE that revises the technical standards for service quality in distribution grids that incorporate electric vehicle chargers into the distribution network (4.2 of the Policy Matrix); and (iii) publication of an exempt resolution from the SEC that establishes through regulatory technical specifications the requirements for the infrastructure to recharge electric vehicles (4.3 of the Policy Matrix). For the second operation in the programmatic series, there are plans for: (i) the preparation of regulations establishing the procedure for energy efficiency standards in vehicles (4.1.1 of the Policy Matrix);

⁵⁶ IDB. [*La Red del Futuro. Desarrollo de una Red Eléctrica Limpia y Sostenible para América Latina.*](#)

- (ii) issuance by MINENERGIA of a resolution establishing energy efficiency standards for light vehicles, as well as regulations for interoperability of the charging system for electric vehicles (4.1.2 of the Policy Matrix); and (iii) preparation by MINENERGIA of regulations governing the interoperability of the electric vehicle charging system (4.1.3 of the Policy Matrix). No additional policy actions are planned for the second operation in the programmatic series with respect to conditions 4.2 and 4.3, inasmuch as the required standards and specifications will have been prepared (4.2.1 and 4.3.1 of the Policy Matrix).
- 1.57 The final policy measure to foster innovative technologies is the publication on the MINENERGIA website of a proposal for the national strategy on green hydrogen, in order to promote its development and achieve the carbon neutrality target of Chile's NDC (4.4 of the Policy Matrix). This strategy supports Chile's objectives to produce the most competitive hydrogen in the world by 2030, turn the country into one of the top three exporters by 2040, and have 5 gigawatts of capacity for electrolysis in development by 2025.⁵⁷ For the second operation in the programmatic series, there are plans to continue developing standards for green hydrogen through the following policy measures: (i) launch of studies to support the development of hydrogen regulations for gas transmission networks and service stations in Chile (4.4.1 of the Policy Matrix); and (ii) initiation of the process to regulate the safety of green hydrogen in Chile (4.4.2 of the Policy Matrix).

C. Key results indicators

- 1.58 To measure the expected results from reform measures in the medium term, a Results Matrix was prepared jointly with MINENERGIA, indicating the program's expected outcomes and outputs. They are: (i) a reduction in CO₂-equivalent emissions factor per megawatt-hour for the national electricity system; (ii) an increase in competition in the electricity service (increase in model companies for distribution and increase in customers participating in residential energy conversions); (iii) an increase in the workforce participation of women in the energy sector; (iv) an increase in the share of renewable energy in the generation matrix; and (v) the introduction of innovative technologies in the energy sector.
- 1.59 **Beneficiaries.** The program will benefit the country's entire population with the delivery of a more sustainable, affordable, and clean electricity service.

II. FINANCING STRUCTURE AND MAIN RISKS

A. Financing instruments

- 2.1 This operation was designed as a programmatic policy-based loan. It is the first of two operations that are contractually independent but technically linked, each with a single disbursement. The operation's structure is consistent with the

⁵⁷ Chile held the first summit on green hydrogen in the Latin American and Caribbean region ([on 3 and 4 November 2020](#)). This included high-level talks to start developing a green hydrogen market, positioning Chile as a leading country in this area.

guidelines set forth in Policy-Based Loans: Guidelines for Preparation and Implementation (document CS-3633-2).

- 2.2 The policy-based loan instrument, with its programmatic modality, is ideal inasmuch as it: (i) promotes an ongoing policy dialogue with Chilean government authorities; (ii) facilitates monitoring; (iii) generates feedback for reforms based on findings from program execution (to consolidate progress in the second operation, which is scheduled to start in the fourth quarter of 2021); (iv) adapts to the country's changing circumstances; and (v) supports medium- and long-term reforms with the timeframes needed to implement these reforms. It also provides an opportunity to evaluate progress and make adjustments based on the knowledge acquired.
- 2.3 **Scale of the operation.** The financing for this first operation will be US\$50 million, drawn from the Bank's Ordinary Capital resources. Based on the provisions of paragraph 3.27(b) of Policy-Based Loans: Guidelines for Preparation and Implementation (document CS-3633-2), the amount is based on the country's broad fiscal resource needs. This amount accounts for 0.2% of the borrowing authorization consulted in the Public Sector Budget Act for 2021.

B. Environmental and social risks

- 2.4 Based on guideline B.13 of the Environment and Safeguards Compliance Policy (Operational Policy OP-703), this program does not require ex ante classification of impacts. The operation supports the development of policies, standards, management instruments, and other institutional strengthening actions. Therefore, no significant or direct 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 risks and key issues

- 2.6 **Sustainability.** The Chilean government has strongly supported the actions promoted by this programmatic series. No additional expenditures from the government are anticipated to fulfill these actions, underscoring its commitment to the country's fiscal stability. The sustainability of the reforms is based on three fundamental core tenets: (i) the commitment of the Government of Chile to sector reform as a "State policy," reflected in the 2018-2022 Energy Roadmap, update of the National Energy Policy, and voluntary agreements for carbon neutrality; (ii) the fulfillment of the reforms proposed for this first operation;⁵⁸ and (iii) the policy letter.

⁵⁸ Preparation of the second loan in the programmatic series is scheduled to start in the fourth quarter of 2021.

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 acting through the Ministry of Energy (MINENERGIA). MINENERGIA is responsible for: (i) promoting the achievement of policy objectives; (ii) providing evidence that the agreed-upon policy conditions have been met; and (iii) compiling and providing information with which the government and the Bank can measure and evaluate program results. MINENERGIA, through periodic meetings, analysis, and monitoring, will coordinate with the National Energy Commission (CNE) and the Superintendency of Electricity and Fuel (SEC) on the consolidation of sector reform, with the Ministry of Environment on issues involving decarbonization, and with the Ministry of Transportation on electromobility.⁵⁹
- 3.2 **Coordination mechanism.** MINENERGIA has a Foreign Affairs Office that coordinates with its internal divisions for all the areas included in this programmatic series, as well as with external agencies ([optional link 2](#)). It also works closely with the Budget Office of Chile. MINENERGIA will monitor the fulfillment of policy measures.
- 3.3 **Special contractual conditions precedent to the first and sole disbursement of the loan: The sole disbursement of the loan proceeds will be subject to fulfillment of policy reform conditions set forth in the Policy Matrix (Annex II) and any other conditions of the loan contract.**

B. Summary of arrangements for monitoring results

- 3.4 Program monitoring consists of verification of the agreed-upon policy measures as conditions for disbursement and described in the **Results Matrix** and the [means of verification matrix](#). Fulfillment of output indicators will be verified with the detailed information included in the means of verification matrix. This matrix contains all actions to be implemented under the program, the entities responsible for achieving them, and specific information to enable the Bank to verify their fulfillment. The outcomes of policy modifications will be monitored with the information submitted by MINENERGIA, as reported in the Results Matrix and the [monitoring and evaluation plan](#).
- 3.5 There will be a final evaluation as part of the project completion report that will be prepared for the two operations together, after the second operation is completed or, otherwise, 12 months after the disbursement for the first operation.

⁵⁹ MINENERGIA cooperates very closely with these agencies and ministries through sector committees and technical meetings. It has also demonstrated great capacity for interagency coordination in the areas of electromobility, decarbonization, progress with the NDC, and private companies in the energy sector.

IV. POLICY LETTER

- 4.1 The [policy letter](#) reiterates the commitment of the Government of Chile to the objectives and actions planned for this programmatic series and to consistency in policy measures for a fair, clean, and sustainable energy transition.

Development Effectiveness Matrix		
Summary		CH-L1159
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>-Targeted beneficiaries of public services that have been adapted for diverse groups (#)</div> <div>-Emissions avoided (annual tons CO2 equivalent)</div>	
2. Country Development Objectives		
Country Strategy Results Matrix		
Country Program Results Matrix	GN-3034	The intervention is included in the 2021 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		7.2
5.2 Evaluation Plan		1.7
III. Risks & Mitigation Monitoring Matrix		
Overall risks rate = magnitude of risks*likelihood		5.5
Environmental & social risk classification		Low
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 y CH-T1235

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 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.

Policy objectives / Components	Policy conditions	Status / Responsible party	Fulfillment status of policy conditions Programmatic loan I ¹	Policy actions Programmatic loan II
	Programmatic loan I			
I. Macroeconomic stability				
1. Macroeconomic stability	1.1 The macroeconomic environment is conducive to achieving program objectives and consistent with the policy letter.	IDB	Fulfilled	1.1.1 The macroeconomic environment is conducive to achieving program objectives and consistent with the policy letter.
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 A law has been published ² in the Official Gazette lowering the earnings of distribution companies, improving the rate-setting process for electricity distribution, and requiring concessionaire companies of the public service of distribution to have an exclusive line of business for electricity distribution.	MINENERGIA	Fulfilled (Q4 2019)	2.1.1 The Ministry of Energy has prepared a decree associated with the rate-setting process for the 2020-2024 distribution value-added, considering the new legal provisions.

¹ This information is solely of an indicative nature as of the date this document was prepared. Pursuant to document CS-3633-2 (Policy-Based Loans: Guidelines for Preparation and Implementation), the Bank will verify fulfillment of any specified disbursement conditions, including maintaining a suitable macroeconomic policy framework, when the borrower submits the applicable disbursement request. This will be reflected in a timely manner in the disbursement eligibility memorandum.

² In this Policy Matrix, the term “publish” or “publication” includes the stages of preparation, development, and, if applicable, approval and publication of the referenced policy measure.

Policy objectives / Components	Policy conditions	Status / Responsible party	Fulfillment status of policy conditions Programmatic loan I ¹	Policy actions Programmatic loan II
	Programmatic loan I			
	2.2 The National Energy Commission (CNE) has initiated the rate-setting process by commissioning a study to establish the 2020-2024 distribution value-added, to determine the pricing structure for distribution and with new rate options that recognize different user needs and their new relationship with energy.	MINENERGIA/CNE	Fulfilled (Q3 2020)	2.2.1 The Ministry of Energy has prepared a decree associated with the rate-setting process for the 2020-2024 distribution value added, considering the new legal provisions.
	2.3 Draft legislation has been submitted to the National Congress on the portability of electricity, proposing the creation of the energy seller, the information manager, and customer segments.	MINENERGIA	Fulfilled (Q3 2020)	2.3.1 Regulatory standards for the portability of electricity have been published in the Official Gazette.
	2.4 A law has been published in the Official Gazette creating a transitional mechanism to stabilize electricity prices for customers subject to rate regulation.	MINENERGIA	Fulfilled (Q4 2019)	2.4.1 The Ministry of Energy has approved the decree to simplify the implementation process for Law 21185 and establish the average node price for 2020-2021.
	2.5 An exempt resolution from the CNE has been published in the Official Gazette establishing the technical provisions to implement a transitional mechanism to stabilize electricity prices.	MINENERGIA/CNE	Fulfilled (Q1 2020)	2.5.1 The Ministry of Energy has approved the decree to simplify the implementation process for Law 21185 and establish the average node price for 2020-2021.

Policy objectives / Components	Policy conditions	Status / Responsible party	Fulfillment status of policy conditions Programmatic loan I ¹	Policy actions Programmatic loan II
	Programmatic loan I			
	2.6 An exempt resolution from the CNE has been published in the Official Gazette establishing the conditions to prepare offers to supply increases in energy consumption, for residential energy conversions.	MINENERGIA/CNE	Fulfilled (Q3 2020)	2.6.1 The Ministry of Energy has prepared draft legislation on district-based energy and submitted it to the Office of the Minister and Secretary-General of the Presidency.
	2.7 An exempt resolution from the CNE has been published in the Official Gazette establishing the conditions to present offers to supply increases in energy consumption, for residential energy conversions.	MINENERGIA/CNE	Fulfilled (Q3 2020)	2.7.1 The Ministry of Energy has prepared supporting documentation for the legislative work on the bill on solid biofuels to facilitate the residential energy transition.
	2.8 The Ministry of Energy has published on its website a residential energy transition strategy in order to move toward a cleaner, safer, and more efficient residential thermal matrix.	MINENERGIA	Fulfilled (Q3 2020)	2.8.1 The Ministry of Energy has initiated preparation of the implementation proposal for residential energy transition in three selected comunas.
	2.9 The Ministry of Energy has published on its website an action plan for 2019-2022 for the progressive workforce participation and job placement of more women in the energy sector.	MINENERGIA	Fulfilled (Q1 2020)	2.9.1 The Ministry of Energy has included a gender focus in the new people management policy. 2.9.2 The Ministry of Energy has prepared an analysis of the Ministry of Energy's wage gaps.
	2.10 The Ministry of Energy has included, in the resolutions approving the administrative and technical conditions for competitive bidding to procure services, technical evaluation criteria that promote gender	MINENERGIA	Fulfilled (Q4 2020)	2.10.1 The Ministry of Energy continues to include, in the administrative and technical bases approved for competitive bidding to procure services, technical evaluation criteria that promote gender equity in the energy sector, through the

Policy objectives / Components	Policy conditions	Status / Responsible party	Fulfillment status of policy conditions Programmatic loan I ¹	Policy actions Programmatic loan II
	Programmatic loan I			
	equity in the energy sector through the inclusion of women in the teams providing these services.			inclusion of women in the teams providing these services.
	2.11 The Ministry of Energy has included, in the application form for organizations to join the Regional Civil Society Council, a gender parity requirement for the designation of representatives for the organizations that comprise the Regional Civil Society Council for purposes of achieving the participation of women on this advisory council.	MINENERGIA	Fulfilled (Q4 2020)	2.11.1 The Ministry of Energy continues to include selection criteria that promote gender parity in the makeup of its National Civil Society Council and its Regional Civil Society Councils, for purposes of achieving the participation of women on these advisory councils.
III. Support for decarbonization of the energy matrix				
3. To support policy reforms aimed at accelerating decarbonization of the energy matrix.	3.1 The Ministry of Energy has published on its website a document on Carbon Neutrality in the Energy Sector that includes the sector analysis conducted to determine the sector mitigation targets for Chile's Nationally Determined Contribution (NDC).	MINENERGIA	Fulfilled (Q4 2020)	3.1.1 The Ministry of Energy has published on its website a carbon neutrality plan.
	3.2 The Ministry of Energy has participated in the creation of an interministerial working group to prepare proposed guidelines for the national policy on use of Article 6 of the Paris Agreement.	MINENERGIA	Fulfilled (Q3 2020)	3.2.1 The Ministry of Energy has prepared proposed guidelines for the national policy on the use of carbon pricing instruments in the context of Chile's NDC.

Policy objectives / Components	Policy conditions	Status / Responsible party	Fulfillment status of policy conditions Programmatic loan I ¹	Policy actions Programmatic loan II
	Programmatic loan I			
	3.3 The Ministry of Energy has approved, through an exempt decree, agreements between the government and five private power generation companies to retire coal-fired power plants, for the purpose of decarbonizing the electricity matrix.	MINENERGIA	Fulfilled (Q1 2020)	3.3.1 The voluntary commitment to retire coal-power plants, as established in the schedule for the first phase by 2022, has been fulfilled.
	3.4 The Ministry of Energy has initiated, through participatory workshops and a virtual seminar, the preparation process for a strategy for a fair energy transition, including equitable social and environmental development and promoting job creation in the transition to carbon neutrality.	MINENERGIA	Fulfilled (Q2 2020)	3.4.1 The Ministry of Energy has published on its website the strategy for a fair energy transition.
	3.5 The Ministry of Energy has published on its website the flexibility strategy for the national electricity system, including: (i) market design measures to develop a flexible grid; (ii) a regulatory framework for storage systems and new flexible technologies; and (iii) flexible operation of the power grid.	MINENERGIA	Fulfilled (Q3 2020)	3.5.1 The Ministry of Energy has launched implementation of the flexibility strategy and public consultation processes on technical standards and regulations defined for the first year of strategy implementation. 3.5.2 The Ministry of Energy has prepared regulations on power and transmission planning. 3.5.3 The Ministry of Energy has monitored the complementary services market to identify improvements to the regulatory framework and/or implementation of the market.

Policy objectives / Components	Policy conditions	Status / Responsible party	Fulfillment status of policy conditions Programmatic loan I ¹	Policy actions Programmatic loan II
	Programmatic loan I			
	3.6 An exempt decree from MINENERGIA has been published in the Official Gazette establishing the expansion works for the national and regional transmission grids corresponding to the expansion plan for 2019.	MINENERGIA	Fulfilled (Q3 2020)	3.6.1 An exempt decree from MINENERGIA has been published in the Official Gazette establishing the expansion works for the national and regional transmission grids corresponding to the expansion plan for 2020.
IV. Innovation in new energy technologies				
4. To enable and promote technological innovation in the energy sector.	4.1 A law on energy efficiency has been published in the Official Gazette. This law: (i) establishes that the Ministry of Energy will regulate the interoperability of the charging system for electric vehicles; and (ii) includes the metrics that will be used to define energy efficiency standards for the motorized vehicle fleet.	MINENERGIA	Fulfilled (Q1 2021)	4.1.1 The Ministry of Energy has prepared regulations establishing the procedure for energy efficiency standards in vehicles. 4.1.2 The Ministry of Energy has issued the resolution establishing the energy efficiency standards for light vehicles. 4.1.3 The Ministry of Energy has prepared regulations for the interoperability of the charging system for electric vehicles.
	4.2 An exempt resolution from the CNE has been published in the Official Gazette revising the technical standards for service quality in distribution grids that incorporate electric vehicle chargers into the distribution network.	MINENERGIA/CNE	Fulfilled (Q4 2019)	4.2.1 No policy action is anticipated.

Policy objectives / Components	Policy conditions	Status / Responsible party	Fulfillment status of policy conditions Programmatic loan I ¹	Policy actions Programmatic loan II
	Programmatic loan I			
	4.3 An exempt resolution from the Superintendency of Electricity and Fuel (SEC) has been published in the Official Gazette establishing through regulatory technical specifications the requirements for the infrastructure to recharge electric vehicles.	MINENERGIA/SEC	Fulfilled (Q4 2020)	4.3.1 No policy action is anticipated.
	4.4 The Ministry of Energy has published on its website a proposal for a national strategy on green hydrogen to promote its development and help achieve the carbon neutrality target of Chile's NDC.	MINENERGIA	Fulfilled (Q4 2020)	<p>4.4.1 The Ministry of Energy has launched studies to support the development of hydrogen regulations for gas transmission networks and service stations in Chile.</p> <p>4.4.2 The Ministry of Energy has initiated the process to regulate the safety of green hydrogen in Chile.</p>

RESULTS MATRIX

Program 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 value	Baseline year	Target	Expected year achieved	Means of verification	Comments
General development objective: To support a fair, clean, and sustainable energy transition in Chile							
Carbon dioxide (CO ₂) equivalent emissions factor per megawatt-hour for the national electricity system	Ton of CO ₂ -equivalent per megawatt-hour	0.4187	2018	0.40	2022*	National Energy Commission (CNE) / Division of Studies and Policies of the Ministry of Energy (MINENERGIA)	

SPECIFIC DEVELOPMENT OBJECTIVES

Indicators	Unit of measure	Baseline value	Baseline year	End of operation target	End of operation 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 defining a model company for distribution	Number	6	2018	12	2022	CNE rate studies / MINENERGIA Division of Electricity Markets	
Number of customers participating in the residential energy conversion for the first phase	Number	0	2018	5,000	2022	Superintendency of Electricity and Fuel (SEC) / Division of Electricity Markets	
Number of institutions joining the public-private plan to increase the workforce participation of women in the energy sector	Number	0	2018	64	2022	Public-Private Action Plan "Energy + Women" 2019-2022	

Indicators	Unit of measure	Baseline value	Baseline year	End of operation target	End of operation year	Means of verification	Comments
Specific development objective 2: To support policy reforms aimed at accelerating decarbonization of the energy matrix							
Percentage share of nonconventional renewable energy in electricity generation	%	18	2018	21	2022	CNE/Division of Electricity Markets	
Percentage share of renewable energy in electricity generation	%	44	2018	45	2022*	CNE/Division of Electricity Markets	
Percentage share of installed capacity from coal-power plants ¹	%	18	2018	16	2022	CNE/Division of Electricity Markets	For this calculation, generating units that are in the Strategic Reserve will not be considered. ¹
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	Exempt resolutions from the SEC	
Existence of the national strategy on green hydrogen	National strategy on hydrogen	0	2018	1	2022	Enacted national strategy on hydrogen	

* The average for 2021-2022 will be used to calculate the target for this indicator for the operation's last year.

OUTPUTS²

Indicators	Unit of measure	Baseline value	Baseline year	2021	2022	End of first operation 2021	Means of verification	Comments
Component II. Citizen-centric modernization of the energy sector								
2.1 Law to lower the earnings of distribution companies	Law	0	2018	1	-	1	Law 21194	
2.2 Resolution to initiate the rate-setting process	Resolution	0	2018	1	-	1	Resolution 3 from the CNE	
2.3 Legislation on the portability of electricity	Draft legislation	0	2018	1	-	1	Presentation to the National Congress of draft legislation on the portability of electricity, through Message 156-368	
2.4 Law creating a transitional mechanism to stabilize electricity prices for customers subject to rate regulation	Law	0	2018	1	-	1	Law 21185 https://www.diariooficial.interior.gob.cl/publicaciones/2019/11/02/42492/01/1677081.pdf	
2.5 Exempt resolution from the CNE, establishing the technical provisions to implement the transitional mechanism to stabilize electricity prices	Exempt resolution	0	2018	1	-	1	Exempt resolutions 72/2020 and 340/2020	
2.6 Exempt resolution from the CNE, establishing the conditions for preparing bids needed to respond to increased energy consumption, in order to perform residential energy conversions	Exempt resolution	0	2018	1	-	1	Exempt resolution 238/2020	
2.7 Exempt resolution from the CNE, establishing the conditions for submitting bids needed to respond to increased energy consumption, in order to perform residential energy	Exempt resolution	0	2018	1	-	1	Exempt resolution 255/2020	

² See details on the indicators and means of verification (with electronic links) for outputs in the [means of verification matrix](#).

Indicators	Unit of measure	Baseline value	Baseline year	2021	2022	End of first operation 2021	Means of verification	Comments
conversions								
2.8 Residential energy transition strategy	Strategy	0	2018	1	-	1	Residential energy transition strategy	
2.9 Action plan 2019-2022 for the progressive workforce participation and job placement of more women in the energy sector	Action plan	0	2018	1	.	1	Public-Private Action Plan "Energy + Women" 2019-2022	
2.10 Resolutions incorporating technical evaluation criteria that promote gender equity	Resolutions	0	2018	4	-	4	Four resolutions	
2.11 Application form for organizations to join the Regional Civil Society Council includes a gender parity requirement	Form	0	2018	1	-	1	Application form	
Component III. Support for decarbonization of the energy matrix								
3.1 Document on carbon for the Nationally Determined Contribution (NDC) of Chile	Document	0	2018	1	-	1	Document on Carbon Neutrality in the Energy Sector	
3.2 Work plan of the interministerial group	Work plan	0	2018	1	-	1	Work plan of the interministerial group	
3.3 Exempt decree to retire coal-power plants	Exempt decree	0	2018	1	-	1	Exempt decree 50	
3.4 Initiation of the process to prepare a strategy for a fair transition	Workshop/ Seminar	0	2018	2	-	2	Participatory workshops and virtual seminar	
3.5 Flexibility strategy for the national electricity system	Strategy	0	2018	1	-	1	Flexibility strategy	
3.6 Exempt decree from MINENERGIA to establish the expansion works for the transmission grids	Exempt decree	0	2018	2	-	2	Exempt decrees 171 and 185	
Component IV. Innovation in new energy technologies								
4.1 Law on energy efficiency establishing that MINENERGIA will regulate the interoperability of the charging system for electric vehicles	Law	0	2018	1	-	1	Law 21305	

Indicators	Unit of measure	Baseline value	Baseline year	2021	2022	End of first operation 2021	Means of verification	Comments
4.2 Exempt resolution from the CNE revising the technical standards for service quality for distribution systems	Exempt resolution and technical standards	0	2018	2	-	2	Exempt resolution 763/2019 Service quality technical standards for distribution grids	
4.3 Exempt resolution from the SEC, establishing through technical specifications the requirements for the infrastructure to recharge electric vehicles	Exempt resolution	0	2018	1	-	1	Exempt resolution 33374 and technical requirement specifications RIC 15	
4.4 Proposal for national strategy on green hydrogen	Strategy proposal	0	2018	1	-	1	Proposal for strategy on green hydrogen	

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

PROPOSED RESOLUTION DE-___/21

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

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 a Fair, Clean, and Sustainable Energy Transition. Such financing will be for an amount of up to US\$50,000,000 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 ____ 2021)