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DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

CHILE

SUSTAINABLE ENERGY PROGRAM

(CH-L1136)

LOAN PROPOSAL

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CONTENTS

APPENDIXES

ANNEXES	
Annex I	Summary Development Effectiveness Matrix (DEM)
Annex II	Policy Matrix

ELECTRONIC LINKS

REQUIRED

1. Policy Letter
2. Means of Verification Matrix
3. Results Matrix

OPTIONAL

1. Economic analysis of the project
2. Institutional capacity assessment
3. Analysis of compliance with the Public Utilities Policy
4. Regional integration analysis
5. Energy agenda
6. Monitoring and evaluation plan
7. Chile's Intended Nationally Determined Contribution (INDC) for the 2015 Paris Climate Agreement
8. Paris Agreement

ABBREVIATIONS

AChEE	Agencia Chilena de Eficiencia Energética [Chilean Energy Efficiency Agency]
CNE	Comisión Nacional de Energía [National Energy Commission]
DFL	Decreto con Fuerza de Ley [Decree with Force of Law]
ENAP	Empresa Nacional del Petróleo [National Oil Company]
GHG	Greenhouse gas(es)
INDC	Intended Nationally Determined Contribution
LIBOR	London Interbank Offered Rate
MERIC	Marine Energy Research and Innovation Center
MINENERGIA	Ministry of Energy
MW	Megawatts
NCRE	Nonconventional renewable energies
PBL	Policy-based loan
SE4All	Sustainable Energy for All
SIC	Sistema Interconectado Central [Central Interconnected Grid System]
SINEA	Sistema Interconectado Eléctrico Andino [Andean Interconnected Electric Power Grid System]
SING	Sistema Interconectado del Norte Grande [Far North Interconnected Grid System]

PROJECT SUMMARY

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<table>
<tr><th colspan="5">Financial Terms and Conditions</th></tr>
<tr><td colspan="3" rowspan="2">Borrower: Republic of Chile</td><td colspan="2">Flexible Financing Facility[a]</td></tr>
<tr><td>Amortization period:</td><td>Bullet payment at 12 years</td></tr>
<tr><td colspan="3" rowspan="2">Executing agency: Ministry of Energy</td><td>Original weighted average life:</td><td>12 years</td></tr>
<tr><td>Disbursement period:</td><td>2 years</td></tr>
<tr><td>Source</td><td>Amount</td><td>%</td><td>Grace period:</td><td>Bullet payment at 12 years</td></tr>
<tr><td>IDB (Ordinary Capital):</td><td>US$100 million</td><td>100</td><td>Inspection and supervision fee:</td><td>[b]</td></tr>
<tr><td></td><td></td><td></td><td>Interest rate:</td><td>LIBOR-based</td></tr>
<tr><td>Total:</td><td>US$100 million</td><td>100</td><td>Credit fee:</td><td>[b]</td></tr>
<tr><td></td><td></td><td></td><td>Currency of approval:</td><td>U.S. dollars from the Ordinary Capital</td></tr>
<tr><th colspan="5">Project at a glance</th></tr>
<tr><td colspan="5">Project objective/description: The program’s general objective is to contribute to the sustainability of Chile’s energy sector through a process of policy reforms in the sector that include technical, economic, social, and environmental aspects and take account of both national and regional needs and interests. The specific objectives are to: (i) develop a long-term energy policy validated by society that helps to make the energy market more competitive and efficient, and build the sector’s institutional capacity; (ii) promote diversification and increase the share of renewable energy sources in the energy matrix; (iii) foster efficient energy use; and (iv) increase international energy trading and transfers.</td></tr>
<tr><td colspan="5">Special contractual conditions precedent to the loan disbursements: This operation will be financed by a multitranche policy-based loan, in two consecutive tranches of US$50 million each. The disbursement of the funds in each tranche will be contingent on fulfillment of the policy reform measures described in the program’s components and in the Policy Matrix (Annex II), and any other conditions specified in the loan contract (paragraph 3.3).</td></tr>
<tr><td colspan="5">Exceptions to Bank policies: None.</td></tr>
<tr><th colspan="5">Strategic Alignment</th></tr>
<tr><td>Challenges:[c]</td><td colspan="2">SI ☐</td><td colspan="2">PI ☑ EI ☑</td></tr>
<tr><td>Crosscutting issues:[d]</td><td colspan="2">GD ☐</td><td colspan="2">CC ☑ IC ☑</td></tr>
</table>

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

[b] 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 corresponding policies.

[c] SI (Social inclusion and equality); PI (Productivity and innovation); and EI (Economic integration).

[d] GD (Gender equality and diversity); CC (Climate change and environmental sustainability); and IC (Institutional capacity and the rule of law).

I. DESCRIPTION AND RESULTS MONITORING

A. Background, problem addressed, and rationale

1.1 **Macroeconomic situation.** In 2013, Chile attained a per capita income of US$15,800 per year, one of the highest in Latin America. Economic growth averaged 5.3% per year between 2010 and 2013, while the unemployment rate dropped to a historical low of 5.9% in the latter year, and inflation was held around its annual target of 3%, within a sound institutional, policy, and macroeconomic framework. Since then, in a less favorable international context and with copper prices well below the average of the last decade, the pace of economic growth has slackened, and gross domestic product (GDP) grew by about 2% in 2014 and 2015.

1.2 This, together with an increase in spending commitments for structural reforms, such as those in the education sector, has reduced Chile's fiscal space. Specifically, in 2015 the structural fiscal deficit was around 1.6% of GDP; and the gross debt/GDP ratio rose to 17.7%.

1.3 Chile is thus in a phase of its development, marked by a slowdown in growth and the lack of a sustained increase in productivity. The energy sector, and particularly the electric power subsector, has become a critical factor for the country's economic and social development (paragraph 1.14). This sector needs to overcome multiple challenges to attain an energy matrix with market prices that is reliable, sustainable, diversified, and balanced.

1.4 **The energy sector.** In 2014, Chile's energy supply amounted to 318,976 teracalories (TCal), of which about 62% were imported, mainly in the form of liquid fossil fuels, coal and natural gas.[1] In that year, the main energy consuming sectors were power generation (48.8%) and transportation (30.1%). In 2015, the energy mix was 70% fossil fuels and 30% renewables.[2]

1.5 In the electric power subsector, installed generating capacity totaled 19,470 MW, distributed mainly between the two large power grid systems, the Far North Interconnected Grid System (SING) and the Central Interconnected Grid System (SIC). The SING has 28.06% of the country's installed capacity and covers the territory between the cities of Arica and Antofagasta, where mining activities consume large amounts of energy. The SIC accounts for 71.03% of installed capacity and spans the area between Taltal and Chiloé, where over 90% of the country's population lives.

1.6 Chile has two terminals for the importation, regasification and storage of liquefied natural gas (LNG), which supply natural gas to thermal power generators and to the network. In 2015, the maximum electricity demand per hour amounted to 2,290 MW in the SING and 7,577 MW in the SIC, with average growth rates over the last 10 years of 2.8% and 3.9%, respectively. The average market price of electricity in that year was US$100/MWh in the SING and US$110/MWh in the SIC.[3]

1.7 **Energy sector institutions.** The institutional framework governing the sector is comprised of the following key actors: (i) the Ministry of Energy (MINENERGIA),

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1 Crude oil 30.8%, coal 18.6%, and natural gas 10%. National Energy Balance Sheet.

2 Includes hydro, wind, solar, biogas, and biomass energy.

3 Anuario Estadístico de Energía 2005-2015, CNE.

which issues the sector's policies and grants concessions for electric power generation, transmission, and distribution; (ii) the National Energy Commission (CNE), the public technical body that regulates the sector; (iii) the Office of the Superintendent of Electricity and Fuel, which oversees compliance with the laws and regulations governing the entire chain of production, distribution, and marketing of hydrocarbons and electricity; (iv) economic load dispatch centers; (v) the Chilean Energy Efficiency Agency (AChEE), a private nonprofit foundation that promotes efficient energy use; and (vi) national centers that promote the development of nonconventional renewable energies (NCREs). Chile was one of the first countries in the region to transform the electricity subsector through the Electric Power Development Policy, transitioning from an integrated state structure at the start of the 1980s to a competitive market one with vertical separation of activities (generation, transmission, and distribution) which ended up almost entirely in private hands. The hydrocarbon subsector includes the National Oil Company (ENAP), a State-owned enterprise that exists to explore, produce, and sell hydrocarbons and their derivatives.

1.8 **Regulatory framework of the energy sector.** In the context of electricity subsector restructuring, the private firms have become the main decision-makers on investment needs, mainly for power generation, according to demand and the unfettered behavior of the market. At the present time, Chile's electricity subsector is governed by the Fourth General Law on Electrical Services, of 13 September 1982, which defines provisions for concessions and permits, the transportation of electric energy, the operation of electricity services, and supply and rates. This law has been amended[4] to include, among other things, the provisions of "Short Law" I (Law 19,940 of 13 March 2004), Short Law II (Law 20,018 of 19 May 2005) and the NCRE Law[5] (Law 20,257 of 31 April 2008). The NCRE Law introduces amendments requiring power generators to show that at least 5% of their energy injections are sourced from nonconventional renewables.[6] Short Law I regulates decision-making and development of the expansion of electric power transmission; and it provides incentives for nonconventional and small-scale power generating projects; whereas Short Law II aims to encourage investments in the generating segment through supply tenders held by the distribution companies. Law 19,657 of 7 January 2000, on geothermal energy concessions, regulates the granting of concessions and tenders for the exploration or operation of geothermal energy and rights of way, the functions of the State and safety conditions. It also sets the framework for relations between concession holders, the State, the owners of the land over which power lines pass, the holders of mining permits, the parties to oil operating contracts or hydrocarbon exploration and exploitation companies, and the holders of water rights.

1.9 In the hydrocarbons subsector, national legislation allows for fuels to be imported and sold provided the required quality and safety standards are met. Fuel prices are regulated by the market through the marketing chain (importers, producers,

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4 The latest version of the General Electricity Services Law is dated 7 February 2014.

5 In Chile, NCRE sources are defined as wind, small-scale hydro plants (power generation plants of up to 20 MW) biomass, biogas, geothermal, solar, and marine energy http://www.energia.gob.cl/energias-renovables.

6 The requirement was 5% for 2010-2014, rising by 0.5% per year starting in 2015, to reach a level of 10% in 2024.

transportation, wholesale distributors, gas stations) and not by the State. The latter's only influence on the price of fuels sold to the public is through the corresponding stabilization mechanisms. The regulatory framework is based on quality specifications and standards on the sale of fuel,[7] specifically Decree with Force of Law (DFL) 1 (1978) and Decree 132 (1979), which define the products classified as fuels that can be sold, and their quality specifications; and DFL 323 (1931) which regulates natural gas transportation, distribution, and concessions.

1.10 **Paris Agreement.** At the Conference of the Parties to the United Nations Framework Convention on Climate Change, held in Paris in December 2015, the international community agreed on[8] the goals of: (i) holding the increase in the global average temperature to below 2°C above preindustrial levels (Article 2.1 a); (ii) achieving a level of zero net emissions of greenhouse gases (GHG) in the second half of the 21st century (Article 4.1), which will entail a rapid reduction in the use of fossil fuels; and (iii) enhancing adaptative capacity, strengthening resilience, and reducing vulnerability to climate change (Article 7.1).

1.11 Through Chile's Intended Nationally Determined Contribution (INDC) for the 2015 Paris Climate Agreement, the Chilean government confirmed its aim to reduce poverty, reduce inequity and continue progressing towards sustainable, competitive, inclusive, resilient, low-carbon development. Through the INDC, Chile undertakes to reduce its GHG emissions per unit of GDP by 30% by 2030, compared to the level in 2007 (a more ambitious commitment depends on the availability of international monetary contributions). The energy sector is one of those prioritized to undertake mitigation actions.

1.12 **Sector challenges.** At the global level, different organizations recognize the importance of the link between energy and sustainable economic and social development. The World Energy Council argues that energy sustainability seeks a balance between three dimensions: the development of stable, affordable, and environmentally friendly energy; and the United Nations General Assembly, unanimously recognizing that "[s]ustainable energy is the golden thread that connects economic growth, increased social equity and an environment that allows the world to thrive," declared 2014-2024 the United Nations Decade of Sustainable Energy for All.[9]

1.13 Over the last few decades, as the transmission system of the electricity subsector does not foster competition,[10] private companies have made a significant contribution to determining the investments made in power generation.[11] The market has thus become one of the main factors determining the composition of the energy

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7 These specifications have been amended both in other regulations and through the National Standardization Institute. The regulations that currently govern fuel quality specifications in the case of the Metropolitan Region are stipulated in the Air Pollution Prevention and Decontamination Plan, corresponding to Supreme Decree 66 of 2010. For the rest of the country, the official regulation on fuels is contained in Supreme Decree 60 of 17 March 2012, recently amended by Supreme Decrees 48 and 76 of 16 May and 1 September 2012, respectively.

8 Paris Agreement.

9 Sustainable Energy for All (SE4ALL) http://www.se4all.org/.

10 Latin American Competition Forum.

11 Of total nonconventional renewable energy projects reported as under construction in the last 10 years, 65% were reported between 2014 and 2015. Anuario Estadístico de Energía, 2005-2015, CNE.

mix and electricity prices. This has turned Chile's electricity subsector into one of the determining factors in achieving environmental sustainability and in the economic and social development of the country.[12]

1.14 The manufacturing and mining sectors[13] account for 24% and 36%[14] of energy demand respectively. Mining generates an average of 57% of the nation's exports, almost entirely copper. In recent years, the competitiveness of these sectors has been eroded by high electricity prices,[15] resulting from the country's vulnerability to unstable and volatile energy input prices on international markets; and this has been compounded by supply constraints caused by institutional, climatic, or market factors.[16] Over the last decade, the price of electricity supplied to regulated customers[17] has almost doubled, from an average of US$65/MWh in 2006 to US$128/MWh in 2013. In that year the prices for unregulated or industrial customers averaged US$112/MWh in the SIC and US$108/MWh in the SING.[18]

1.15 Hydroelectric plants are highly vulnerable to climate change. A study by the Economic Commission for Latin America and the Caribbean[19] forecasts a reduction in average power generation of 8% to 27% in the medium and long terms, together with greater year-on-year variability; and it is likely that the recent water shortage is partly due to climate change.[20]

1.16 In the case of natural gas, the free market regime for imports and sale presents major challenges (paragraph 1.9). This creates the need for legislative reforms that promote increased private sector participation and competition in the gas market, stabilize gas prices, and establish independent technical bodies for settling pricing disputes, among other reforms.

1.17 Greenhouse gas emissions caused by the use of fossil fuels have risen in recent years, contributing to global climate change. In 2013, CO_2 emissions caused by fuel use amounted to 82 million tons, and total emissions were 4.65 t CO_2 per capita.[21]

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12 Energy Agenda.

13 Electric power accounts for about 20% of mining company operating costs. Mining Council. Electricity supply costs in Peru, Chile's main competitor in the region in the mining sector, were about US$70/MWh in 2015. The global average was between US$80/MWh and US$85/MWh.

14 www.energiaabierta.cne.cl.

15 Energy Agenda.

16 The sector has recently been affected by restrictions on natural gas imports, periods of severe drought, difficulties in obtaining environmental permits, increasing carbonization of power generation facilities, insufficient entry and implementation of power generation and transmission projects, and limited competition in the generating segment.

17 Households, commerce, and small businesses.

18 The average price of electricity supply in Latin America was US$53/MWh in 2014 (http://global-climatescope.org/en/region/lac/.).

19 Análisis de la vulnerabilidad del sector hidroeléctrico frente a escenarios futuros de cambio climático en Chile.

20 According to the General Water Directorate, the level of water stored in five large power generation reservoirs in May 2015 was 58% of the historical annual average for that month. Bulletin 445 of May 2015. Información Pluviométrica, Fluviométrica, Estado de Embalses y Aguas Subterráneas. General Water Directorate.

21 International Energy Agency, http://www.iea.org/statistics.

1.18 The use of firewood and other solid biomass fuels for heating and cooking in the residential sector, representing 23% of total energy supply, has a significant impact on air pollution locally. In 2013, the 24-hour and annual air quality standards for particulate matter concentrations in the Santiago Metropolitan Region were surpassed by 23% and 33.3%, respectively.[22]

1.19 Regarding regional energy integration, the country still faces major challenges,[23] including the need to: (i) secure the physical connectivity of the country's two major electricity systems—the SIC and the SING—which will make it possible to not only transfer electricity domestically, but also internationally; (ii) develop a legal and regulatory framework to promote energy trading and transactions with neighboring countries (for example, in the framework of the Andean Interconnected Electric Power Grid System—SINEA); and (iii) improve the infrastructure and operations of natural gas and electricity transportation systems, to promote regional markets.

1.20 That situation, compounded by the lack of sufficient national institutions for research into, and promotion of, nonconventional renewable energies, and subnational entities responsible for the planning, monitoring, regulation, and development of the sector, makes it clear that the country needs to: (i) develop a long-term energy policy that is widely discussed and agreed upon with citizens at large, and is inclusive, considers regional needs, and is environmentally friendly; (ii) diversify the energy matrix by promoting competition, the development of renewable energy projects, and regional integration to reduce electricity prices, reliance on imported fossil fuels, and GHG emissions; (iii) use energy more efficiently to reduce its consumption;[24] and (iv) strengthen the institutional framework and create sector capacities.

1.21 **The government's strategy in response to the challenges.** In May 2014, the government announced its Energy Agenda, which, through a policy reform process, targets reliable, sustainable, and inclusive energy development at market prices in the short, medium, and long terms.[25] The agenda is based on the following seven pillars: (i) a new role for the State in the energy sector; (ii) reduction of energy prices with greater competition, efficiency and diversification in the energy market;[26] (iii) development of own energy resources; (iv) connectivity for energy development; (v) an energy sector that is efficient and manages consumption; (vi) promotion of

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22 Environment, Annual Report 2014. National Institute of Statistics of Chile http://www.ine.cl/canales.

23 For example: there were no international electricity transactions in 2014 and, for natural gas, trading of this fuel from Argentina to Chile surpassed 20 million m^3 per day, until its gradual decline, which began in 2004 and was near complete starting in 2007. Energy agenda.

24 For example: in the public sector, the health sector represents 15% of total electricity consumption nationwide, and electricity costs in a hospital represent over 40% of energy costs. Street lighting represents between 60% and 70% of total electricity expenditure at the municipal level.

25 Energy Agenda.

26 Empirical evidence based on a study conducted in the United States, Japan, and China, demonstrated that institutional reforms are the most important elements for attracting direct investment in infrastructure. *Hard or soft institutional reforms and infrastructure spending as determinants of foreign direct investment in China. Japanese Economic Review*, December 2005. Evidence is also shown that reforms to the regulatory framework in the electric power sector can trigger increased investment in generating capacity based on renewable resources, and, consequently, in the reduction of GHGs. *The Effects of Power Sector Reform on Energy Services for the Poor*. 2005. Department of Economic and Social Affairs, United Nations.

investment in energy infrastructure; and (vii) citizen participation and land use management.

1.22 The agenda includes the following lines of action and targets: (i) reduce marginal electricity costs in the SIC by 30%; (ii) reduce the prices of tenders for electricity supply to households, commercial entities, and small businesses in the next decade, by 20% relative to the prices bid in the most recent tenders; (iii) overcome the barriers that exist for nonconventional renewable energies and attain a target share of 20% by 2025; (iv) develop efficient energy use as an energy resource, to reduce the consumption projected for 2025 by 20%; (v) design a system for stabilizing fuel prices that reduces their volatility; (vi) turn ENAP into a company that plays a leading role in meeting energy challenges; and (vii) develop a long-term energy policy through a participatory and regional validation process.

1.23 **Proposed solutions.** To help the government meet the challenges raised and fulfill the targets set in the Energy Agenda, this is designed as a policy-based loan (PBL) operation with two tranches. The program will generally benefit the country's different economic sectors and energy sector institutions,[27] and seeks to promote policy reforms to: (i) put regulations in place that promote competition and regulate the sector's sustainable development; (ii) reduce energy costs; (iii) diversify the energy matrix; (iv) use energy efficiently; and (v) foster regional energy integration.

1.24 Under the first tranche, policies, laws and technical regulations are expected to be approved such as: the "Energy 2050" policy, or the New Transmission Law, and then to start implementation, through the policy commitments established for the second tranche. Similarly, policy guidelines will be designed that are expected to be approved under the second tranche and will include, among other things, the Law on Gas Distribution Rates in Concessioned Networks, and the Law Reforming ENAP Corporate Governance. The program also considers the design and execution of actions that will enable the government to move toward fulfilling the targets set in the Energy Agenda.

1.25 **Knowledge of the sector.** The Bank can draw on wide-ranging experience and lessons learned in the Chilean energy sector as a result of supporting initiatives such as the SINEA[28] and Sustainable Energy for All (SE4All), financing for private projects, the channeling of concessional resources for climate change such as those of the Clean Technology Fund, and the execution of nonreimbursable cooperation resources with participation from multiple actors, such as: Promotion and Development of Local Solar Technology (GRT/FM-13501-CH), Fostering the creation and consolidation of an energy services market (ATN/FM-12650-CH), and Support to Chile's Energy Policy Agenda (ATN/OC-14967-CH).

1.26 The Bank can also exploit experience and lessons learned from having supported policy reforms in the sector, such as in Nicaragua (loan 3068/BL-NI), Suriname (loan

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[27] In particular, the residential, industrial, and mining sectors will benefit directly, as a result of the reduction of GHGs and the expected cuts in electricity rates; sector institutions such as MINENERGIA, the CNE, AChEE, and ENAP, which will have regulations, guidelines, and other management tools enabling them to fulfill their functions more efficiently. Other beneficiaries will be electric power generating companies, and electricity and natural gas distributors, which will have rate schemes that reflect market prices.

[28] The SINEA initiative was formed in 2011 by Bolivia, Chile, Colombia, Ecuador, and Peru, to evaluate the construction of the infrastructure needed for regional interconnection, and the design of a regulatory framework to facilitate electric energy exchanges between member countries.

2848/OC-SU), Peru (loan 2847/OC-PE), Honduras (loan 3619/BL-HO), and Ecuador (loan 3420/OC-EC). These interventions[29] have demonstrated that policy-based loan operations are adequate instruments for supporting sector-level reforms aimed at developing a diversified and sustainable energy supply, with participation from multiple actors, in which final consumers are the chief beneficiaries. The technical note titled "Design and use of policy-based loans," produced by the Bank's Office of Evaluation and Oversight, identifies providing policy advice and capacity development, and supporting governments in generating consensuses and legitimizing their reform agendas as among the benefits of PBLs.[30] These operations yielded the following lessons learned, which were taken into account when designing this PBL: (i) consider policy commitments designed on a technical basis and validated by civil society, since institutional and regulatory reforms *per se* are not sufficient to guarantee the efficient functioning of the sector; (ii) ensure, through an institutional capacity analysis, that the sector-level institutions responsible for fulfilling the policy commitments have their functions defined by law; (iii) design the program so that the policy measures, in particular regulatory ones, are implemented gradually; (iv) define a specific program with clearly assigned responsibilities from the outset; and (v) ensure the Bank supports the government very closely during the process of implementing the institutional changes and policy measures, through technical assistance.

1.27 **The Bank's country strategy.** The program is in line with the Bank's Country Strategy with Chile 2014-2018 (document GN-2785), through its strategic pillar of productive development and competitiveness and the priority area of energy, contributing to the strategic development objectives of capacity-building in electric power generation and enhancing energy efficiency.

1.28 **Strategic alignment.** The program is consistent with the Update to the Institutional Strategy 2010-2020 (document AB-3008); and it is aligned with the development challenges of: (i) productivity and innovation, through criteria for establishing smart institutional frameworks that promote the development of innovative policies and a suitable environment for private companies in the mining sector (copper) to exist and prosper by reducing energy input costs; and providing reliable and accessible public infrastructure and services; promoting diversification of the energy matrix, investments in gas and electricity infrastructure, and improved infrastructure connectivity both nationally and regionally; and (ii) economic integration, under the multinational targeting criterion, by promoting the participation of the Chilean market in regional markets, and national subsidiarity by supporting the SINEA initiative (paragraph 1.30). The program is aligned with the following crosscutting areas: (i) climate change and environmental sustainability, since it promotes policy reforms that allow for a reduction in GHG emissions, by fostering the development of renewable energies and energy efficiency; and (ii) institutional capacity and the rule of law, through reforms that build the capacities of Chile's energy sector institutions. The program is aligned with the Corporate Results Framework 2016-2019 (document GN-2727-6) through the output indicator: "Number of regional, subregional and nonregional integration agreements and cooperation initiatives supported," through the program's policy commitment, i.e. that MINENERGIA has

[29] PE-L1121 – New sustainable energy matrix. Project completion report.

[30] Technical note on PBLs. IDB 2015.

approved international commercial energy transactions with at least one country in the region.

1.29 The program is consistent with the Energy Sector Framework (document GN-2830) in the thematic areas of energy sustainability, security, and governance since it fosters policy reforms that promote: (i) the sustainable development of the sector; (ii) diversification of the energy matrix through the use of renewable energies including NCREs; (iii) efficient energy use; and (iv) regional integration. In addition, the program is in line with the Climate Change Sector Framework (document GN-2835-3) since the proposed energy policy reforms lead to a reduction in GHG emissions. The program is also aligned with the priority areas of the Strategy on Sustainable Infrastructure for Competitiveness and Inclusive Growth (document GN-2710-5), by promoting policy reforms that foster rationalization of the use of energy infrastructure through: (i) integration of the SIC and SING, and (ii) efficient energy use.

1.30 **Consistency with the Sector Strategy to Support Competitive Global and Regional Integration (document GN-2565-4).** The Strategy indicates that the regional integration operations will be identified according to four indicative criteria that are not mutually exclusive. The program contributes to two of these criteria (Optional electronic link #4): (i) Multinational targeting: Components II and V promote the internationalization of the energy sector (electricity and gas) with cross-border impacts (Andean region and Mercosur); and (ii) National subsidiarity: Component V directly supports policy reforms at the national level related to a supranational initiative, namely the SINEA.[31]

1.31 **Public Utilities Policy (document GN-2716-6).** The policy reforms promoted by the program are in keeping with the principles of the public utilities policy and will contribute to the energy sector's technical, operational, and financial sustainability, by fostering competition in the market and upgrading rate schemes and processes (see Analysis of compliance with the Public Utilities Policy). The program is also consistent with the objectives of the policy; and the proposed reforms promote conditions for economic evaluation and financial sustainability.

B. Objectives, components, and cost

1.32 **Objectives.** The program's general objective is to contribute to the sustainability of Chile's energy sector through a process of policy reforms in the sector that include technical, economic, social, and environmental considerations and take account of both national and regional needs and interests. The specific objectives are to: (i) develop a long-term energy policy validated by society that helps to make the energy market more competitive and efficient, and build the sector's institutional capacity; (ii) promote diversification and increase the share of renewable energy in the energy matrix; (iii) foster efficient energy use; and (iv) increase international energy exchanges and transfers. The program has the following components:

1.33 **Component I: Macroeconomic stability.** This component will focus on the consistency of the macroeconomic environment in terms of the program's objectives, and will constantly monitor to ensure alignment with the Policy Matrix.

[31] Analysis of Regional Integration.

1.34 **Component II: Long-term energy policy.** This component seeks to: (i) develop a long-term energy policy validated by Chilean society through a broad participatory process; (ii) boost competition in the energy market, and improve and simplify natural monopoly rate schemes and processes, to facilitate competition, the incorporation of renewable energies, and lower prices for consumers; (iii) promote competition and investments in electric power generation and transmission, to expand the number of relevant players and facilitate the incorporation of clean electric power generation capacity on a competitive basis; and (iv) strengthen the energy sector's institutional framework, to improve planning, monitoring, regulation, development, transparency, and access to information.

1.35 The following commitments have been agreed on for the release of the first tranche: (i) the administrative act has been issued approving Chile's Energy Policy, "Energy 2050," which defines the long-term vision and plan of action for Chile's energy sector, through a consultation process involving different interest groups, addressing issues of security and quality of supply, economic development, the environment, and energy efficiency and education;[32] (ii) the Transmission Law 20,936 has been passed and published in the Official Gazette, "establishing a new Electricity Transmission System and creating an independent coordination agency for the national electricity system"; (iii) a Draft Law on Distribution Rates has been sent to Congress, which improves the rate scheme and process to reflect market prices for gas distribution through networks, to underpin the sector's technical and financial sustainability;[33] (iv) through the CNE, tenders have been awarded for supplying electricity more efficiently to regulated customers, and for promoting competition pursuant to Law 20,805; (v) Law 20,897 has been passed and published in the Official Gazette, promoting a strong public-sector actor in the national energy market, making it possible to develop synergies and efficiencies; (vi) the CNE has done the diagnostics to prepare a new preliminary bill to help modernize the power distribution segment; (vii) MINENERGIA has issued the administrative act facilitating physical interconnection and regulatory harmonization between the SIC and SING; and (viii) the administrative acts have been issued designating ministerial regional energy secretariats, to strengthen planning, monitoring, regulation and development of the sector.

1.36 The commitments agreed upon for the second tranche are as follows: (i) at least seven of the actions defined in Annex 1 of Chile's Energy Policy[34] "Energy 2050" envisaged for 2016 and 2017 are being implemented;[35] (ii) at least five administrative acts have been issued approving the regulations of Electricity Transmission Law 20,936 on the following topics, among others: (a) energy planning; (b) the procedure for defining preliminary power line safety zones; (c) international power exchanges; (d) power transmission and planning systems; (e) transmission valuation, compensation, and payment; (f) coordinator of the Integrated National

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[32] The consultation process involved key actors from the public and private sectors and academia and was held through plenary sessions, participatory workshops, and online.

[33] The National Congress is expected to pass this Law during the program execution period.

[34] The policy includes 130 actions, of which about 20 are expected to be under implementation between 2016 and 2017.

[35] Excluding those referenced in the first policy commitment for the second tranche of Component V. Support for Regional Energy Integration.

Grid System; (g) coordination and operation of the National Electricity System; and (h) technical standards; (iii) Congress is processing the draft law on gas distribution rates in networks under concession;[36] (iv) the technical documents have been prepared to make it easier for the CNE to oversee fulfilment of the regulations on gas distribution rates in networks under concession; (v) tendering processes for regulated customers maintain efficient criteria and promote competition among participants; (vi) Congress is processing the bill reforming the corporate governance of ENAP, giving it greater independence and autonomy;[37] (vii) the CNE has drafted and presented to MINENERGIA a preliminary bill regulating electricity distribution, relating to: (a) distribution planning; (b) distributed power generation; (c) service quality; (d) remuneration of the network and its pricing scheme; and (e) the industry's business model; (viii) the administrative act has been issued approving the regulations to Electricity Transmission Law 20,936 on the coordinator of the National Interconnected System; (ix) the administrative acts have been issued approving the regulations to Electricity Transmission Law 20,936 on: (a) energy planning; (b) transmission and transmission planning systems; and (c) transmission valuation, compensation, and payment; (x) MINENERGIA has established mechanisms to facilitate State involvement in defining power line routes, prior to their tendering and award, taking account of a strategic environmental assessment and land management in the analysis of alternative routes; and (xi) the ministerial regional energy secretariats are operating.

1.37 **Component III: Renewable energy development.** This component aims to: (i) promote the development of renewable energies on the basis of regulatory and institutional improvements; and (ii) increase the participation of nonconventional renewables, thereby helping to attain the target of a 20% injection of nonconventional renewables by 2025. The actions under this component will help promote the development of renewable energy sources, eliminating the existing barriers to its development, facilitating the identification and execution of projects that could take advantage of the energy sources existing in the country, including wind, solar, mini hydro plants, geothermal, biomass and marine energy.

1.38 The following commitments have been agreed on for the first tranche: (i) the CNE has issued the administrative acts approving the technical standards, which, together with Laws 20,936 and 20,897, regulate and promote the development of renewable energies and incorporate socioenvironmental criteria; and (ii) the administrative acts have been issued creating the Marine Energy Research and Innovation Center (MERIC) and the Solar Energy Industry Development Committee (formerly the National Energy Innovation and Development Center – CIFES), as new institutions responsible for research into and the promotion of nonconventional renewables.

1.39 The commitments agreed upon for the second tranche are as follows: (i) the administrative acts have been issued approving the regulations to Electricity Transmission Law 20,936 on: (a) energy planning; and (b) transmission and transmission planning systems; (ii) under Law 20,936, the CNE has conducted an analysis and prepared a proposal for determining payments for (guaranteed) power

[36] The Congress is expected to pass this law during the program execution period.

[37] The Congress is expected to pass this law during the program execution period.

sufficiency (*potencia de suficiencia*); (iii) MINENERGIA has presented evidence of progress in the implementation of the MERIC work plan; and (iv) the Solar Industry Development Committee is operating.

1.40 **Component IV: Support for energy efficiency.** This component seeks to foster efficient energy use to achieve a target of 20% savings by 2025, in accordance with the Energy Agenda.[38] The energy efficiency measures considered will encompass efficient energy use (both thermal and electric) in the public and private sectors, and the sustainable and efficient use of firewood, by setting new national regulations, standards, and guidelines

1.41 The commitments agreed upon for the first tranche are as follows: (i) MINENERGIA has issued the administrative acts setting new national standards and guidelines on energy efficiency; (ii) the administrative acts have been issued allowing for implementation of energy efficiency measures in the public sector; and (iii) MINENERGIA has drafted a policy on the efficient and sustainable use of firewood and its derivatives for heating.

1.42 The following commitments have been agreed on for the second tranche: (i) MINENERGIA, using its authority, has issued the administrative acts setting minimum energy efficiency standards for industrial electric motors; (ii) MINENERGIA, using its authority, has issued the administrative acts setting fuel consumption standards for medium-sized freight and passenger vehicles;[39] (iii) MINENERGIA and the AChEE have begun the processes to replace at least 110,000 street lights pursuant to the targets of the government's "Energy Agenda"; and (iv) MINENERGIA has prepared a bill setting minimum quality standards for firewood used for heating.

1.43 **Component V: Support for regional energy integration.** This component aims to promote regional energy integration, taking advantage of the potential and complementary nature of each country's energy resources, while safeguarding national energy security. The measures will include the process of reforming the national system, the materialization of international energy transactions, a contribution to improved provisioning (reliability) and the security of supply, as well as achieving economic and environmental benefits.

1.44 The commitments agreed upon for the first tranche are as follows: (i) under Chile's Energy Policy "Energy 2050," the administrative acts have been issued including guidelines for a policy to promote energy integration with other countries in the region; (ii) Transmission Law 20,936 is passed and published in the Official Gazette encompassing, among other things, potential international electricity transactions; and (iii) MINENERGIA has approved international commercial energy transactions with at least one country in the region.[40]

1.45 The following commitments have been agreed upon for the second tranche: (i) MINENERGIA has accounted for the implementation of at least two actions from Guideline 6 of Chile's Energy Policy "Energy 2050," on "promoting efficient regional

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[38] Energy sales by 2025 without the program are projected at 110,994 GWh.

[39] Currently only applicable for light passenger vehicles.

[40] The program will include support for current efforts to export energy inputs (natural gas and electricity) to Argentina.

exchange that enhances the flexibility of the electric power system"; (ii) the administrative act has been issued approving the regulations to Electricity Transmission Law 20,936 on international electricity trading; and (iii) MINENERGIA has issued the administrative act facilitating processes for authorizing energy exports.

C. Key results indicators

1.46 Achievement of the program's objectives will be assessed against the indicators and targets set out in the Results Matrix, which reflect the integrated scope of the PBL. Table 1 shows the results and their indicators.

Table 1. Program results and indicators

Impacts	Indicators
Reduction in energy intensity nationally.	Energy intensity nationally
Reduction of GHG emissions.[41]	GHG emissions
Results	**Indicators**
The borrower's macroeconomic framework is aligned with the program's policy objectives.	The Independent Assessment of Macroeconomic Conditions confirms macroeconomic stability.
Develop a long-term energy policy validated by society, which helps to make the energy market more competitive and efficient, and improves the sector's institutional capacity.	Energy policy document validated by civil society.
	Weighted average prices of the bids awarded in tenders to supply electricity regulated customers.
	Number of suppliers participating in tenders to supply electric power and energy and electricity transmission.
	Installed electric power generating capacity in the SIC and the SING.
	Geothermal exploration and operating concessions granted.
Promote diversification and increase the share of renewables in the energy matrix.	Percentage of electric power generation using renewable energy sources in the energy matrix.
	Percentage of electric power generation using nonconventional renewable energy sources in the energy matrix.
	Electric power generation capacity using nonconventional renewable energy sources in the SIC and SING.
Promote efficient energy use.	Electricity consumption in street lighting by replacing incandescent lamps with light-emitting diodes (LEDs).
Increase international energy exchanges and transfers.	Energy exported (thousands of tons of oil equivalent (net)).
	Electric energy transferred binationally.

[41] GHG emissions calculated in terms of CO_2 equivalent.

1.47 **Economic analysis.** An economic analysis was made of the program, based on the fact that the policy measures aim to enhance competition in energy supply in Chile, foster more efficient energy use, and at the same time promote a less polluting energy mix. Using the best information available, in conjunction with parameters for the social evaluation of projects in Chile, the program was evaluated and the conclusion was that the set of policy measures considered have positive environmental effects in terms of: (i) smaller GHG emissions; and (ii) less emissions of particulate material (less exposure to environmental pollution and health improvements); and also economic benefits in terms of significant reductions in energy rates for residential consumers, and for industry and mining, as a result of the expected greater competition, and thus less spending on energy by these sectors. The study does not consider a set of additional benefits, such as more secure energy supply stemming from a more diverse matrix, and other benefits arising from lower rates or reduced environmental damage.

1.48 The economic analysis uses a conservative scenario for estimating the benefits. It then quantifies these benefits both for households and for industry, together with the benefits arising from the reduction in environmental pollution, and it converts them into present value terms, to obtain savings for households and industry of around US$51 billion, and environmental benefits of around US$2.7 billion in the period 2015-2050.[42] Lastly, using the same general methodology, a scenario is evaluated in which the reforms implemented have a smaller impact (smaller price reductions and a more polluting energy matrix). Under this scenario, the estimated benefits are US$20 billion in savings for households and industry, and US$1.194 billion in environmental benefits for the same period of analysis.[43]

1.49 **Institutional analysis.** With the aim of verifying capacity to execute and monitor the program and identify monitoring and strengthening needs both in MINENERGIA in its capacity as executing agency, and in the other actors involved, such as the CNE, an institutional capacity analysis was performed on that ministry and the CNE. It was concluded that: (i) MINENERGIA is legally responsible for preparing and implementing government policies in the energy sector; consequently, from the legal competency standpoint, all of the objectives defined in the program, together with the associated commitments, are within its legal brief; (ii) the Ministry has support from the CNE for fulfilling the commitments; (iii) the institutional support that stems from the energy organizational structure of both institutions has the functional capacity needed to assume the commitments included in the program, in terms of the specialization each of the divisions and departments and their human resources; (iv) the Ministry has implemented a Project Management Office, which enables it to adequately oversee the status of the commitments, detect divergences on a timely basis, and correct or modify compromised actions; and (v) the system will also operate as a means of internal coordination between the divisions of MINENERGIA and the public institutions that deal with it.

1.50 A recently approved nonreimbursable technical cooperation program (CH-T1176) will have resources to support fulfillment of the Policy Commitments, and for

[42] A social discount rate of 6% was used, which is the official rate at which projects are evaluated in Chile. Using a 12% rate leads to benefits of roughly US$19 billion, and US$1.3 billion, respectively.

[43] A social discount rate of 6% was used, which is the official rate at which projects are evaluated in Chile. Using a 12% rate leads to benefits of roughly US$7.5 billion, and US$600 million, respectively.

monitoring and support of the use of the system, mentioned above, for application in this program.

II. Financing Structure and Main Risks

A. Financing instruments

2.1 This operation is structured as a multi-tranche policy-based loan, for US$100 million, based on the document "Policy-based Loans: Guidelines for Preparation and Implementation" (document CS-3633-1). This modality was chosen because the program includes the implementation of short-term policy reforms, which it has been implementing since 2014 (paragraph 1.21). Two disbursements will be made, each for 50% of the amount of the operation, against the fulfillment of the policy commitments for tranches I and II, included in the policy matrix and its means of verification.

2.2 This loan totals US$100 million from the Bank's Ordinary Capital. The operation is justified pursuant to paragraph 3.27 in document CS-3633-1, based on the government's financing needs and greater speed in implementing sector policy reforms. This operation would represent about 0.9% of the public sector's gross financing needs for 2016, and 20% of financing with multilateral agencies. It will be complemented with bond issues on the domestic market for up to US$8 billion, plus international bond issues of US$2.65 billion, which were made in January 2016. For 2017, the budget sent to the Congress requests authorization to borrow US$11.5 billion, of which US$500 million is expected to come from operations with multilaterals and the remainder from bond issues in the market.

2.3 No funding from external financial institutions is anticipated to fulfill the program targets. Chile's economy is robust and will enable the government to implement the proposed reform measures, despite the recent slowdown in growth.

B. Environmental and social risks

2.4 According to Directive B.13 of the Bank's Environment and Safeguards Compliance Policy (document GN-2208-20, operational policy OP-703), the project's environmental impact does not need to be classified. The program does not finance physical investments, nor are activities that have negative implications for natural resources envisaged; on the contrary, the proposed reforms are expected to have positive environmental and social impacts.

C. Fiduciary risks

2.5 The financial instrument proposed provides unrestricted funds for budget support, provided there is a responsible fiscal policy framework in place. Accordingly, there is not considered to be a fiduciary risk, since the borrower, the loan beneficiary, has solid country systems for financial management. Nonetheless, MINENERGIA's institutional and management capacity was evaluated, to determine opportunities for strengthening in the areas involved in monitoring and fulfilment of the policy commitments. The analysis identified a low risk of nonfulfillment of this program's policy commitments, even though the recently approved nonreimbursable technical cooperation program will provide funds to support the fulfillment of the policy commitments, and for monitoring and support of the use of the Project Management Office system, for its application in the program (paragraph 1.49).

D. Other project risks

2.6 The following medium risks were identified: (i) delays in implementing the measures envisaged, which are essential for the proposed sector reforms; (ii) delays in delivering means of verification in the agreed-upon format; (iii) delays in program activities linked to participation processes; and (iv) underestimation of the resources that are necessary and sufficient to fulfill the committed activities. The following mitigation measures are defined for each of these risks, respectively: (i) preparation of a tracking and monitoring plan that includes a timetable and milestones, in addition to meetings of the team consisting of MINENERGIA and the CNE; and human and financial resources in MINENERGIA and the CNE available to undertake the defined tasks; (ii) monitoring of the actions proposed in the institutional analysis; (iii) monitoring of the standardized tracking of participation processes for preparing regulations and conducting studies;[44] and (iv) preparation of a tracking and monitoring plan for the activities committed and support from the Bank through nonreimbursable technical cooperation resources (CH-T1176) recently approved and other that may become necessary.

2.7 **Sustainability.** The program's policy commitments are a fundamental part of the fulfilment of the targets set by the government in the Energy Agenda, and the sector's regulatory reform process. These processes are moving forward satisfactorily, and a substantial portion of the policy commitments defined for the first tranche have already been fulfilled. No potential delays are anticipated in fulfilling the other commitments for tranches I and II, given their relevance for the implementation of the Energy Agenda, the executing agency's capacities and support that the Bank will provide through the recently approved technical cooperation resources (CH-T1176). In addition, the government maintains its commitment (see Policy Letter) to improve the country's productivity and environmental and social sustainability, through a policy reform process in the energy sector.

III. Implementation and Management Plan

A. Summary of implementation arrangements

3.1 **Borrower and executing agency.** The borrower is the Republic of Chile and the executing agency is MINENERGIA.[45] The latter, through the exchange of communications and information, and the holding of periodic analysis and monitoring meetings, will coordinate with the CNE on fulfillment of the policy commitments and consolidation of the sector reform. To strengthen coordination between MINENERGIA and the CNE, both institutions have appointed management and operating staff who will be responsible for handling all program execution matters.

3.2 MINENERGIA will have the following responsibilities: (i) provide evidence that the policy commitments for each of the tranches have been fulfilled, to make the

[44] The participation process includes public consultations involving public institutions, academia, nongovernmental organizations, and the private sector, through participatory workshops and plenary sessions.

[45] The Ministry of Finance of Chile, acting through the Budget Directorate, confirmed that the executing agency will be the Ministry of Energy, acting in coordination with the Ministry of Finance.

respective disbursements; (ii) support the actions needed to fulfill the program; and (iii) once the program disbursements have been made, collect the information from the performance indicators needed to evaluate the program's results.

3.3 **Special contractual conditions precedent to the loan disbursements.** Disbursements will be made after the loan contract has been signed and when the special and general conditions precedent to all disbursements and the disbursements of each tranche have been met. **Disbursement of the proceeds of each loan tranche is subject to the fulfilment of the policy reform measures described in the program's components and in the Policy Matrix (Annex II), together with any other commitments specified in the loan contract.** This fulfillment will be confirmed through the instruments identified in the Means of Verification Matrix and the monitoring and evaluation plan. The Bank can request an external audit of the program if it sees fit.

B. Summary of arrangements for monitoring results

3.4 **Monitoring arrangements.** The contents of the policy, means of verification, and results matrices are the key parameters for supervision and evaluation of the program's results. The policy commitments will be fulfilled through the coordination team set up by MINENERGIA. The Bank will monitor program execution from the Country Office and from its Energy Division.

3.5 **Arrangements for program evaluation.** The "before and after" evaluation methodology is proposed, consisting of measuring the results indicators at the project baseline, and again after the policies have been implemented, and then comparing the measurements to verify attainment of the targets. In addition, pursuant to Bank policies, the project completion report will be financed by the Bank, and prepared at the end of the last tranche of the program. As described in the program's monitoring and evaluation plan, the project completion report will evaluate the results achieved, and will include an ex post economic evaluation, using the methodology described in that document.

IV. POLICY LETTER

4.1 The Bank and the Government of Chile have agreed on the policy commitments to be supported through the program, which are reflected in the policy, means of verification, and results matrices. This also includes fulfilment of the commitments confirmed in the Policy Letter submitted by the Ministry of Finance, which ratifies the Chilean government's commitment to the program.

Development Effectiveness Matrix			
Summary			
I. Strategic Alignment			
1. IDB Strategic Development Objectives	**Aligned**		
Development Challenges & Cross-cutting Themes	**-Productivity and Innovation -Economic Integration -Climate Change and Environmental Sustainability -Institutional Capacity and the Rule of Law**		
Regional Context Indicators			
Country Development Results Indicators	**-Regional, sub-regional and extra-regional integration agreements and cooperation initiatives supported (#) -Government agencies benefited by projects that strengthen technological and managerial tools to improve public service delivery (#)**		
2. Country Strategy Development Objectives	**Aligned**		
Country Strategy Results Matrix	**GN-2785.**	**Development of electric generation capacity. Improve energy efficiency.**	
Country Program Results Matrix		**The intervention is not included in the 2015 Operational Program.**	
Relevance of this project to country development challenges (If not aligned to country strategy or country program)			
II. Development Outcomes - Evaluability	**Evaluable**	**Weight**	**Maximum Score**
	8.8		**10**
3. Evidence-based Assessment & Solution	**8.4**	**33.33%**	**10**
3.1 Program Diagnosis	**3.0**		
3.2 Proposed Interventions or Solutions	**2.4**		
3.3 Results Matrix Quality	**3.0**		
4. Ex ante Economic Analysis	**9.5**	**33.33%**	**10**
4.1 The program has an ERR/NPV, a Cost-Effectiveness Analysis or a General Economic Analysis	**2.5**		
4.2 Identified and Quantified Benefits	**2.0**		
4.3 Identified and Quantified Costs	**2.0**		
4.4 Reasonable Assumptions	**2.0**		
4.5 Sensitivity Analysis	**1.0**		
5. Monitoring and Evaluation	**8.6**	**33.33%**	**10**
5.1 Monitoring Mechanisms	**1.5**		
5.2 Evaluation Plan	**7.1**		
III. Risks & Mitigation Monitoring Matrix			
Overall risks rate = magnitude of risks*likelihood	**Medium**		
Identified risks have been rated for magnitude and likelihood	**Yes**		
Mitigation measures have been identified for major risks	**Yes**		
Mitigation measures have indicators for tracking their implementation	**Yes**		
Environmental & social risk classification	**B.13**		
IV. IDB´s Role - Additionality			
The project relies on the use of country systems			
Fiduciary (VPC/FMP Criteria)			
Non-Fiduciary	**Yes**	**Monitoring and Evaluation National System.**	
The IDB's involvement promotes additional improvements of the intended beneficiaries and/or public sector entity in the following dimensions:			
Gender Equality			
Labor			
Environment			
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**	**The Bank has supported the sector through different Technical Cooperations: Promotion and Development of Local Solar Technology (GRT / FM-13501-CH); Encouraging the Creation and Consolidation of a Market for Energy Services (ATN / FM-12650 CH); Support to the Energy Agenda in Chile (ATN / OC-14967-CH).**	
The ex-post impact evaluation of the project will produce evidence to close knowledge gaps in the sector that were identified in the project document and/or in the evaluation plan			

Note: (*) Indicates contribution to the corresponding CRF's Country Development Results Indicator.

According to the 2014 National Energy Balance, energy supply in Chile reached 318,976 Tcal, of which about 62% was imported. The power generation sector accounts for approximately 50% of the indicated consumption. The energy matrix is mainly predominated by fossil fuels and only approximately 30% by Renewable Energy; contributing to an increase in emissions of greenhouse gasses (GHG).This situation is influenced by the private electricity market that has defined the composition of the energy matrix and the electricity prices, as well as the decisions about investment needs, mainly of generation, according to the demand and market behavior. This affects environmental sustainability, access to the service, and the economic development of the country, through the dependence of the productive mining and industry sectors to the indicated market. The CH-L1136 operation proposes to address the identified challenges with policy reforms such as: (i) to create regulations that promote competition and control the sustainable development of the energy sector; (Ii) to reduce energy costs; (Iii) to diversify the energy matrix; (Iv) to make efficient use of energy; and (v) to promote regional energy integration.

The diagnosis is appropriate and correctly quantifies the size of both the general and the specific problems. The operation is divided into five components reflected in the results matrix, which is consistent with the diagnosis and proposed policies.

The economic evaluation provides an analysis underlying the benefits of implementing energy policies by: (i) the reduction of direct emissions from electricity generation; (ii) the decrease of emissions by less use of wood heating; (iii) savings in energy consumption per household; and (iv) the reduction of energy costs in the industrial sector. Economic indicators are positive applying both the country and the Bank discount rates. A scenarios analysis is carried out based on the risks identified that may affect the achievement of the results and benefits of the policy agenda. Such risk scenario is developed under the assumption that the impacts of policies have a limited scope. The results show that even with the reduction of the benefits identified, the present value remains positive.

The evaluation scheme proposes using the synthetic control method to measure the impacts of policies on GHG emissions and the share of renewable sources. The plan also presents a before and after comparison for the outcome and impacts indicators.

The overall risk of the operation has been valued as a medium. Three risks of high impact but low probability are presented: (i) delays in the implementation of the envisaged measures that are essential for the proposed sector reforms; (Ii) delays in the delivery of the means of verification as agreed; and (iii) delays in the program's activities linked to participatory processes. All medium risks have mitigation measures.

POLICY MATRIX

OBJECTIVES	Policy commitments 2016 (TRANCHE I)	Policy commitments 2017 (TRANCHE II)
I. Macroeconomic stability		
Maintain a macroeconomic context that is consistent with the program's objectives as defined in the Policy Matrix.	Macroeconomic framework consistent with the program's objectives and the guidelines specified in the Sector Policy Letter.	Macroeconomic framework consistent with the program's objectives and the guidelines specified in the Sector Policy Letter.
II. Long-term energy policy		
Develop a long-term energy policy validated by society that helps to make the energy market more competitive and efficient, and improve the sector's institutional capacity.	(i) The administrative act has been issued approving the Chile's Energy Policy, "Energy 2050," which established the long-term vision and plan of action of Chile's energy sector, through a consultation process involving different interest groups, addressing issues of security and quality of supply, economic development, the environment, and energy efficiency and education.[1]	(i) At least seven of the actions defined in Annex 1 of Chile's Energy Policy[2] "Energy 2050" envisaged for 2016 and 2017[3] are being implemented.
	(ii) Transmission Law 20,936 has been passed and published in the Official Gazette, "establishing a new Electricity Transmission System and creating an independent coordination agency for the national electricity system."	(ii) At least five administrative acts have been issued approving the regulations of Electricity Transmission Law 20,936 on the following topics, among others: (a) energy planning; (b) the procedure for defining preliminary power line safety zones; (c) international power exchanges; (d) power transmission and transmission planning systems; (e) transmission valuation, compensation and payment; (f) coordinator of the Integrated National Grid System; (g) coordination and operation of

[1] The consultation process involved key actors from the public and private sectors and academia and was held through plenary sessions, participatory workshops, and online.

[2] The policy includes 130 actions, of which about 20 are expected to be under implementation between 2016 and 2017.

[3] Excluding those referenced in the first policy commitment for the second tranche of Component V. Support for Regional Energy Integration.

OBJECTIVES	Policy commitments 2016 (TRANCHE I)	Policy commitments 2017 (TRANCHE II)
		the National Electricity System; and (h) technical standards.
	(iii) A Bill on Distribution Rates has been sent to Congress, which improves the rate scheme and process to reflect market prices for gas distribution through networks, to underpin the sector's technical and financial sustainability.[4]	(iii) Congress is processing the bill on gas distribution rates in networks under concession.[5]
		(iv) The technical documents have been prepared to make it easier for the National Energy Commission (CNE) to oversee fulfilment of the regulations on gas distribution rates in networks under concession.
	(iv) Through the CNE, tenders have been awarded for supplying electricity more efficiently to regulated customers, and for promoting competition pursuant to Law 20,805.	(v) Tendering processes for regulated customers maintain efficient criteria and promote competition among participants.
	(v) Law 20,897 has been passed and published in the Official Gazette, promoting a strong public-sector actor in the national energy market, making it possible to develop synergies and efficiencies.	(vi) Congress is processing the bill reforming the corporate governance of ENAP, giving it greater independence and autonomy.[6]
	(vi) The CNE has done the diagnostics to prepare a preliminary bill to help modernize the power distribution segment.	(vii) The CNE has drafted and presented to MINENERGIA a proposed preliminary bill regulating electricity distribution, relating to: (a) distribution planning; (b) distributed power generation; (c) service quality; (d) remuneration of the network and its rate scheme; and (e) the industry's business model.
	(vii) MINENERGIA has issued the administrative act facilitating physical interconnection and regulatory harmonization between the SIC and SING.	(viii) The administrative act has been issued approving the regulations to Electricity Transmission Law 20,936 on the coordinator of the National Interconnected System.
		(ix) The administrative acts have been issued approving the regulations to Electricity Transmission Law 20,936 on: (a) energy planning; (b) transmission and transmission planning systems; and

[4] The National Congress is expected to pass this Law during the program execution period.

[5] Op cit.

[6] Op cit.

OBJECTIVES	Policy commitments 2016 (TRANCHE I)	Policy commitments 2017 (TRANCHE II)
		(c) transmission valuation, compensation, and payment.
	(viii) The administrative acts have been issued designating ministerial regional energy secretariats, to strengthen planning, monitoring, regulation and development of the sector.	(x) MINENERGIA has established mechanisms to facilitate State involvement in defining power line routes, prior to their tendering and award, taking account of a strategic environmental assessment and land management in the analysis of alternative routes.
		(xi) The ministerial regional energy secretariats are operating.
III. Development of renewable energies		
Promote diversification and increase the share of renewable energy sources in the energy matrix.	(i) The CNE has issued the administrative acts approving the technical standards, which, together with Laws 20,936 and 20,897, regulate and promote the development of renewable energies and incorporate socioenvironmental criteria.	(i) The administrative act had been issued approving the regulations to Law Electricity Transmission 20,936 on: (a) energy planning; and (b) transmission and transmission planning systems.
		(ii) Under Law 20,936, the CNE has prepared an analysis and proposal for defining payments for (guaranteed) power sufficiency (*potencia de suficiencia*).
	(ii) The administrative acts have been issued creating the Marine Energy Research and Innovation Center (MERIC) and the Solar Energy Industry Development Committee (formerly the National Energy Innovation and Development Center–CIFES), as new institutions responsible for research into and the promotion of nonconventional renewables.	(iii) MINENERGIA has presented evidence of progress in implementing the MERIC work plan.
		(iv) The Solar Industry Development Committee is operating.
IV. Support for energy efficiency		
Foster efficient energy use.	(i) MINENERGIA has issued the administrative acts defining new national standards and guidelines on energy efficiency.	(i) MINENERGIA, using its authority, has issued the administrative acts setting minimum energy efficiency standards for industrial electric motors.
		(ii) MINENERGIA, using its authority, has issued the administrative acts setting fuel consumption standards for medium-sized freight and passenger vehicles.[7]

[7] Currently only applicable for light passenger vehicles.

OBJECTIVES	Policy commitments 2016 (TRANCHE I)	Policy commitments 2017 (TRANCHE II)
	(ii) The administrative acts have been issued allowing for implementation of energy efficiency measures in the public sector.	(iii) MINENERGIA and the AChEE have begun the processes to replace at least 110,000 street lights pursuant to the targets of the government's "Energy Agenda".
	(iii) MINENERGIA has drafted a policy on the efficient and sustainable use of firewood and its derivatives for heating.	(iv) MINENERGIA has prepared a preliminary bill setting minimum quality standards for firewood used for heating.
V. Support for regional energy integration		
Increase international energy trading and transfer.	(i) Under Chile's Energy Policy "Energy 2050," the administrative acts have been issued including guidelines for a policy to promote energy integration with other countries in the region.	(i) MINENERGIA has accounted for the implementation of at least two actions from Guideline 6 of Chile's Energy Policy "Energy 2050," on "promoting efficient regional exchange that enhances the flexibility of the electric power system."
	(ii) Transmission Law 20,936 is passed and published in the Official Gazette encompassing, among other things, potential international electricity transactions.	(ii) The administrative act has been issued approving the regulations to Electricity Transmission Law 20,936 on international electricity trading.
	(iii) MINENERGIA has approved international commercial energy transactions with at least one country in the region.	(iii) MINENERGIA has issued the administrative act facilitating processes for authorizing energy exports.

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

PROPOSED RESOLUTION DE-___/16

Chile. Loan ____/OC-CH to the Republic of Chile
Sustainable Energy Program

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 Sustainable Energy Program. Such financing will be for an amount of up to US$100,000,000 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 ___ _____ 2016)

LEG/SGO/CSC/IDBDOCS: 40683382
Pipeline No.: CH-L1136