Project Information Document (PID)

Concept Stage | Date Prepared/Updated: 12-Aug-2021 | Report No: PIDC32245

BASIC INFORMATION

A. Basic Project Data

Country	Project ID	Parent Project ID (if any)	Project Name
Chile	P177023		EFE Santiago-Melipilla and Santiago-Batuco Rail Corridors (P177023)
Region	**Estimated Appraisal Date**	**Estimated Board Date**	**Practice Area (Lead)**
LATIN AMERICA AND CARIBBEAN	Nov 08, 2021	Feb 02, 2022	Transport
Financing Instrument	**Borrower(s)**	**Implementing Agency**	
Investment Project Financing	Republic of Chile	EFE Trenes de Chile	

Proposed Development Objective(s)

The PDO is to (i) improve accessibility for public transport users and ii) increase the modal shift toward safe and low-carbon transport in the targeted north and southwest corridors of the Santiago Metropolitan Region, as well as (iii) enhance EFE's operational sustainability.

PROJECT FINANCING DATA (US$, Millions)

SUMMARY

Total Project Cost	2,177.00
Total Financing	1,862.00
of which IBRD/IDA	120.00
Financing Gap	315.00

DETAILS

World Bank Group Financing

International Bank for Reconstruction and Development (IBRD)	120.00
Guarantee	300.00
IBRD	300.00
MIGA	838.00

Non-World Bank Group Financing	
Commercial Financing	1,742.00
Commercial Financing Guaranteed	1,742.00

Environmental and Social Risk Classification	Concept Review Decision
Substantial	Track I-The review did authorize the preparation to continue

Other Decision (as needed)

B. Introduction and Context

Country Context

1. **Chile has a territorial coverage of about 750,000 square kilometers (km^2), spread out in a narrow strip confined by the Andes on one side and the Pacific Ocean on the other.** The country is composed of 16 regions, with the Santiago Metropolitan Region (SMR) the strongest economically and the largest by number of inhabitants. At 7.2 million in 2019, this number is 40 percent of the total Chilean population.[1] The SMR is divided into six provinces, which are themselves divided into 52 communes. In the center of the SMR is the province of Santiago, the country's capital and largest province with 32 communes (including the commune of Santiago, sometimes referred to as Downtown/Central Santiago). The term "Santiago" usually refers to what is also known as Greater Santiago, a metropolitan area defined by its urban continuity. This area includes the commune of Santiago and more than 40 other communes, including the majority of Santiago Province and some areas of neighboring provinces. Two such areas are in Melipilla, located in the southwest of the nation's capital (with a capital city of the same name), and Chacabuco in the north (along with Batuco, a locality situated in the commune of Lampa).
2. **Chile stands out as one of the most developed economies in Latin America, as demonstrated through strong institutions and an investor-friendly environment.** The country started its economic liberalization and macroeconomic stabilization in 1975, and since the 1990s has implemented a series of market-oriented reforms to lessen protectionism. These reforms, associated with social policies, have spurred economic growth and significantly reduced poverty. Chile's extreme poverty rate plummeted from 45 percent in the 1980s to 8.6 percent in 2017,[2] becoming one of the lowest in the Latin American region (measured by the share of the population living on less than US$1.90 a day). That said, Chile is one of the most unequal countries among member countries of the Organisation for Economic Co-operation and Development (OECD), with an income gap 65

[1] Instituto Nacional de Estadística 2019.
[2] World Bank Group, *The Republic of Chile—Systematic Country Diagnostic June 2017* (Washington, DC: World Bank, 2017); and World Bank Group's World Development Indicators database.

percent wider than the average.[3] While Chile is well known as one of the most prosperous countries in Latin America, it has a 2019 Inequality-adjusted Human Development Index (IHDI)[4] of 0.709, compared to 0.729 and 0.712 for neighboring Argentina and Uruguay, respectively.

3. **Chile experienced relative political stability in the past couple of decades, yet income inequality and social exclusion persisted, leading to severe civil unrest starting in October 2019.** Despite its impressive progress in several areas, Chile has important challenges to address on the past towards sustainable development. In 2019, popular protests across the country focused on inequality and social reforms, and significant unrest continued until early 2020, when the COVID-19 pandemic hit the country. The trigger for these protests was Santiago's metro fare increase — in a system that was already one of the most expensive in Latin America. The vandalism from the protests resulted in significant damages to the city's metro company, estimated at US$400 million, and to businesses, estimated at more than US$1.4 billion.[5]

4. **In an attempt to meet some of the demands that triggered the recent civil unrest, Chile is gearing up for a historical reform —the rewriting of its constitution.** On May 15-16, 2021, Chileans elected the 155 members of the Constitutional Convention that will be tasked with drafting the country's new constitution. This has been labeled as the country's most important election since its return to democracy. Along with these elections, regional and municipal elections were held to choose 16 regional governors, 345 mayors, and 2,240 municipal councilors for the 2021–25 period. The 155-member convention includes 17 indigenous communities' representatives and has reached gender parity with 78 men and 77 women. The delegates will have nine months (with a potential three-month extension) to come up with a new founding law for Chile. The draft constitution will be approved or rejected in 2022 through a national referendum.

5. **The COVID-19 outbreak strengthened the challenges Chile faced at the end of the global commodity super-cycle and the 2019/2020 civil unrest episodes.** Although still increasing, the vigorous economic growth seen in the early 2000s had already been affected by the end of the global commodity super-cycle, even before the COVID-19 outbreak. In response, Chile's dependency on mining exports has significantly lessened with a more diversified set of export products and destinations. During the pandemic, the gross domestic product (GDP) contracted by 6 percent in 2020 and over 1 million jobs were lost,[6] resulting in unemployment levels not seen since the 2008 global financial crisis. It is expected that the living conditions of millions of people have significantly deteriorated, increasing the share of Chileans living on less than US$5.5[7] per day from 3.3 percent before the pandemic to roughly 7.8 percent.[8] Chile has, however, shown an efficient response to the crisis with a quick vaccination campaign, as well as the strengthening of social spending programs, and a resumption of pre-pandemic levels of activity is expected by the end of 2022.[9]

6. **Chile faces several environmental challenges due to its geography, including air pollution in cities and high vulnerability to the impacts of climate change.** The country's Andean mountain ranges hamper the dispersion of contaminants, making the country home to 8 of the 10 most polluted cities[10] in Latin America. The city of Santiago

[3] OECD, *Economic Survey of Chile, 2021* (Paris: OECD, 2021).
[4] From the UNDP 2019 Human Development Report.
[5] Reuters, "'So Much Damage': Chile Protests Flare Back Up as Reforms Fall Short," https://www.reuters.com/article/us-chile-protests-idUSKBN1X81N4 (last accessed April 6, 2021).
[6] World Bank: https://www.worldbank.org/en/country/chile/overview (last accessed: 5/26/2021).
[7] Poverty line used for international comparisons.
[8] Gabriela Inchauste, Jacobus de Hoop, and Trinidad Saavedra, *COVID-19 Crisis Could Reverse Years of Growth in Chile's Middle-Class* (Washington, DC: World Bank Blogs).
[9] World Bank and OECD.
[10] IQAir 2019 World Air Quality Report: https://www.iqair.cn/cn-en/blog/press-releases/report-over-90-percent-of-global-population-breathes-dangerously-polluted-air

is the 6th most polluted in Latin America (22nd in the world) and the only capital on this list.[11] Moreover, the Chilean energy supply matrix is still heavily dependent on oil, coal, and gas, and the transport sector is currently responsible for 25 percent of Chile's carbon dioxide equivalent (CO_2e) emissions, mainly because gasoline and diesel are used for road transport.[12] In the SMR, climate forecasts indicate an increase in maximum and lower temperatures by 1–2°C for the period of 2045–65 and a reduction in annual average precipitation by 20 percent, with precipitation concentrating in fewer days of rainfall in the winter season. With urban expansion, it is expected that more people will be living in areas vulnerable to flash flooding and extreme heat.[13]

7. **Chile has updated its Nationally Determined Contributions (NDCs),[14] setting forth a tighter commitment in pursuit of sustainable development and a "just transition."** Under the Paris Agreement, Chile's NDCs, updated in 2020, are a step further than the 2015 commitment, establishing an emissions maximum by 2030 and moving toward carbon neutrality by 2050. Moreover, the NDCs include the (i) decarbonization of the electricity matrix, with coal plants being completely removed by 2050 (and 10 plants by 2024); (ii) transition to electromobility, with 100 percent electric buses and trains by 2040 and 58 percent private vehicles by 2050; (iii) transition to hydrogen, with 71 percent of cargo vehicles powered by hydrogen by 2050; and (iv) a modal shift toward non-motorized transport. These commitments will require a set of interrelated actions and significant green investment and financing.

Sectoral and Institutional Context

8. **The transport sector has an inherent potential to help Chile on its pathway to improve the social and economic agenda by enhancing access to opportunities for the vulnerable and low-income population, while contributing to the achievement of the climate targets set out in the country's NDCs.** Commuter trains, in particular, can play a key role in improving the accessibility of surrounding areas to central Santiago in an efficient and environment-friendly manner. The SMR depends largely on road-based transport services and —apart from Santiago's metro network— still has an underdeveloped commuter rail network. As a result, inhabitants of the SMR's remote communes rely on inefficient and carbon-intensive travel options to access jobs, universities, hospitals, and other opportunities in the SMR. On the other hand, to reduce greenhouse gas (GHG) emissions, the country's NDCs focus on electric mobility, including the electrification of existing rail corridors and revamping the commuter passenger transit service in the SMR.

9. **The SMR is served by different ground transit options, with buses being the most relevant mode and covering about 2.9 million trips per day (15.6 percent of total trips).** Beyond bus transit services, Greater Santiago is well served by a comprehensive underground metro network with 7 lines and 136 stations across 140 km.[15] Although overcrowded in the peak hours, Metro Santiago is highly efficient, integrated with the bus service (*Red Metropolitana*), safe, and reliable, transporting 2.5 million passengers per day (13.5 percent of total trips).[16] Cyclists make 0.75 million trips per day (4 percent). Private vehicle and walking trips complete the modal split with

[11] EPA (US Environmental Protection Agency), *Santiago Megacities Partnership Final Report* (Washington, DC: EPA), https://www.epa.gov/sites/production/files/2019-02/documents/santiago_megacities_partnership_final_report.pdf
[12] World Bank, *Lessons from Chile's Experience with E-mobility: The Integration of E-Buses in Santiago* (Washington, DC: World Bank, 2017).
[13] Plan de Adaptacion al Cambio Climatico para la Region Metropolitana de Santiago de Chile 2012: https://www.ufz.de/export/data/403/46050_PlanAdaptacion_121126.pdf
[14] NDCs are at the heart of the Paris Agreement and the achievement of these long-term goals. NDCs embody efforts by each country to reduce national emissions and adapt to the impacts of climate change (United Nations—Climate Change).
[15] Red Metropolitana de Movilidad—Santiago's Public Transportation System: https://www.red.cl/acerca-de-red/informacion-del-sistema (last accessed May 27, 2021).
[16] Red Metropolitana de Movilidad: https://www.red.cl/acerca-de-red/informacion-del-sistema.

5.9 million (31.9 percent) and 6.4 million (34.6 percent) trips per day, respectively. The last origin-destination survey (2012) did not capture two new commuter rail lines in the SMR that started operations in 2017 (MetroTren Nos and MetroTren Rancagua), which moved less than 0.1 million passengers per day before the pandemic.

Figure 1. Metro Santiago Network

10. **Women are the main users of the transit service in the SMR; however, they suffer from specific challenges that constrain their mobility to access economic and social opportunities.** Data from the latest origin-destination survey (2012) show that 52.2 percent of women compared to 47.5 percent of men use public transport. Women also use fewer private modes (41.1 percent vs. 58.9 percent) and walk more than men (62.4 percent vs. 37.6 percent). However, the larger proportion of women riding transit may not have been translated into better access to more and better jobs (their travel time is on average 13.8 percent below men's), because their mobility patterns are related to the economy of care (e.g., taking children to school, health facilities, and running errands). Women are also usually constrained in their mobility by sexual harassment as, according to the FIA Foundation's study *Ella se Mueve Segura,* 73 percent of women feel unsafe in public transport and 89 percent of the surveyed women have experienced sexual harassment.

11. **Despite extensive investments in public transport in the past decades,[17] its modal share in the SMR has declined over the years, and it has had only a limited effect in improving access for those populations living on the**

[17] https://www.globalmasstransit.net/archive.php?id=28637.

periphery. Despite large investments, between 2001 and 2012, public transport's total trips declined by 2.4 percent, while the total car trips increased by 39.0 percent.[18] This is a result of growing individual motorization stemming from higher income levels, the insufficient coverage of the commuter rail network, the low efficiency of bus transit services on the SMR's periphery, as well as the low-density sprawl characteristic of the SMR's new suburban development. In the backdrop, the SMR's spatial distribution of jobs and residences reinforces the trend of low-income populations' challenging commuting patterns and limited access to opportunities by transit. The SMR´s peripheral low-income areas have been reported to have significantly less access to public transport and poorer quality of walking environments compared to central Santiago.[19]

12. **The existing Chilean rail network is operated and managed by EFE (Empresa de los Ferrocarriles del Estado), a state-owned enterprise composed of four subsidiaries (EFE Arica, EFE Valparaiso, EFE Central, and EFE Sur), linked to the Ministry of Transport and Telecommunications (MTT).** Responsible for passenger services and freight infrastructure, EFE administrates a 2,200 km rail network that transported 51.6 million passengers and 10 million tons of freight in 2019.[20] The group provides services in 10 different regions, with EFE Central (subsidiary) being in charge of operating two commuter rail lines within SMR (MetroTren Nos and MetroTren Rancagua), another commuter rail line connecting Talca y Constitucion, and other intercity services. EFE Central is responsible for half of the passengers transported by the entire EFE rail network.

13. **Freight services are operated by private companies (FEPASA and TRANSAP) under open access agreements, while EFE provides investment and maintenance of the infrastructure.** In this model, the private companies are responsible for raising demand and maintaining market-to-market relations. EFE, on the other hand, charges variable fees over the use of its infrastructure to recover the maintenance costs. In 2019, more than 10 million of tons were transported in three different corridors: (i) 3.73 million tons, predominantly minerals, in the northern corridor; (ii) 1.17 million of tons, mostly containers, in the central one; and; (iii) 5.76 million tons, mainly forestry products, in the southern corridor.[21]

Figure 2. EFE's rail network

[18] https://www.gobiernosantiago.cl/wp-content/uploads/2019/05/Presentaci%C3%B3n-Mesa-Movilidad-28-de-Marzo-2019.pdf
[19] Ignacio Tiznado Aitken, Juan Muñoz, and Ricardo Hurtubia, "The Role of Accessibility to Public Transport and Quality of Walking Environment on Urban Equity: The Case of Santiago de Chile," *Transportation Research Record: Journal of the Transportation Research Board* 2672 (2018), 10.1177/0361198118782036.
[20] EFE: https://www.efe.cl/corporativo/estructura-grupo-y-filiales/ (last accessed May 27, 2021).
[21] EFE – Memorial Annual, 2019.

14. **EFE was assigned by the MTT to carry out an ambitious US$5.5 billion investment plan "Chile Sobre Rieles,"[22] which was expected to triple the number of passengers transported in its network (from 50 to 150 million annually), double the volume of freight over its tracks (from 10 to 21 million tons annually), and close its operational deficit by 2027.[23]** The plan is composed of 13 projects across 70 communes, which will substantially reduce travel times and decrease the need for reliance on road-based modes —both buses and trucks using fossil fuels. Hence, the plan is strongly committed to increasing revenues for EFE, in particular from passenger travel, to eliminate the need of annual transfers from the central government to cover the operational and maintenance costs, while contributing to the decarbonization of the transport sector and the country's NDCs.

15. **Within Chile Sobre Rieles, the deployment of two new commuter rail lines stands out as the most impactful projects in terms of ridership levels and aggregated benefits for low-income populations: Metrotren Melipilla and Metrotren Batuco**. These two lines were planned to connect the densely populated north and southwest peripheral areas, bound directly for Santiago. At the time, both regions offered no better transit options than conventional buses with limited efficiency, safety, and availability. Improving transit service along these two corridors is expected to benefit approximately 2.4 million habitants who depend on low quality transit service for their daily commute, thus improving their access to economic and social opportunities in the SMR. The west and southwest area holds approximately 26 percent of SMR's households, of which 44 percent are low-income families. The north area accounts for approximately 14 percent of the households, of which a third are low-income families.

Figure 3. Santiago Metropolitan Region (provinces and communes)

[22] http://mtt.gob.cl/archivos/22324
[23] *Reporte de Sostenabilidad,* 2019 – EFE.

16. **MetroTren Melipilla will be the Chile's largest commuter rail project and is expected to serve 50 million passengers per year, taking just 46 minutes to travel the distance between central Santiago and Melipilla, with travel time savings estimated at 74 minutes.**[24] The line crosses 8 different communes in the SMR, with a total of 1.4 million inhabitants. With 61 kilometers, 11 stations, and headways as small as 4 minutes at peak time, the line will integrate with the Metro Santiago in Lines 1 and 6. The scope of this project also considers the rehabilitation of an existing freight line along the corridor, including infrastructure adjustments, continuous welded rails, sidings and additional capacity. EFE has recently started some preliminary work on this line, such as fencing, working sites and drainage, accounting for approximately 5 percent of the project's total investment cost.

17. **MetroTren Batuco is the second largest commuter train project, expected to serve 22 million passengers per year, taking just 23 minutes to travel the distance between central Santiago and Batuco, with travel time savings estimated at 67 minutes.**[25] The line crosses 5 different communes in the SMR, with a total of 1 million inhabitants. With 27 kilometers, 8 stations, and headways of 6 minutes at peak time, the line will integrate with the Metro Santiago in Lines 3, 5, and 7. As for Melipilla's line, freight services will also be upgraded, with completely renovated infrastructure. Both lines have detailed engineering designs completed by EFE, including elements of universal accessibility, facilities for bike parking and other elements to support the intermodal integration at stations.

Figure 4. MetroTren Melipilla (left) and MetroTren Batuco (right)

18. **Chile Sobre Rieles is part of the country's coordinated infrastructure planning system which is articulated based on a long-term vision and specific development goals with a focus on inclusion in its social and spatial dimensions.** All EFE's investment projects require approval from the Ministry of Social Development (Ministerio de Desarrollo Social). The triennial plans are approved by MTT and the Ministry of Finance (Ministerio de Hacienda) and confirmed by Chile's Office of the General Comptroller (Contraloría General de la República). Once approved by these governmental agencies, EFE defines the financing framework for each year of the triennial plan. The investments under the triennial plan are financed with a combination of debt and direct contributions from the Government of Chile (GoC). The debt service of EFE is covered directly by the Ministry of Finance and

[24] https://www.efe.cl/proyectos/alameda-melipilla/
[25] https://www.efe.cl/proyectos/santiago-batuco/

the portions corresponding to the GoC's contributions are included annually in the country's Budget Law (Ley de Presupuesto del Estado). In order to finance MetroTren Melipilla and MetroTren Batuco, EFE plans to raise over US$1,742 million in commercial financing, while the International Bank for Reconstruction and Development (IBRD) is expected to provide a loan of US$120 million with a sovereign guarantee from the GoC. It is expected that the GoC will also be providing ongoing contributions to EFE, as per the existing legal framework and budgetary framework, to maintain EFE's financial sustainability in the event of revenue shortfalls from these projects and to cover any financing gap from the investment plan.

19. **EFE's diversification of sources of financing is critical to undertake the ambitious investment program of Chile Sobre Rieles.** By March 2020, EFE had mainly accessed the local capital markets where it had US$1,568 million equivalent of long-term finance under 20 series of UF-denominated[26] local bonds. EFE's last five local bond issuances took place over the last eight years and were in the range of US$ 90 million to US$150 million. The local bonds are directly guaranteed by the GoC. EFE started diversifying its sources of financing by placing a bond in the US market. In August 2020, EFE successfully placed its first international bond issue: a US$500 million, 3.068 percent bond placed under 144A which obtained the lowest rate ever for a Latin American company for a 30-year maturity. Fitch has given this bond issuance the same credit rating as Chile's sovereign debt[27] since EFE is considered a strategic state-owned enterprise providing critical public services and having a strong track record of government support (see below). However, the capital market has limitations as a source financing for EFE. Bond issuances are more suitable for general/short term corporate financing needs than for projects with long implementation periods (three to five years). The negative carry cost of a bond during the implementation period reduces the competitive advantage of a lower yield available from bond investors driven by liquidity and credit ratings. Consequently, EFE is looking at obtaining loans from international commercial banks for capital investments and, in line with precedent and fiscal limits on government guaranteed debt, the Ministry of Finance does not envisage providing explicit sovereign guarantee support.

20. **Besides improving accessibility, increasing freight capacity, and reducing transport-related emissions, these two rail commuter lines are expected to contribute significantly to EFE's financial sustainability, as a result of increased ridership and revenue generation to cover operational costs.** EFE receives significant government contributions/subsidies to cover debt service, new investments, and operational and maintenance costs. Historically, all of EFE's expansion projects have been funded either directly by the GoC or by debt incurred by EFE but guaranteed by the government.[28] EFE also receives direct contributions from the Chilean government to cover the portion of direct operating costs attributed to passenger transportation service that is not covered by its revenues.[29] Since 2011, the country's Budget Law also includes a contribution to the maintenance of railway infrastructure.

21. **Government contributions to EFE fluctuated between US$180 million and US$200 million per year in the 2017–20 period.** Of such annual contributions, around 20 percent were targeted to cover revenue shortfalls, 36 percent

[26] The Unidad de Fomento (UF) is a unit of account used in Chile. It is a noncirculating currency, and the exchange rate between the UF and the Chilean peso is constantly adjusted for inflation so that the UF value remains almost constant on a daily basis during low inflation.

[27] https://www.fitchratings.com/research/international-public-finance/fitch-assigns-efe-a-lt-foreign-currency-idr-outlook-negative-07-08-2020

[28] The 144A bond offering memorandum indicates that EFE expects to repay the outstanding indebtedness with cash flow generated by its operations and, to the extent that there is any mismatch between its cash flow from operations and its debt service obligations, with contributions from the GoC.

[29] EFE receives government subsidies under the Transantiago Mirror Law (Law No. 20,378 of 2009, as amended, Ley Espejo del Transantiago) and the National Subsidy for the Passenger Public Transportation System (Subsidio Nacional al Transporte Público Remunerado de Pasajeros), regulated by Decree No. 2 of the MTT, of 2010.

to cover capital expenditure, and the remaining 44 percent to cover servicing of debt incurred for projects (see annex 2). In 2019, EFE's operating revenue of around US$120 million was complemented by the government's compensation of US$40 million to cover revenue shortfalls as EFE's passenger services are subsidized for some groups of the population (e.g., students and users in certain poor or remote areas). While EFE is expected to improve operational performance and reduce or eliminate revenue shortfalls by 2027, support from the GoC is expected to continue in the form of capital contributions.

22. **Compared to similar operators, EFE is internationally well positioned in terms of operational efficiency and sustainability.** Despite serving a relatively low number of passengers[30], which is expected to change once MetroTren Melipilla and MetroTren Batuco start to operate, EFE recovers 80 percent of its operational costs with fare revenues, the highest among other SOEs of commuter rail systems, thanks to its low labor cost of just 36 percent over total operating costs. Moreover, EFE's Tren Central[31] has a very low reliance on subsidies (only US$0.08 per passenger) resulting in a cost recovery ratio of 94 percent. These indicators confirm EFE's operational efficiency, especially when compared to Latin American peers.

23. **Despite relative optimism for Chile's quick recovery, the economic scenario still poses risks given its dependency on the primary sector, a possible new pandemic wave, and the still unpredictable civil unrest.** This is reflected in the recent downgrading of the Chile's credit rating by two major rating agencies. The country will likely face challenges in implementing its ambitious climate and social plans as these risks directly affect the capacity of the government to support infrastructure investments, both with its own resources and in partnership with the private sector, with the potential to hold back its progress towards the climate goals and social pledges. The project therefore intends to support EFE in the development of these essential public transport projects, which are critical to meet both climate and social objectives, through a combination of products from the World Bank Group: a guarantee from the Multilateral Investment Guarantee Agency (MIGA), an IBRD guarantee, and an IBRD loan. This combination of these products will promote a stable context for accessing the large volume of commercial financing needed for the key projects under the Chile Sobre Rieles, in a phase of economic recovery, while providing technical assurance for the realization of the potential full range of benefits from these investments and sector reforms.

Relationship to CPF

24. **There is currently no active Country Partnership Framework (CPF) but a Country Private Sector Diagnostic (CPSD) is expected to be delivered in FY22.** Policy notes are under preparation to inform the upcoming constitutional assembly as well as new regional governors and candidates for president. Discussions with the future government are expected to be informed by these notes, the CPSD, and the Systematic Country Diagnostic (SCD 2017).

25. **The proposed project is consistent with the SCD 2017 that emphasizes Chile's growing challenges not only in the areas of social inclusion and fiscal stability, but in addressing environmental sustainability and climate change**. The rapid economic development in combination with the country's geographical position have raised concerns about the environmental impacts on Chile's major commodity-based activities, which have the potential to threaten the longevity of economic sustainability. Controlling the use of natural resources, air pollution, and emissions of GHGs are key to ensuring continuous and inclusive growth. The transport infrastructure supported

[30] The benchmarking comparison (annex 3) includes: EFE- Chile, SOFSE - Argentina, SuperVia and CPTM – Brazil, LIRR and METRA – The United States.

[31] EFE subsidiary in charge of passenger operations in MetroTren Nos, MeTrotren Rancagua, Buscarril Talca-Constitución and services between stations Alameda and Chillan.

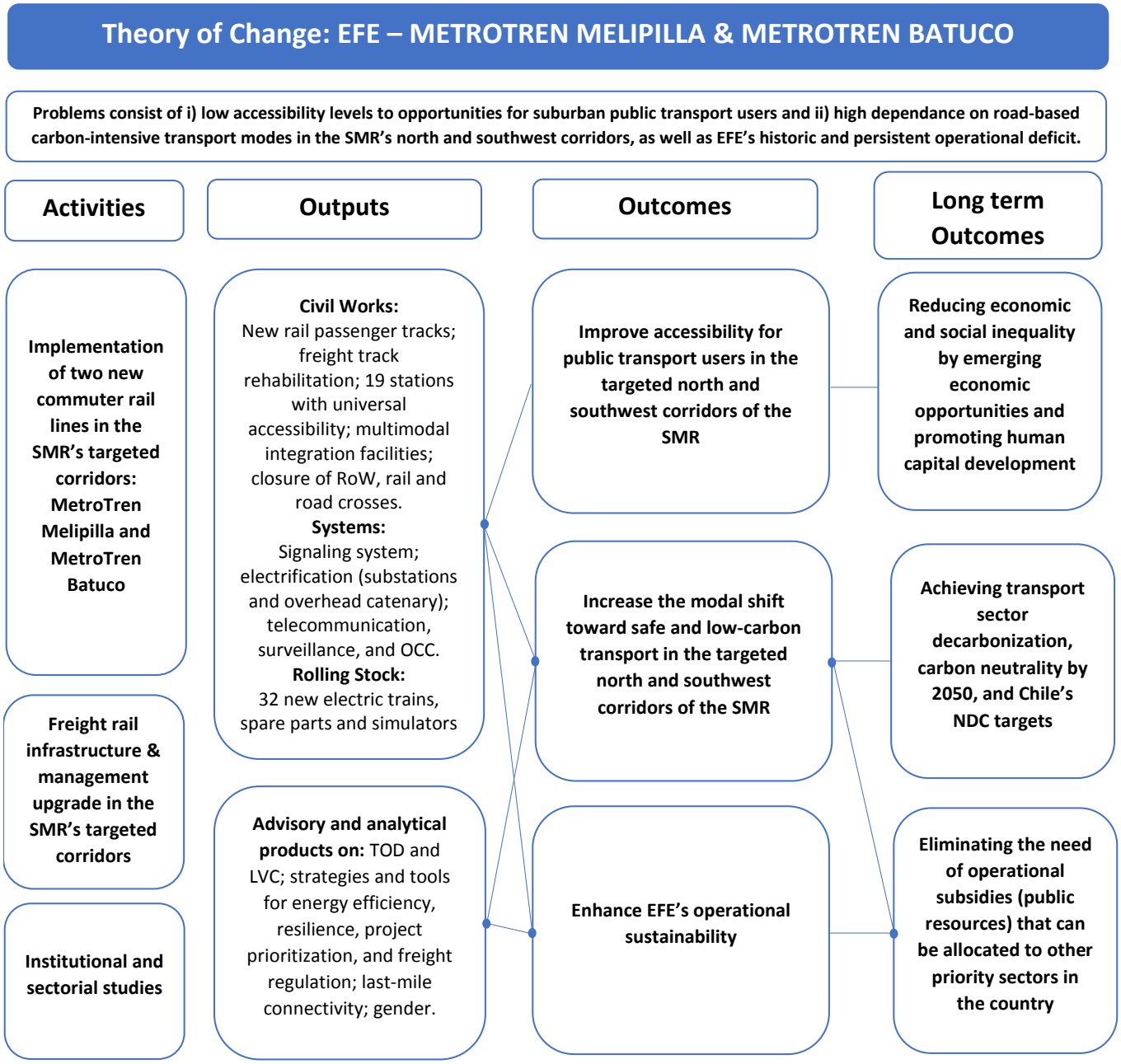
by this project will (i) facilitate a modal shift from cars, buses, and trucks to low-carbon modes; (ii) enhance freight rail efficiency; (iii) provide critical climate-smart infrastructure; and (iv) contribute to closing EFE's historical revenue shortfall by making it possible to triple the ridership in commuter trains and double the tons of freight transported over its infrastructure. As a result, the project will contribute to the decarbonization of the transport sector, triggering long-term outcomes such as social inclusion by facilitating access to lagging regions and communities, and reducing overall costs and impacts of externalities (accidents, respiratory diseases, road maintenance).

26. **The proposed project is also aligned with the previous CPF (FY11-FY16) for Chile, contributing to the modernization of the public sector, creation of jobs, improved equity, and the promotion of sustainable investments.** Grouped into three priority areas, the proposed revision of the partnership strategy is focused on addressing key Chile's demand, either through knowledge or lending. The proposed project intends to support EFE's efforts to continue to increase its investment in essential climate-smart infrastructure and is aligned with the first priority area, *Public Sector Modernization,* which supports efforts for achieving a modern, efficient, effective, and accountable public sector, in pursuit of enhancing efficiency of public resources and value for money. The project also directly creates jobs and improves accessibility for the low-income population, and thus is also aligned with the second priority area, *Creation of Jobs and Improving Equity,* which aims to reduce economic and social inequality by making the most of emerging economic opportunities and promoting human capital development. The project also supports transport sector decarbonization by promoting a shift from road and trucking to electric rail transport (more fuel efficient and lower carbon intensive fuels) and through a substantial participation of commercial financing in line with the third priority area, *Promoting Sustainable Investments*, which aims to facilitate investments in productive sectors and improve the country's regulatory framework.

C. Proposed Development Objective(s)

27. The PDO is to (i) improve accessibility for public transport users and ii) increase the modal shift toward safe and low-carbon transport in the targeted north and southwest corridors of the Santiago Metropolitan Region, as well as (iii) enhance EFE's operational sustainability.

Figure 5. Theory of Change



Key Results (From PCN)

28. Achievement of the PDO will be measured using the key outcome indicators listed in table 1.

Table 1. Key Outcome Indicators

Outcome	PDO Indicator
PDO 1: Improve accessibility for public transport users in the targeted north and southwest corridors of the SMR	• Job opportunities accessible within 60 minutes in the area of influence in the Santiago-Melipilla and Santiago-Batuco corridors of the SMR, differentiated by income and by gender. • Users satisfied with the quality of public transport service in the Santiago-Melipilla and Santiago-Batuco corridors of the SMR (travel times, reliability, comfort, safety, personal security), differentiated by income and gender. • Time travel from central Santiago to Melipilla and to Batuco.
PDO 2: Increase the modal shift toward safe and low-carbon transport in the targeted north and southwest corridors of the SMR	• Share of commuting trips (of total daily trips) using electric and non-motorized transport in the area in influence of the Santiago-Melipilla and Santiago-Batuco corridors of the SMR, differentiated by income and by gender. • GHG emisisons from passengers and freight cargo in the area of influence in the Santiago-Melipilla and Santiago-Batuco corridors of the SMR. • Road incidents (fatality and severe injury severity) in the area of influence in the Santiago-Melipilla and Santiago-Batuco corridors of the SMR. • Tons of freight hauled by rail service in the area of influence in the Santiago-Melipilla and Santiago-Batuco corridors of the SMR.
PDO 3: Enhance EFE's operational sustainability	• MetroTren Melipilla fare and non-fare revenues / operational and maintainence (O&M) costs ratio. • MetroTren Batuco fare and non-fare revenues / O&M costs ratio. • Earnings before interest, taxes, depreciation, and amortization (EBITDA)—EFE.

D. Concept Description

29. **The project consists of constructing and rehabilitating two commuter and freight rail lines connecting the SMR's peripheral northern and southwestern regions with the Santiago central area, and includes civil works, systems (signaling, electrification, and telecommunication), and rolling stock.** Along with infrastructure, systems, and rolling stock, analytical and advisory studies for sectoral and institutional reforms will also be part of the project scope. This aims to unlock the full range of benefits possible, increase the ridership potential of the commuter lines, and improve the freight regulatory framework to improve competition and private sector participation. Such studies will encompass strategies to increase EFE's non-fare revenue potential, linked to better asset management of real estate opportunities on land owned by EFE along the targeted corridors and around its stations. According to the basic and detailed designs conducted by EFE, the following division of components were adopted.

a. **Component 1. Civil Works (commercial financing supported by MIGA and IBRD guarantees).** This component includes (i) implementation of approximately 88 km of railway composed of two tracks exclusively for passenger service and the rehabilitation of one for freight transport; (ii) design and construction of 19 stations, including universal accessibility, bike parking, and multimodal integration facilities; (iii) design and construction of associated facilities, such as depots, yards and auxiliary infrastructure; (iv) design and construction of road/rail bridges or tunnels, footbridges, level-crossings; and (v) design and construction of walls and fences for closure of right-of-way. The project will include incentives for women's participation in the construction of stations and facilities. Moreover, it will incorporate Gender-Based Violence (GBV) prevention considerations in the design of the infrastructure facilities.

b. **Component 2. Systems (commercial financing supported by MIGA and IBRD guarantees).** This component includes (i) electrification of tracks at 3,000 Vdc and substations; (ii) signaling systems compatible with European Rail Traffic Management System (ERTMS) level 1; (iii) telecommunication systems; (iv) implementation of automation and surveillance systems (SCADA, SCAP, etc.); and (v) adjustments to the existing Operational Control Center.

c. **Component 3. Rolling Stock (partially financed by IBRD loan).** This component includes the purchasing of 32 electric trains, equipped with heating, ventilation, and air conditioning (HVAC) and compatible with 120 km/hr operational speeds, along with spare parts and simulators.

d. **Component 4. Institutional and Sectoral Studies (financed by IBRD loan).** This component will help EFE in addressing gaps and maximizing opportunities. It can be split into four work streams, as follows:

   i. **Non-fare revenue**: Transit-Oriented Development (TOD) and Land Value Capture (LVC), with focus on strengthening ancillary revenues and increasing ridership through better asset management of real estate opportunities on land owned by EFE along the targeted corridors and around its stations.

   ii. **Energy efficiency and resilience:** Strategies and tools to maximize the energy efficiency of operations, including development of an operational strategy for passenger services and the introduction of alternative low-carbon fuels for freight trains; and a natural and disaster risk management strategy and action plan to improve the resiliency of infrastructure and system response to disaster events.

   iii. **Governance and sector reform:** Analytical tools and studies to improve business management and project prioritization for the Chile Sobre Rieles plan; studies targeting increased private sector participation and competition, increased competitiveness in freight transport and value-added in the logistics system.

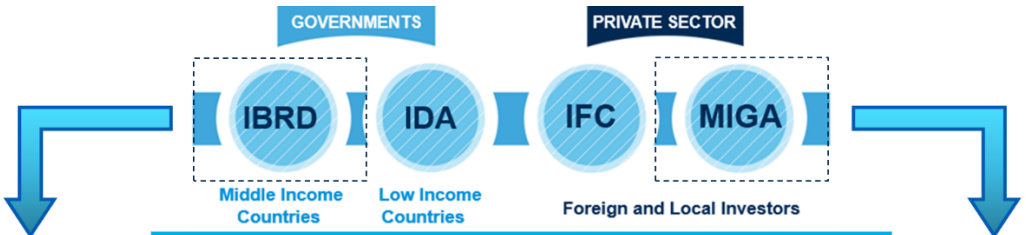
   iv. **Connectivity and inclusion**: Improvement of last-mile connectivity to stations by non-motorized transport and conventional transit services with enhanced intermodal transfer facilities and associated infrastructure, road safety audits, strategies to address gender-based violence and improve protocols for harassment, including the feasibility of incorporating interventions such as childcare facilities and nursing rooms within the stations; and analysis of the specific mobility barriers that women face to access economic opportunities.

30. **Components 1, 2, 3, and 4 contribute to the transport sector decarbonization and contribute to climate change mitigation.** These components will finance rail infrastructure including tracks, stations and supporting infrastructure, rolling stock (fleet of electric trains), and the provision of technical assistance to inform the uptake of energy efficiency, climate and disaster resilience measures, and increase the ridership and modal shift potential of the new commuter rail lines. These activities induce modal shift toward a lower-carbon mode; road passenger activity shift toward electric rail and freight trucking shift toward rail using alternative low-carbon fuels. The MIGA and IBRD guarantees will enable EFE to access new lenders (international commercial loans), which is critical to

fund the above activities with long disbursement periods, as well as ensuring attractive commercial terms at a time of relative uncertainty.

31. **The estimated total project costs are US$2,177 million.** Out of the US$1,900 million of financing supported by the World Bank Group, only 6.3 percent (US$120 million) will be provided by an IPF loan to EFE. Remaining financing will be raised on commercial markets, backstopped by the MIGA and IBRD guarantees. There is a financing gap of approximately US$277 million, which EFE expects to cover with a bond issuance or government transfers. At this stage of project preparation, the task team is contemplating an approximate amount of US$300-380 million for the IBRD guarantee to backstop approximately US$942 million from commercial financing.[32] MIGA is contemplating a Non-Honoring of Sovereign Financial Obligations (NHSFO) guarantee with its standard coverage of 95 percent (loan principal and interest) for an approximate amount of US$1 billion. Both products will help raise an overall commercial financing amount of US$1,780 million of long-term financing. The proposed financing plan is described below in figure 6.

Figure 6. Proposed WBG financing plan (US$ million, indicative amounts)



IBRD loan: supports specific project components and disburse against specific transactions

IBRD guarantee: credit enhancement to attract long-term commercial financing

Financing	Melipilla	Batuco	TOTAL
IBRD loan (IPF)	$61	$59	$120
Commercial Financing (IBRD Guarantee)	$942	$0	$942
Commercial Financing (MIGA guarantee)	$200	$638	$838
Other Sources (Proposed Bond issuance)	$277	$0	$277
TOTAL	**$1,480**	**$697**	**$2,177**

MIGA guarantee: risk mitigation to attract private investment without a sovereign guarantee

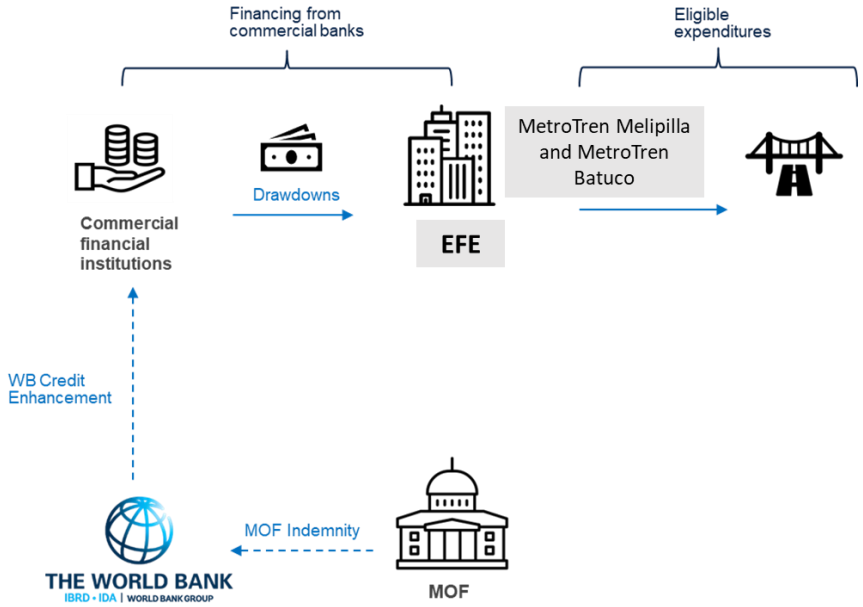
32. **The structure of the proposed IBRD guarantee is shown in Figure 7 below.** Based on preliminary market price analysis conducted by EFE financial advisor in recent months, the IBRD guarantee could assist EFE in mobilizing resources at more competitive conditions than are achievable on a standalone loan basis (see paragraphs 60 and 61). Under a Guarantee Loan Agreement, the commercial lenders would provide financing to EFE, and the IBRD would partially guarantee the repayments by EFE. The World Bank will also incorporate the guarantee support in the Project Agreement with EFE, and the Ministry of Finance would enter into an Indemnity Agreement with the IBRD.

[32] Until the financing gap is fully resolved, the task team will keep the US$380 million as an upper range. As a target, the IBRD guarantee level will be around 30 percent coverage, subject to market sounding.

Figure 7. Preliminary IBRD Guarantee Structure

Key Characteristics

- Blended financing terms due to partial IBRD guarantee
- Large facility size of $US 942 million
- Guarantee coverage estimated at 30 percent
- Leveraging international bank financing with long disbursement period to match project needs



Legal Operational Policies	Triggered?
Projects on International Waterways OP 7.50	No
Projects in Disputed Areas OP 7.60	No

Summary of Screening of Environmental and Social Risks and Impacts

Based on the information available at the Concept stage, the environmental and social risk classification is Substantial under the Environmental and Social Framework (ESF). The proposed Santiago-Melipilla and Santiago-Batuco train lines are large-scale, linear projects occurring mostly over existing right-of-ways that could have significant environmental, health and safety and social (EHSS) risks and impacts occurring primarily in previously intervened urban and peri-urban areas, as well as in surrounding natural habitats. Because of the density of these urban areas, the need to widen certain parts of the right-of-way for the rail lines, and to construct associated facilities (such as offices, workshops, etc.) land acquisition is required, resulting in a substantial amount of physical and economic displacement. There may also be other social risks and impacts related to labor influx. Main expected EHSS risks and impacts, on the other hand, are mainly related to occupational and community health and safety issues; handling and disposal of significant amount of waste and hazardous materials; and impacts on surrounding modified, natural (and potentially critical natural) habitats. Many of these EHSS impacts and risks are expected to be temporary, predictable, and reversible, with mitigation measures and management mechanisms readily available and proven to be effective.

CONTACT POINT

World Bank

Felipe Targa Rodriguez, Ada Karina Izaguirre Bradley, Said Dahdah
Senior Urban Transport Specialist

Borrower/Client/Recipient

Republic of Chile

Implementing Agencies

EFE Trenes de Chile
Cecilia Araya Catalán
Gerente de Administración y Finanzas
cecilia.arayacatalan@efe.cl

FOR MORE INFORMATION CONTACT

The World Bank
1818 H Street, NW
Washington, D.C. 20433
Telephone: (202) 473-1000
Web: http://www.worldbank.org/projects

APPROVAL

Task Team Leader(s):	Felipe Targa Rodriguez, Ada Karina Izaguirre Bradley, Said Dahdah

Approved By

Country Director:	Marianne Fay	22-Aug-2021