



Accelerating the Adoption of Electric Mobility in Chile

Part I: Project Information

Name of Parent Program

Global Programme to Support Countries with the Shift to Electric Mobility.

GEF ID

10277

Project Type

MSP

Type of Trust Fund

GET

CBIT/NGI

☐ CBIT

☐ NGI

Project Title

Accelerating the Adoption of Electric Mobility in Chile

Countries

Chile

Agency(ies)

UNEP

Other Executing Partner(s):

Agency of Sustainability Energy (ASE), on behalf of the Ministry of Energy,

Executing Partner Type

CSO

GEF Focal Area

Climate Change

Taxonomy

Focal Areas, Climate Change, Climate Change Mitigation, Sustainable Urban Systems and Transport, Influencing models, Deploy innovative financial instruments, Demonstrate innovative approach, Strengthen institutional capacity and decision-making, Transform policy and regulatory environments, Convene multi-stakeholder alliances, Stakeholders, Communications, Education, Public Campaigns, Behavior change, Awareness Raising, Strategic Communications, Type of Engagement, Consultation, Partnership, Participation, Information Dissemination, Civil Society, Academia, Non-Governmental Organization, Private Sector, Financial intermediaries and market facilitators, Large corporations, SMEs, Capital providers, Individuals/Entrepreneurs, Gender Equality, Gender Mainstreaming, Beneficiaries, Women groups, Gender results areas, Access to benefits and services, Capacity, Knowledge and Research, Capacity Development, Knowledge Generation, Workshop, Seminar, Professional Development, Training, Innovation, Knowledge Exchange, Peer-to-Peer, South-South, North-South, Field Visit

Rio Markers**Climate Change Mitigation**

Climate Change Mitigation 2

Climate Change Adaptation

Climate Change Adaptation 0

Submission Date

7/8/2019

Expected Implementation Start

1/1/2021

Expected Completion Date

12/31/2023

Duration

48In Months

Agency Fee(\$)

160,638.00

A. FOCAL/NON-FOCAL AREA ELEMENTS

Objectives/Programs	Focal Area Outcomes	Trust Fund	GEF Amount(\$)	Co-Fin Amount(\$)
CCM-1-2	Promote innovation and technology transfer for sustainable energy breakthroughs for electric drive technology and electric mobility	GET	1,784,862.00	18,520,000.00
Total Project Cost(\$)			1,784,862.00	18,520,000.00

B. Project description summary

Project Objective

Accelerate and scale-up the adoption of low-carbon electric vehicles in Chilean regions.

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
Component 1. Institutionalization of low-carbon electric mobility	Technical Assistance	1. The government demonstrates enhanced coordination, consultation and capacity for promoting the inclusive uptake of electric mobility in the Chilean regions	1.1. A national electric mobility coordination body is created for governmental stakeholders 1.2. A multi-stakeholder consultation strategy is implemented to engage all Chilean region stakeholders in the transition to electric mobility 1.3. Chilean region local governments and other regional stakeholders are trained on technical, financial, and regulatory aspects of electric mobility	GET	229,048.00	1,860,000.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
Component 2. Short-term barrier removal through low-carbon e-mobility energy demonstrations	Investment	2. Citizens of Chilean regions begin to use electric mobility for their public transport needs	<p>2.1. The viability of 6 electric vehicles as part of the fixed-route taxi fleet is demonstrated to local and national stakeholders in Antofagasta, Puerto Montt and Talca</p> <p>2.2. Evidence of the viability of electric vehicles in Antofagasta, Puerto Montt and Talca is disseminated to national and Chilean region decision-makers</p>	GET	594,745.00	7,100,000.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
Component 3. Preparing for scale-up and replication of low-carbon electric mobility	Technical Assistance	3. The private sector purchases electric vehicles to use as fixed-route taxis in Chilean regions	<p>3.1. Financial instruments are created to incentivize fixed-route taxi owners to purchase electric vehicles in Chilean regions</p> <p>3.2. Business models for deploying electric fixed-route taxis in Chilean regions are presented to national and regional government entities and the private sector for implementation</p> <p>3.3. Investment roadmaps for the long-term viability of Chilean electricity grids to support electric vehicle uptake are presented for implementation by national policy-makers and regional electricity utility companies</p>	GET	641,955.00	7,140,000.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
Component 4. Long-term environmental sustainability of low-carbon electric mobility	Technical Assistance	4. The Chilean government takes action towards implementing standards for ensuring the environmental sustainability of electric mobility	<p>4.1. Waste companies are trained in reusing, recycling and final disposal of vehicles (both conventional and electric) and electric vehicle batteries</p> <p>4.2. Standards and a legal framework for regulating the waste management, extended responsibility of the producer and recycling of electric vehicles and electric vehicle components are drafted for adoption by the Ministry of Environment</p>	GET	90,054.00	1,950,000.00
M&E				GET	66,800.00	
Sub Total (\$)					1,622,602.00	18,050,000.00
Project Management Cost (PMC)						
				GET	162,260.00	470,000.00
Sub Total(\$)					162,260.00	470,000.00

Project Management Cost (PMC)

Total Project Cost(\$)	1,784,862.00	18,520,000.00
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C. Sources of Co-financing for the Project by name and by type

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount(\$)
Private Sector	Enel X	Equity	Investment mobilized	8,200,000.00
Private Sector	Sociedad Austral de Electricidad Sociedad Anónima (SAESA)	Equity	Investment mobilized	160,000.00
Private Sector	Empresa Nacional de Energía S.A. (ENEX)	Equity	Investment mobilized	2,000,000.00
Recipient Country Government	Ministry of Energy	In-kind	Recurrent expenditures	410,000.00
Recipient Country Government	Ministry of Transport and Telecommunications	In-kind	Recurrent expenditures	200,000.00
Recipient Country Government	Ministry of Environment	In-kind	Recurrent expenditures	50,000.00
Recipient Country Government	Production Development Corporation (CORFO)	Grant	Investment mobilized	7,000,000.00
Civil Society Organization	Agency of Sustainability Energy (ASE)	In-kind	Recurrent expenditures	100,000.00
Civil Society Organization	Agency of Sustainability Energy (ASE)	Public Investment	Investment mobilized	400,000.00
			Total Co-Financing(\$)	18,520,000.00

Describe how any "Investment Mobilized" was identified

The “investment mobilized” was identified through bilateral meetings with potential co-financiers within the government: • Enel X, the electric mobility branch of Enel, is one of the biggest international electricity distribution companies in Chile. During the project, Enel X will invest USD 8.2 million in the deployment of approximately 1200 electric vehicle charging points for private and light duty vehicles through-out Chile. • ENEX is a Chilean energy company investing in incorporating electric mobility assets and solutions as additions to its fossil fuel portfolio. During the project, the company plans to invest USD 2 million in electric vehicle charging infrastructure. Investments will include fast charging stations in their operational service station network and charging infrastructure in private and public areas across Chile. Furthermore, they will provide digital tools for customers to

locate available charging stations and help clients transition their existing conventional fleets to electric solutions. • As the main electricity distribution company in the south of Chile, the National Energy Company (SAESA) has developed a charging network for electric vehicles covering over 1,200 km. During the project, the company will continue growing its charging network in the Chilean regions, providing further opportunities for the uptake of electric mobility across the southern regions of the country. • The investment mobilized through CORFO consists of funds provided through the private sector to a chosen recipient for advancing the scale-up of electric mobility in Chile, with the process administered by CORFO. This recipient will undertake activities including to: develop and implement methodologies for the interoperability of electromobility at the national level; promote the development of local suppliers in technological solutions in electromobility; and promote the development of specialized human capital in the use of electromobility. • The investment mobilized through the Agency of Sustainability Energy comes through financing received from the Ministry of Energy. It has the aim of: promoting electric mobility in fixed-route transport in local governments; promoting guidelines for local governments on incorporating public electric vehicle charging infrastructure; supporting the acquisition of electric vehicles for fixed-route taxis; supporting the acquisition of residential charging systems and their installation; and supporting vehicle monitoring during operation.

D. Trust Fund Resources Requested by Agency(ies), Country(ies), Focal Area and the Programming of Funds

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount(\$)	Fee(\$)
UNEP	GET	Chile	Climate Change	CC STAR Allocation	1,784,862	160,638
Total Grant Resources(\$)					1,784,862.00	160,638.00

E. Non Grant Instrument

NON-GRANT INSTRUMENT at CEO Endorsement

Includes Non grant instruments? **No**

Includes reflow to GEF? **No**

F. Project Preparation Grant (PPG)

PPG Required

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PPG Amount (\$)

50,000

PPG Agency Fee (\$)

4,500

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount(\$)	Fee(\$)
UNEP	GET	Chile	Climate Change	CC STAR Allocation	50,000	4,500
Total Project Costs(\$)					50,000.00	4,500.00

Core Indicators

Indicator 6 Greenhouse Gas Emissions Mitigated

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO ₂ e (direct)	0	225779	0	0
Expected metric tons of CO ₂ e (indirect)	0	219531	0	0

Indicator 6.1 Carbon Sequestered or Emissions Avoided in the AFOLU (Agriculture, Forestry and Other Land Use) sector

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO ₂ e (direct)				
Expected metric tons of CO ₂ e (indirect)				
Anticipated start year of accounting				
Duration of accounting				

Indicator 6.2 Emissions Avoided Outside AFOLU (Agriculture, Forestry and Other Land Use) Sector

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO ₂ e (direct)		225,779		
Expected metric tons of CO ₂ e (indirect)		219,531		
Anticipated start year of accounting		2021		
Duration of accounting		15		

Indicator 6.3 Energy Saved (Use this sub-indicator in addition to the sub-indicator 6.2 if applicable)

Total Target Benefit	Energy (MJ) (At PIF)	Energy (MJ) (At CEO Endorsement)	Energy (MJ) (Achieved at MTR)	Energy (MJ) (Achieved at TE)
Target Energy Saved (MJ)	5,148,907,298			

Indicator 6.4 Increase in Installed Renewable Energy Capacity per Technology (Use this sub-indicator in addition to the sub-indicator 6.2 if applicable)

Technology	Capacity (MW) (Expected at PIF)	Capacity (MW) (Expected at CEO Endorsement)	Capacity (MW) (Achieved at MTR)	Capacity (MW) (Achieved at TE)
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Indicator 11 Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment

	Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
Female		2,880		
Male		2,650		
Total	0	5530	0	0

Provide additional explanation on targets, other methodologies used, and other focal area specifics (i.e., Aichi targets in BD) including justification where core indicator targets are not provided

The direct beneficiaries were calculated based on the expected participation in workshops and capacity-building activities, use of the deployed pilots in Antofagasta, Talca and Puerto Montt, and use of the financial instruments. For the workshops and capacity-building activities, a ratio of 35% participation of women was estimated. This is based on estimates of women participation in this industry (see the gender section). For the users of the pilots and financial instruments, calculations were based on the 6 pilot electric vehicles and 30 purchased electric vehicles with usage of one year. Nationally, women are 52.5% of users of public transport and this ratio was used to calculate the beneficiaries of these electric vehicle taxis. Disaggregation by gender was based on information provided by the Ministry of Energy Gender Officer, taking into consideration the gender distribution of the country's population, workforce distribution and public transport usage (see section on gender equality). Explanation on the calculation of indicator 6 may be found in Annex M.

Part II. Project Justification

1a. Project Description

a. Global environmental and/or adaptation problems, root causes and barriers that need to be addressed

A global transition to low- and zero- emission mobility is essential to meet international climate commitments, including the Paris Climate Agreement. The transport sector is currently responsible for approximately one quarter of the world's energy-related carbon dioxide emissions;^{[1]¹} this is expected to grow by 2050. This is due to the fact that, based on business as usual projections, the global vehicle fleet is likely to double over the next 30 years. In addition, the transport sector is a leading contributor of short-lived climate pollution such as black carbon. The global vehicle fleet is set to double by 2050, and almost all this growth will take place in low- and middle-income countries. By 2050, three out of five cars will be found in developing countries.^{[2]²} This means that achieving global climate targets will require a shift to zero emissions mobility in all countries, including low- and middle-income ones.

Chile's total annual carbon dioxide (CO₂) emissions account for approximately 0.23% of the world's total greenhouse gas emissions.^{[3]³} On CO₂ emissions per capita, Chile had 4.65 Mt of CO₂ per capita in 2018.^{[4]⁴} The country's energy matrix is diverse, with coal and natural gas representing 54% of installed capacity, hydro power 31% and renewables, such as biomass, solar and wind power, representing 15%.^{[5]⁵} The resulting carbon intensity of the national electricity matrix is 0.4056kg CO₂/kWh,^{[6]⁶} and as such is lower than the global average. Emissions from the power generation sector are 31% of total national emissions.^{[7]⁷} Although the power sector is currently the prime contributor of the country's emissions, Chile has already laid out an ambitious emission reduction scheme for its power sector (see section 2) and aims for it to be carbon neutral by 2050.

With the country working to clean its power sector, achieving its nationally determined contribution (NDC) will depend on addressing challenges related to transport. Overall, the transport fleet is almost entirely powered by petroleum derivatives such as bunker oil, jet fuel, diesel, and gasoline (98%). The transport sector is the second largest contributor to the country's greenhouse gas (GHG) emissions, accounting for 35% of the country's overall energy consumption[8]⁸ and more than 21% of its GHG emissions.[9]⁹ In addition to GHG emissions, toxic emissions from the vehicle fleet and energy generation, such as carbon monoxide, unburned hydrocarbons, nitrous oxide (NO_x), sulphur dioxide and particulate matter (PM), have a significant negative impact on the air quality of many urban areas. In 2018, 24 of the 38 measuring stations located in the most populated cities of the country registered PM 2.5 concentration higher than World Health Organization guideline of 10 ug/m³ as an annual mean value.[10]¹⁰ Efforts to address air pollution may also reduce the impacts of the COVID pandemic and support the recovery process, with initial studies suggesting that poor air quality contributes to the impact of COVID-19.

Road vehicle fleet represents 88% of Chile's GHG transport emissions and is growing quickly: over the past decade the road fleet has grown at an annual rate per annum of 5.3%.[11]¹¹ As expected, the GHG emissions of the sector have followed this trend. Therefore, to contain and eventually reduce transport sector GHG emissions it is imperative to promote a shift to zero-emission transport.

In recent years, Chile has made bold targets to transition to electric mobility to decrease GHG and other pollutant emissions from the transport sector. It aims to have 100% electrification of its public transport system by 2040 and 50% electrification of private cars by 2050. The country's capital city has made significant efforts towards these targets. Santiago de Chile already has a fleet of more than 400 electric buses operating as part of the city's public transport system, with more buses expected to become operational in the near future. Furthermore, there are almost 200 electric vehicle chargers across the country, with many in the main metropolitan area. However, outside of Santiago, the Chilean regions have not been able to transition to electric mobility. To date there are no electric buses and just four electric taxis operating outside of the capital city's metropolitan area and Valparaiso, the second largest city (see section 2 for details).

Barriers to the scale-up of the Chilean regions

The root causes and barriers which hold Chile back from transitioning to low-emission electric mobility in the Chilean regions are the following:

1. Weak coordination, consultation and capacity to promote electric mobility in the Chilean regions:

- a) There is weak governmental coordination in the development of the electric mobility agenda in the regions. The agenda involves several national ministries, including the Ministry of Transport and Telecommunications, the Ministry of Energy and the Ministry of Environment, and regional and local governments. Historically the ministries have had independent mandates; however these are now becoming ever more interconnected, especially on electric mobility. While the ministries have collaborated effectively at the national level, leading to the creation of a National Electromobility Strategy and other policies (see section 2), technical coordination between ministries at the regional level has been weak and requires support as focus shifts to the regions. In particular, there is a need to coordinate effectively with the Chilean regional governments (GOREs) on technical matters. The GORES will play a key role in ensuring the effectiveness and sustainability of electric mobility interventions introduced in the regions. To date there has been weak coordination between the central government ministries, which are leading the development and implementation of actions to promote electric mobility in the regions, and the GORES, which host the interventions and play a key role in ensuring their acceptance, scale-up and sustainability. This lack of coordination has led to a lack of coherence and coordination in the implementation of activities in the regions, hampering efforts to scale up electric mobility in the regions. Coordination will be key for ensuring an efficient, effective and sustainable transition to electric mobility, including on the GEF-6 sustainable transport and GEF-7 electric mobility projects which both focus on the regions.
- b) A second barrier is related to a lack of social acceptance of electric mobility in the regions, especially with regards to the electrification of public transport. Recent social disturbance across Chile has highlighted the challenges of effecting social-technological transitions which disrupt the state of play. While interest in electric mobility in the regions continues to be high, a current barrier is related to the social acceptability of such a technological transition in public transport, including as related to perceived costs, changes to services, and effects on local livelihoods. Such perceptions are increased by the COVID-19 pandemic, which has placed greater focus on the need for ensuring local economic and social well-being. Considering the significant economic and social differences between the regions and Santiago, there is a need to ensure that efforts to facilitate the transition to a low-carbon electric mobility system incorporate the views and participation of different representative groups of local civil society actors, thus ensuring that the transition is thus socially-inclusive.
- c) Thirdly, while in Santiago the capacity of stakeholders and general institutional preparedness for promoting electric mobility is high, there is a significant lack of institutional capacity in the regions for promoting electric vehicle adoption. Regional governments are yet to participate in capacity-building activities on electric mobility as these have focused on building the capacity of actors in Santiago. Without capacity, local and regional governments are ill-equipped to plan and finance efforts to scale-up electric mobility adoption in their jurisdiction. For instance, while the private sector is moving forward on installing charging stations through-out the regions, regional actors are without capacity to inform such plans and ensure that the installation of charging networks responds to the needs of public transport networks (for instance, for fixed route-taxis) and the social considerations of the local community. By increasing their knowledge, such administrators will be able to better inform regional efforts on electric-mobility in their jurisdiction, ensuring that such efforts respond to the local needs of the private sector and civil society. Furthermore, local actors are hesitant to adopt electric vehicles in the regions as they believe emergency and safety management of electric vehicle accidents would have to come from the country's capital. While new capacity-building activities, including through the GEF-6 project (see sections 2 and 3) will focus on regional professionals and technicians on the operation and maintenance of electric vehicles, other key actors are yet to be attended to. In particular, regional administrators, safety professionals and fixed-route taxi stakeholders do not yet have capacity on electric mobility. To achieve Chile's national goal of achieving 100% electrified public transport by 2040 (see section 2), these actors need to play a key role.

2. Lack of confidence in the viability of electric mobility for the regions:

- a) There is a significant lack of confidence amongst regional and local stakeholders as to whether electric vehicles would be able to fulfil the needs and particularities of the Chilean regions. This applies to private car owners, who question the technical viability of electric vehicles for functioning effectively in the region's conditions, including as related to climate (hot and dry in the north, cold in the south) and the mountainous terrain. It also applies to public transport drivers and owners, who lack not only the confidence in the technical capability of the vehicles to satisfy the required operation, but also awareness and knowledge on how to harness the advantages of electric mobility for improving the quality of service through the use of such technologies. As noted previously, to date no electric buses and only four electric taxis have been tested outside of Santiago. Together, this lack of experience results in a hesitation on the part of local and regional authorities to support such a transition, knowing that failure in technology adoption would be politically and economically costly. Such hesitation trickles down to the private sector, which consequently waits on others to enter and test the market first (fear of first entry).
- b) Due to the lack of experience with electric vehicles in the Chilean regions, there is also a lack of data on the use of electric vehicles in such conditions. This results in a lack of information for supporting national and regional governments, the private sector, academia, and other key actors in developing, monitoring and evaluating policies, regulations and initiatives for promoting the uptake of electric mobility in the regions. With an absence of data through-out the regions, weaker regions are reluctant to adopt the technology until they have evidence from experiences in more wealthy regions.

3. Lack of finance and private sector participation in shifting the market to electric mobility in the Chilean regions:

- a) Chile has begun to implement a comprehensive policy and regulatory framework for incentivizing the uptake of electric vehicles, including to reduce the incremental upfront cost differential between conventional and electric vehicles (for instance, through regulations on energy efficiency of vehicles, see section 2). However, even with these incentives, the significant upfront cost difference between electric and conventional cars of otherwise similar attributes continues to be one of the central barriers to electric vehicle uptake in the regions. This barrier is accentuated by the economic and social conditions of the regions, which are fundamentally different to Santiago. The regions have lower GDP per capita which results in less purchasing power for individuals to cover the higher upfront costs of electric vehicles.^[12] The government is now aiming to address this gap in the regions. On the bus sector, the Ministry of Transport and Telecommunications (MTT) is working to formalize the sector and electrify it (see section 2). This will lead to a purchasing mechanism for buses similar to that currently functioning in Santiago. On fixed-route taxis, MTT together with the regional governments has introduced a vehicle replacement subsidy with the aim of incentivizing the purchasing of electric vehicles for this sector. However, to date the fixed-route taxi industry of more than 50,000 vehicles continues with little sign of transition to electric vehicles. The subsidy has had no impact (no electric vehicles purchased to date) due to a lack of consumer confidence in the technology and the insufficient size of the subsidy. The key barrier for taxi owners is the up-front costs, as even with cheaper electricity prices they have too much uncertainty in the technology to take the plunge on possibly cheaper total cost of ownership.

Furthermore, while the private financial and banking sector need to play a key role in addressing this barrier, a lack of experiences with electric mobility in the regions (as aforementioned) have led to an absence of financial products focused on electric vehicles (see below and section 2 for more information). On taxis, existing financial institutions have a lack of understanding on how to create financial instruments that are catered to the needs of fixed-route taxi drivers and electric vehicles. Currently, fixed-route taxi drivers purchase vehicles through a combination of capital, loans from financial institutions and a subsidy of the Ministry of Transport and Telecommunications (see section 2). The Banco Estado is the primary financial institution working with fixed-route taxi operators, as it is the only institution which has developed a methodology for evaluating the credit-worthiness of fixed-route taxi drivers. Its model takes into account the total cost of ownership of the conventional vehicle and average income over a time-period for the driver. The current loan model is not effective for electric vehicles, as the higher up-front cost skews the monthly repayments by more than 100%.

b) In addition to a lack of confidence and high up-front costs, another key significant barrier has been a lack of public charging infrastructure. Thankfully, both the public and private sector are addressing this barrier (see section on co-financing and section 2). However, to electrify public transport as a first step towards the electric mobility in the regions, a key barrier is a lack of knowledge of national and regional authorities on the public transport ecosystem in the regions, and in particular on fixed-route taxis. This translates into a lack of understanding as to the vehicle and infrastructure requirements for electrifying this sector, in particular as to the key locations of public chargers. While MTT has made progress in developing understanding and planning for electrifying buses in the regions, fixed-route taxis are yet to be attended to, even though they play a central public-transport function in most regional cities. While authorities have an overview of taxi numbers, there is no comprehensive mapping or listing of fixed-taxi routes.^[13]¹³ For national authorities, this results in a lack of understanding on how to develop and locate charging infrastructure, and develop regulations and strategic plans for facilitating the transition of this sector. For regional and local authorities, this lack of knowledge results in a lack of identification of opportunities for public and private sector participation and as to how to address local barriers to market entry. Together, this lack of knowledge holds back the private sector from entering into electric mobility initiatives in the regions.

c) Finally, another barrier related to charging infrastructure is that regional governments and local stakeholders lack confidence in the capacity of regional grid infrastructure to support charging infrastructure. They also lack understanding as to the required investment size and rollout timeframe to cover the increases in electricity demand due to electric vehicles. This again increases the uncertainty around the viability of an electrified transport system, which in turn slows down the uptake of infrastructure investment and thus adoption of the technology by primary users such as fixed-route taxi drivers. Furthermore, with the lack of a detailed analysis of the current and required regional level grid outlook,^[14]¹⁴ local governments fear that electric mobility uptake will lead to an over-demand for electricity, raising power costs and increasing the need for investment in electricity network infrastructure (with its associated political and economic implications). This leads to hesitation of these actors in promoting the uptake of electric mobility with its consequent demand on the electricity grid without firstly developing a plan for managing the impact together with private sector energy suppliers.

4. Lack of clarity on environmental management of electric mobility:

a) Finally, there is a lack of capacity of regional actors to undertake the environmental management of electric vehicles and their batteries, leading to hesitation amongst regional decision-makers in promoting electric mobility. The absence of electric vehicles in the regions makes it difficult for local actors to gain experience on managing the recycling and disposal of electric vehicles and their batteries. Furthermore, such actors, and particular the private sector in the waste industry, have little knowledge of market opportunities and business models for the reuse and recycling of electric vehicle components and electric batteries. This absence of capacity combined with a lack of regulations leads to hesitancy on the part of regional authorities to promote electric mobility as they are unsure as to the environmental implications and associated costs.

b) Chile is yet to introduce regulations for the waste management, extended producer responsibility and recycling of lithium car batteries and electric vehicles. In 2016, Chile established law 20.920 (known as the extended responsibility of the producer, REP) for waste management, extended producer responsibility and promotion of recycling. While the development of regulations has advanced on various workstreams under the law (such as on car tires), to date it has not established regulations for electric car batteries. Furthermore, although the development of the law considered its application to vehicles (conventional and electric), the final law did not include their consideration. The lack of a legal framework on the extended producer responsibility for electric vehicles and their batteries poses uncertainty about the long-term environmental impact and costs of vehicle disposal. These leads to policy hesitation amongst decision-makers on promoting electric mobility in the country's regions and hesitancy among vehicle manufacturers and importers. Furthermore, the lack of legal clarity on responsibility and cost of vehicle disposal hinders the development of circular economy business models for vehicles and their batteries.

b. Baseline scenario and any associated baseline projects

Energy sector

Chile's energy matrix is diverse, with coal and natural gas representing 54% of installed capacity, hydro power 31% and renewables such as biomass, solar and wind power 15%.[15]¹⁵ The resulting carbon intensity of the national electricity matrix is 0.4056kg CO₂/kWh,[16]¹⁶ and as such is lower than the global average. At the current carbon footprint of electricity, e-mobility applications will immediately result in CO₂ emission reductions in the order of 35% to 25%, depending on conventional benchmark vehicle and the technical specifications of the EV (i.e. range & battery size). Emissions from the power generation sector are 31% of total national emissions.[17]¹⁷ Although the power sector is currently the prime contributor of the country's emissions, Chile has already laid out an ambitious emission reduction scheme for it power sector and aims for it to be carbon neutral by 2050 (see below). The price of electric is currently US\$0.087/kWh.[18]¹⁸

Transport sector

Chile's transport sector contributes 21% of its GHG emissions, with road transport representing 18.5% of national emissions. Between 1990 and 2018, transport emissions increased 191.8 % due to the growth of the vehicle fleet caused by population growth, increased purchasing power and improvements in national infrastructure.[19]¹⁹ The sector consumes 35% of all energy in Chile, with 82% of consumption coming from road transport. 98% of all transport is fuel from fossil-fuel derivatives.[20]²⁰ Chile has more than 5.4 million registered vehicles, with more than 3.3 million in the Chilean regions.[21]²¹ More than 60% of these are passenger vehicles. The number of vehicles is growing rapidly, primarily due to private consumption, with a growth rate of 4.7% a year between 1998 and 2016, and a rate of 5.5% a year between 2010 and 2016.[22]²² Between 2004 and 2016 car sales grew at 4.3% a year, higher than the annual GDP growth rate of 3.2%.[23]²³

Box: Financing of fixed-route taxis

Currently, fixed-route taxi drivers purchase vehicles through a combination of capital, loans from financial institutions and a subsidy of the Ministry of Transport and Telecommunications (see below). A key challenge is that not all owners of fixed-route taxis are able to access loans from the local financial institutions due to the nature of their variable and informal income. The Banco Estado is the primary financial institution working with fixed-route taxi operators, as it is the only institution which has developed a methodology for evaluating the credit-worthiness of fixed-route taxi drivers. Its model takes into account the total cost of ownership of the conventional vehicle and average income over a time-period for the driver. Consequently, it currently holds more than 75% of the market for loans for the purchasing of conventional fixed-route taxis and typically finances between 80 and 100% of the required capital. The current loan model is not effective for electric vehicles, as the higher up-front cost skews the monthly repayments by more than 100%.

In terms of the Chilean region public road transport systems, regional systems are fundamentally different to the capital city. While Santiago has a formal transport system concessioned to large operators, regional systems are atomized and informal, comprising of small companies and individual owners. The Metropolitan region road public transport system of Santiago is comprised mainly of buses, accounting for 7,218 of the 18,139 urban buses operating across the country (buses in the regions are generally smaller: 20-30 seaters). However, regional public transport systems rely heavily on fixed-route taxis. The fixed-route taxi (known as *taxi-colectivos* in Chile) is a mode of transport which falls between a traditional taxi and a bus. Fixed-route taxis in Chile have defined route, but generally don't have timetables, instead waiting for the vehicle to be full before departing, or departing on decision of the driver. The national fixed-route taxi fleet adds to 51,744 vehicles, out of which 41,608 operate outside of the Metropolitan Region of Santiago, and

contributes an estimated 1,000,000 tonnes CO₂e emissions per year. In the regions, such taxis outnumber buses by a ratio of almost 6 to 1. Out of the almost 2000 fixed route taxi lines operating across the country, 1640 operate in regional cities and towns. Fixed-route taxis play a key role in the regions, enhancing low-cost mobility options for low-income families across the country. The taxis work extended hours beyond those of buses, and facilitate enhanced network connectivity, connecting primary bus routes with a multitude of areas in city-peripheries. The vehicles are generally 4-seaters, with the average vehicle age of the entire fleet 5.9 years, with the oldest operating vehicle being 11 years old.^[24]²⁴

On electric vehicles, Chile has an estimated 1265 in the country.^[25]²⁵ This represents less than 0.013% of the total vehicle fleet in the country. There are currently no electric buses and just four electric taxis running in the regions, in Coyhaique and Valparaíso. This is despite the government making available 120 licenses available for electric taxis in Viña del Mar, Valparaíso and San Antonio. In Santiago, at the end of 2018 the energy company Engie introduced 30 Hyundai Ioniq electric business taxis (not-fixed route taxis) into the public transport system. The taxis are operated by Transvip and utilize online vehicle payment systems. Experiences to date have been positive, with vehicle autonomy responding to client requirements. The GEF project will draw upon lessons learned from this initiative (see output 2.1). On charging infrastructure, there are currently 192 public chargers (38 fast, 154 slow) distributed along the twelve regions of the country.^[26]²⁶ Out of these, approximately two-thirds are located in the Santiago Metropolitan and Valparaíso regions, with one-third located across the rest of the country.^[27]²⁷ This focus on Santiago and Valparaíso reflects the rapid uptake of electric mobility in the country's capital and the slow (or absence of) progress in the country's regions.

On electric buses, Santiago contains the largest number of electric buses in one city outside of China.^[28]²⁸ In just three years it has gone from a demonstration of three buses (in 2017) to the operation of 435 regular buses (in 2020). In October 2017, a pilot project was initiated, with the support of Centro Mario Molina Chile and the Technical Research Centre of Finland (VTT), with three electric buses operating as a demonstration in the city centre. Following this experience, Transantiago operators MetBus, Vule and Servicio de Transporte de Personas (STP) together with the Transantiago administrators agreed to incorporate electric mobility into their services. In 2018, MetBus started operating 100 electric buses in the "Grecia" corridor, route 516. In the beginning of 2019, Vule started operating 75 electric buses on route "Avenida Bernardo O'Higgins". That same year STP started circulating 25 electric buses on "Avenida Vicuña Mackenna". Overall, the electric services have had high usage levels and positive service satisfaction feedback. As of early 2020, the electric bus fleet in Santiago amounts to 435 vehicles (approximately 6% of total fleet) and is expected to continue growing over the following years, with a new

tendering process promoting the inclusion of electric vehicles expected to take place during 2020.^[29] The Zero Emission Bus Rapid-Deployment Accelerator (ZEBRA), funded by the Partnering for Green Growth and the Global Goals 2030 (P4G), and supported by partner Centro Mario Molina Chile, is currently aiming to support the further scale up of electric buses in Santiago to 2000 units.

On overall electric vehicle market penetration, the baseline scenario estimates a slow uptake of plug-in and battery electric vehicles sales resulting in a fleet share of new sales of just over 10% of electric vehicles by 2040, and a total fleet share of less than 10% by 2040.^[30] Based on the business as usual scenario, the transport sector will continue to predominate national GHG emissions until 2040 and beyond.

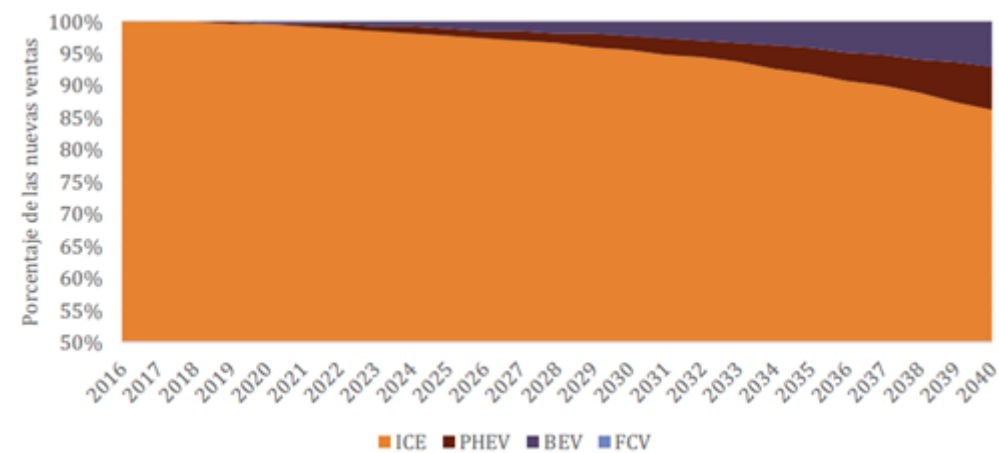


Figure 1: Share of electric vehicles as % of total new vehicle sales per year.

(ICE = internal combustion vehicle, PHEV = plug-in hybrid vehicle, BEV = battery electric vehicle, FCF = fuel-cell vehicle).

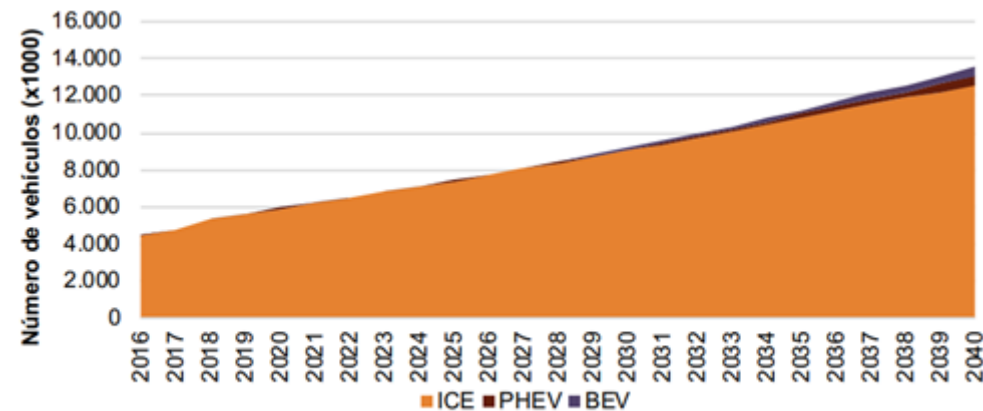


Figure 2: Number of vehicles in Chilean fleet by type.

(ICE = internal combustion vehicle, PHEV = plug-in hybrid vehicle, BEV = battery electric vehicle).

It is estimated that the fleet of fixed route taxis will grow from about 42,000 taxis today to about 51,000 by 2030 and more than 60,000 by 2050. Without any additional programmes and incentives other than those already envisaged in Chile today, it is projected that the electrification of the national fleet will take place at a slow pace. It is assumed that by 2030, only 3% of new taxis added to the fleet will be electric. Most new taxis will still be conventional internal combustion (ICE) diesel and gasoline vehicles. In the baseline scenario, a strong growth of hybrid vehicles is envisioned, with an estimated 30% of all new taxis being hybrid by 2030. On the growth of public buses in the regions, as the MTT is planning a significant restructuring of this sector (see below), estimates of growth have not been able to be made.

Policies and strategies

Chile has undertaken a series of measures to address the root causes and barriers mentioned in section 1 with the aim of facilitating a nation-wide transition to a low-emission transport sector. In terms of GHG emissions, as a signatory to the Paris Agreement Chile has set an ambitious nationally determined contribution (NDC).^[31]³¹ This includes targets of:

- An unconditional reduction of the country's GHG emission intensity of 30% by 2030 relative to the 2007 baseline;
- A conditional reduction, subject to international funding, of GHG emissions intensity of 35% to 45% by 2030 relative to the 2007 baseline.

Chile is also currently preparing a long-term climate development strategy, in accordance with article 4.19 of the Paris Agreement.^[32]³² A participatory process for developing it is underway; it is estimated that the strategy will be finalized in 2021.

In the energy sector, the implementation of Chile's NDC includes a national energy agenda led by the Ministry of Energy, which sets the following targets:^[33]³³

- 20% of the energy matrix consisting of non-conventional energy technologies by 2025;
- 20% reduction in energy consumption relative to business-as-usual scenarios by 2025.

Chile has also set ambitious long-term targets through its Energy 2050 policy.^[34]³⁴ Through this, the country aims to produce 70% of its total energy demand from renewable sources by 2050. In line with this, in June 2019 the Ministry of Energy and Aes Gener, Colbún, Enel and Engie agreed to decommission the eight oldest thermoelectric power plants by 2024.^[35]³⁵ Furthermore, the government passed Law 20/25, which promotes the diversification of the country's energy mix. Also, a tax reform, passed in 2014, established a carbon tax of 5 USD per ton of CO₂ emitted for electricity power plants of 50MW and above. More recently, the Chile has committed to phasing out all coal electricity generation, equal to 40% of the matrix, before 2040.^[36]³⁶

On transport, the key guiding document is the National Electromobility Strategy, which was launched in 2017. Through this, the country aims to electrify 100% of all public transport by 2040 and 40% of the country’s private car fleet by 2050. This is undertaken with the aim of contributing to the goals of energy efficiency and mitigation of GHG emissions and contributing to improving mobility and quality of individuals’ life; along with other benefits such as reduction of emissions of local pollutants and the adverse effects on the population’s health. The strategy sets forth an action plan with a series of action lines to achieve these targets:

- Establish the necessary regulations and standardization requirements of components that favor an efficient development of electromobility from the energy, environmental and mobility points of view;
- Promote the penetration of electric vehicles in public transport;
- Support the research and development of electromobility and enhance the formation of human capital at its different levels that allows its advance;
- Promote the development of electromobility, generating new balances that allow the market to support itself;
- Generate spaces for knowledge transfer and dissemination of information necessary for different actors to make decisions optimal with respect to electromobility.

Furthermore, through its Energy Roadmap 2018-2022, Chile has set a target of increasing the existing number of electric cars tenfold by 2022 compared to 2017 (2430 units by 2022). Key measures supporting the targets of the strategy and roadmap are the following:[\[37\]](#)³⁷

Table 3. Policies and REGULATIONS promoting Electric Mobility

Name	Type	Year and status	Description	Objective
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Labelling of energy consumption and CO2 emissions in light and medium vehicles	Regulatory	2016 Implemented and active	Supreme Decree N° 107, of 18 July 2016, the Ministry of Energy, extends the application of labelling to light, medium, electric and hybrid commercial vehicles and instructs on the regulation of labelling of energy consumption for motor vehicles.	Allow consumers to include in their decision to purchase information on vehicle fuel consumption and CO2 emissions, contributing to strive in making informed decisions to reduce energy consumption by the transportation sector and contribute to the mitigation of climate change and air pollution.
Renew your bus program	Economic incentive	2011 Implemented and active	Subsidy associated to the law of Subsidy to Public Transportation (Law 20,378), which provides access for funding the renovation of old buses for public transportation, either in regions and in the rural area of the Metropolitan Region, by new buses with better technology and less polluting.	Modernize the existing fleet public transportation buses with less polluting vehicles, more efficient and safer. Replace old buses with newer and more efficient buses in different areas of the city of Santiago.
Renew your fixed-route taxi program	Economic incentive	2015 Implemented and active	The Law of National Subsidy to Public Transportation creates a subsidy delivered by Regional Governments (GORE) for the replacement of collective taxis with less polluting vehicles in regions, including electric and hybrid vehicles. Delivery of subsidies for replacement of light vehicles used as fixed-route taxis with more modern vehicles, considering scrapping of vehicles replaced in some cases.	Modernization of the existing fixed-route taxis fleet with less polluting vehicles, with standards of superior quality, more efficient and safer.
Green Tax for New Motor Vehicles	Regulatory	2015 Implemented and active	Article N°3 of Law 20,780, indicates that: "new motor vehicles, light and medium, with the exceptions in this article, shall pay, only once, an additional tax expressed in monthly tax units". The tax is applied based on vehicle usage rates, NOx emissions and vehicle purchase price. Electric vehicles are exempt from the tax. It began to govern all those who buy a new vehicle for private use starting December 29, 2014.	Encourage the entry of less polluting vehicles, allowing a cleaner and more efficient fleet of vehicles.

Electronic Procedure for Installation of Charging Points (TE-6)	Regulatory	2018 Implemented and active	Procedures for installation of charging infrastructure. Includes geolocalisation data of the charging infrastructure.	Provide clarity to private sector on technical specifications and provide civil society with mapping of charging points.
Vehicle fuel standards	Regulatory	Implemented and active	Euro V for all vehicles, except for urban buses in Santiago which are required to be Euro VI	Increase fuel quality, reducing GHG and PM emissions, and reducing cost differential between conventional and electric vehicles.

In addition to the above, a new energy efficiency law is currently in the approval process in the Senate. Part of the law will establish energy efficiency standards for new vehicles sold by car manufacturers or importers. To encourage more electric and hybrid vehicles, multipliers of up to three per vehicle (for electric and hybrid) may be applied in the calculation of the sales average car efficiency for manufacturers or importers.[\[38\]](#)³⁸

On waste, in 2016, Chile established law 20.920 (known as the extended responsibility of the producer, REP) for waste management, extended producer responsibility and promotion of recycling. The law established six waste streams, called priority products, to which the extended producer responsibility applies: lubricating oils; electrical and electronic appliances; vehicle batteries; containers and packaging; and household small batteries. The REP legal framework establishes that the producer (manufacturers or importers) of a priority product is responsible for the end of life disposal of the product. While the development of regulations has advanced on various workstreams under the law (such as on car tires), to date it has not established specific regulations for electric car batteries. Furthermore, although the process to develop the law considered its application to vehicles (conventional and electric), the final law did not include this consideration. Thus, Chile is yet to introduce regulations for the waste management, extended producer responsibility and recycling of lithium car batteries and electric vehicles.

Chile has also advanced the participation of the private sector in the transition to low-carbon electric mobility. In early 2020 the government and more than 50 public and private entities signed the Public and Private Commitment for Electromobility 2020,[\[39\]](#)³⁹ which includes the following targets, activities and commitments to be completed in the near future:

- Increase the number of electric vehicle chargers;
- Expand the electric vehicle offer considering light vehicles, trucks, buses and vans;
- Develop two new specific financing instruments for investment in electromobility;
- Develop the second international electromobility fair;
- Train human resources, including through a new diploma in electromobility, training of technicians and development of skills associated with the maintenance of electric vehicles and installation of electric chargers.

While the private sector is increasing its engagement in this sector, to date no specific financing instruments exist for supporting consumers to purchase electric vehicles.

Key governmental actors on electric mobility

The promotion and management of electric mobility in Chile is an interministerial effort and responsibility, co-led by the Ministry of Energy and the Ministry of Transport and Telecommunications (MTT). The Ministry of Environment is responsible for issues related to waste and the extender producer responsibility. The ministries are represented in the regions by ministerial regional secretaries (SEREMI) (see further information on stakeholders in section 6).

Baseline projects

Table 4. Baseline projects

Project Name	Implementing Agency	Description	Implementation Period	Available or Approved Budget, US\$
GEF-6: Supporting the Chilean Low Emissions Transport Strategy (CLETS)	Development Bank of Latin America (CAF)	The project aims at changing the public-transport market in Chile. It aims to achieve this by accelerating the adoption of integrated and sustainable mobility in Chile and supporting a policy commitment towards low-carbon sustainable development in the public-transport sector. (See further information in the text following this table and in section 3)	2020-2024	US\$ 40,479,821 GEF project financing: US\$ 2,900,000 Co-financing: US\$ 37,579,821
Call for strategic consortiums for electromobility	Production Development Corporation (CORFO)	A call for strategic consortiums for electromobility, designed by the Ministry of Energy and Ministry of Transport and Telecommunications (MTT) to encourage the deployment of electromobility in Chile, will be launched in 2020. The objective is to work as an enabling platform and focus on the requirements for the development and deployment of electromobility in Chile. CORFO will co-finance 70% of the program's total cost, up to USD 7,000,000.	2020-2025	US\$ 7,000,000

Fixed-route taxi pilot in Coyhaique	Edelaysen/SAESA Group	<p>The energy utility SAESA piloted two electric fixed-route taxis (Hyundai Ioniq) for a period of 12 months in the city of Coyhaique. The vehicles travelled an average of 160 kilometres each day. SAESA financed the supporting charging network.</p> <p>The pilot provided important technical and administrative lessons learned for the GEF project. Technical information on selection of route, vehicle type, electricity usage, charging locations and vehicle usage performance will support the elaboration of the vehicle pilot specifications (see output 2.1, deliverables D2.1.2 - D2.1.4).</p> <p>On administrative questions, the utility is facing difficulties in transferring the used pilot vehicles to the local taxi union, due to Ministry of Transport and Telecommunication regulations. To avoid this challenge for this GEF project, the project will rent vehicles and work closely with the MTT in project execution, including in the obtaining of relevant approvals (e.g. see deliverable D2.1.1).</p>	2019-2020	Information not publicly available.
<i>(Not applicable)</i>	Compañía de Petróleos de Chile (COPEC)	During 2020 will construct an electric bus station that will include 57 x 150kW chargers that will allow the incorporation of 215 new electric buses to the Santiago bus fleet.	2020	Information not publicly available.
<i>(Not applicable)</i>	Blink Charging	Private firm will encourage the development of sustainable electromobility in Chile with the implementation of a 127 AC/DC charger grid and a software platform that will allow charger and vehicle fleet management.	2020	Information not publicly available.

ENEL X Plan	ENEL X	Will support the deployment of 1,200 charging stations across the country, allowing Chile to build the first national infrastructure network of public charging.	2019-2024	US\$ 8,200,000
Electric vehicle charging grid	Regional Government and COPEC	The government of the metropolitan region and COPEC agreed an electric vehicle charging grid will be deployed within the 52 communes of the Metropolitan region. The grid will consist of 104 x AC 44 kW chargers that will allow simultaneous charging through 2 connectors of 22 kW each.	2020 onwards	US\$ 1,200,000
Increase in fast charging stations availability	Enex	Enex will seek to deploy fast charging stations in at least 5% of its service stations.	2020-2021	US\$ 1,200,000 – US\$ 1,800,000
Increase electric mobility in own car fleet	Transvip	Transvip has committed to increase its electric vehicle fleet by 30 units, and to implement 3 electric charging stations.	2020	US\$850,000
Moving Chile	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)	Led by the Ministry of Transport and Telecommunications and the Ministry of the Environment, the project supports the creation of financing mechanisms for electric buses in the regions and the undertaking of an associated pilot.	2019-2021	EUR 2,000,000
Green Climate Fund Readiness: Advancing a regional approach to e-mobility in Latin America	Green Climate Fund <u>Implementer:</u> UNEP Regional Office for Latin America and the Caribbean, through its MOVE platform	Regional knowledge exchange, capacity building and development of proposals for climate finance through the Green Climate Fund. Work began in late 2020.	Mid 2022	US\$ 2,800,000 total US\$ 200,000 (for Chile)

Supporting the Government of Chile in the promotion of interoperability of electric vehicle charging in Latin America	<p>European Union (EUROCLIMA+)</p> <p><u>Implementer:</u></p> <p>Agency of Sustainability Energy (ASE) and the UNEP Regional Office for Latin America and the Caribbean</p>	Support the achievement of an intergovernmental agreement at the regional level to promote the development and scaling of networks and interoperable charging services for electric vehicles in the region.	2021	EUR 50,000
The Zero Emission Bus Rapid-Deployment Accelerator (ZEBRA)	<p>Partnering for Green Growth and the Global Goals 2030 (P4G), C40, International Council on Clean Transportation</p> <p>Implementer: Centro Mario Molina Chile</p>	Support the further the scale up of electric buses in Santiago to 2000 units as part of the new concession.	2021	(Not publicly disclosed)

GEF-6 project: Supporting the Chilean Low Emissions Transport Strategy

Included in Table 2 is the approved GEF-6 “Supporting the Chilean Low Emissions Transport Strategy” (CLETS) project. The project’s objective is to support Chile in a transformational shift towards low-emission urban mobility systems. It focuses on public urban mobility as a common good and tackles regulated sectors which function through public-private partnerships and licensing systems. It will seek to develop high-level outcomes such as promoting policy, planning and regulatory frameworks that foster accelerated adoption of integrated low-emissions mobility systems. These include activities that increase the amount of information available for planning, designing, and implementing sustainable urban mobility systems at the national level. It will promote sustainable urban mobility by increasing the capacity for innovation and identifying and sharing best practices. Activities will promote accelerated transfer of knowledge and capacity to stakeholders, including climate change considerations in transport-related post-graduate curricula, and information dissemination via traditional means and social media. It will also develop financing mechanisms to support the integrated adoption of low-emissions mobility systems. This will be achieved through investments in sustainable urban mobility and urban planning measures in representative urban areas.

In the design of this proposed GEF-7 project, effort has been made to ensure complementarity, establish synergies, and avoid duplication with the GEF-6 project. Section 3 describes alignment and synergies between the two projects. Section 6 describes coordination between the two.

Baseline activities in the regions

On buses, to shift regional public transport towards mass transport systems and promote electric mobility, the Ministry of Transport and Telecommunications (MTT) is working on the deployment of mass transport electric corridors in different regional cities. Announced by President Piñera, this project, called RED Regionales, plans to replicate the business model of electric buses in Santiago, formalizing the sector with the construction of bus rapid transport (BRT) lines operated with fully electric fleets. As in Santiago, the private sector would engage in bulk bidding for purchasing of electric buses on dedicated and formalized routes. The government intends to deploy 300 electric buses in the following years.^[40]⁴⁰ This effort is being accompanied by private sector financial mechanisms for supporting bulk bus purchases, such as a that recently launched by energy provider Enel X.^[41]⁴¹ It is also being supported through a GIZ Moving Chile project (see table 4). In 2020, due to the national social conflict and the outbreak of the COVID pandemic, the MTT's plans for formalizing the regional bus systems have required readjustment, with this process on-going. Overall the mass transport public system requires around US 1 billion in subsidies out of which approximately US 500 million is destined to the RED system of the Metropolitan area and the rest to the regions. Given the ongoing plans of the MTT and the relatively small impact that could be attained with GEF fund in the promotion of electric buses in regions due to the size of the bus system in the country, it was decided by authorities that the GEF-7 project would have greater impact by complementing this and focusing on demonstrating electric fixed route taxis, to facilitate the transition of this fleet of more than 50,000 vehicles.

On fixed-route taxis, in 2011 the MTT, the Ministry of Economy, the Interior Ministry, and the Ministry of Public Health signed Decree 44, which instated the vehicle replacement programme "Programa Renueva tu Colectivo." This consists of a fixed route taxi (taxi-colectivo) vehicle renewal programme by which regional governments provide a subsidy to vehicle owners willing to replace their current vehicle for a less-polluting, higher standard, safer and more efficient vehicle. As shown in Table 5, the amount of the subsidy varies between US\$360 – US\$8,300 depending on the replacing vehicle's fuel economy and technology, with electric vehicles receiving the highest subsidy. Whilst, the subsidy has been effective in promoting a renewal of the existing fleet, it has not been sufficient in promoting the uptake of electric vehicles, with no taxi drivers requesting a subsidy to acquire the latter. As a result, MTT is evaluating increasing the vehicle exchange subsidy for EVs to approximately US\$11,000. However, this still falls short of the current price gaps between an electric vehicle and a conventional one, which is estimated at US\$15,000 to US\$20,000, depending on the make and model. It can be observed that the current subsidy is less than half of the existing price gap between an EV and a conventional equivalent vehicle. In 2019, three-quarters of Chile's regions opened a call for

submissions from taxi owners to benefit from the scheme (Antofagasta, Araucanía, Arica and Parinacota, Atacama, Aysén, Bío Bío, Los Lagos, Los Rios, Magallanes, Maule, O'Higgins and Valparaíso). To date, the MTT has not considered the location of charging stations to promote the update of electric fixed-route taxis.

Table 5. subsidy amount by technology. “Renueva tu colectivo” programme

Vehicle technology	Subsidy amount, US\$
Gasoline	360 – 4300
Diesel	360 – 3600
Hybrid Electric	360 – 5350
Battery Electric	8300

To date, little capacity-building activities have been undertaken to build the capacity of regional actors on electric mobility. The Ministry of Energy has undertaken a series of webinars in 2020 (originally planned as regional workshops, but changed to webinars due to COVID-19) focusing on building the capacity of managers of public fleets throughout Chile. In particular, this was aimed at educating heads of administration and finance on the benefits of electric mobility technology to optimize the use of vehicle fleets, improve their management and obtain greater energy efficiency. In 2019, the Ministry of Transport and Telecommunications travelled through-out the regions to hold meetings with regional officials and transport associations to inform of changes to regulations, especially as related to electric buses. Furthermore, in 2019 the Agency of Sustainability Energy (ASE) held a one-day event in Talca with 40 fixed-route taxi drivers in which the drivers could test-drive an electric vehicle and speak with experts. On charging infrastructure, in 2019 the Ministry of Energy together with the Energy Superintendence held a seminar in La Serena on distributed energy and electric mobility, which, amongst other topics, informed regional participants of the regulations related to the charging of electric vehicles. To date there has not been a focused and structured programme to support the building of capacity of regional stakeholders to support electric mobility adoption in the regions. While the GEF-6 project aims to build capacity of the professional/technical community, including professionals and technicians on electric fleet operations, maintenance and repairs (see section 3), there continues to be a lack of focus on regional decision-makers, safety personnel and taxi-drivers.

Baseline descriptions of the three pilot cities

As will be described in section 3, this project proposes to undertake activities in three regional cities: Antofagasta, Puerto Montt and Talca. The process for selection of these three cities is described in section 3. Here following is a baseline description of these:

- Situated in northern Chile, Antofagasta is the fifth largest city in Chile (approximately 350,000 residents). It has 3966 fixed-route taxis and 1100 buses. The average age of its fixed-route taxi fleet is 6.5 years. It has 46 fixed-taxi routes.[\[42\]](#)⁴²
- Puerto Montt is the ninth largest city in Chile (approximately 240,000 residents) and the largest in the south. It has 3693 fixed-route taxis and approximately 855 buses. The average age of its fixed-route taxi fleet is 6 years. It has 32 fixed-taxi routes.
- Situated in the centre of Chile, Talca is the tenth largest city in Chile (approximately 235,000 residents). It has 3024 fixed-route taxis and approximately 700 buses. The average age of its fixed-route taxi fleet is 5.7 years. It has 34 fixed-taxi routes.

Baseline activities currently being undertaken in the selected cities or their respective regions are described in Table 6.

Table 6. Baseline Projects in Antofagasta, Puerto Montt and Talca

Talca	Antofagasta	Puerto Montt
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<p><u>Renueva tu colectivo programme:</u></p> <p>Together with the Energetic Sustainability Agency, the regional government will seek to strengthen the Renueva tu colectivo programme and encourage vehicle replacement with electric mobility.</p> <p><u>Vehicle reconversion policy:</u> create a public transport proposal, based on a vehicle reconversion concept as a technical and economic alternative, for the development of electric mobility in the sector.</p> <p><u>Micro electric mobility:</u> implementation of a micro electric mobility system through the deployment of a public electric bicycle system.</p>	<p><u>Electric Bus Line Antofagasta – Calama:</u></p> <p>This initiative consists of building depots, charging stations and exclusive lanes for electric buses in the corridor Antofagasta-Calama. It includes the planned acquisition of 70 x 9.5-meter electric buses to be deployed in within the electric corridor of Antofagasta-Calama.</p> <p>MTT electric vehicle chargers</p> <p><u>The Ministry of Transport and Telecommunications is currently seeking expressions of interest from the private sector for the installation of a network of charging stations in Antofagasta. It is estimated that the project will be implemented in the second half of 2021.</u></p> <p>-</p> <p><u>Sustainable mobility plan for the city of Antofagasta:</u> The plan is framed within a EUROCLIMA programme and includes an action plan for the monitoring of sustainable mobility in Antofagasta.</p> <p>-</p> <p><u>Renueva tu taxi colectivo programme:</u></p> <p>During 2019 the implementation of this programme resulted in the renewal of a total of 235 fixed-route taxis (234 cleaner conventional vehicles and 1 hybrid vehicle).</p> <p><u>Automatic payment systems for Public Transport:</u></p> <p>The local government is working alongside the Ministry of Transport and Telecommunications in the development of a payment system to be implemented as a financial managing system of the public transport sector.</p>	<p>Development of an electric corridor in the city of Osorno, Aisen region, including 8-meter electric buses with a 56-passenger capacity.</p>
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c. Proposed alternative scenario with a description of project components, outcomes, outputs and deliverables

Overview

Sections 1 and 2 highlighted the gap between efforts and results obtained in Santiago and the rest of the country on facilitating the transformation to electric mobility, with the latter not experiencing a trickle down of the capital's success. There are significant social and economic differences between the capital and the regions, with measures applied in the capital for scaling up electric mobility not suitable to the rest of the country. There is thus a need for GEF funds to support the country to achieve a sustainable transition to electric mobility in the regions by addressing the root causes and barriers identified in section 1 and taking into consideration specific Chilean regional circumstances. Through its National Strategy on Electric Mobility, Chile is aiming for 100% electrification of its public transport system by 2040, a highly ambitious target. In this context, the MTT is working on the deployment of electric buses in regional cities.³⁹ However, efforts are not yet focused on transforming the more than 50,000 fixed route taxis in Chilean regions to electric vehicles. Fixed-route taxis play a key role in the daily lives of the populations of the Chilean regions. The demonstration of the viability of electric vehicles as fixed-route taxis will play a key role in creating local electric vehicle markets and consumer confidence in the technology's suitability for the regions.

This project aims to facilitate the transition to electric vehicles in the regions by supporting the demonstration and scale-up of fixed-route electric taxi fleets, ultimately supporting Chile to meet its national target of 100% electrification of public transport by 2040. It has four components. Component 1 will focus on strengthening coordination, consultation, and the capacity of key actors for effectuating the transition to electric mobility in the regions. Component 2 will focus on demonstrating the technological, economic and social viability of electric mobility for fixed-route taxi systems under local operating conditions, as well as its environmental benefits. This will primarily aim to address the central barrier of a lack of confidence in the technology to address local needs. Component 3 will focus on facilitating a sustained scale-up of the pilots by creating financial instruments that reduce capital requirements and incorporate consideration of life-cycle costs of electric taxis. This component will also support the development of private sector investment plans and business models for ensuring a long-term and sustainable transition to electric mobility. Finally, Component 4 will focus on the environmental sustainability of the transition to electric mobility by supporting the Ministry of Environment to develop regulations on extended producer responsibility and build local capacity on the reuse, recycle and end-of-life vehicle disposal of both electric and conventional vehicles.

The project directly supports the implementation of Chile's National Strategy for Electric Mobility. The following table indicates alignment between 'action lines' of the strategy and project outputs.

Table 7A. GEF-7 implementation of the national strategy for electric mobility

National Strategy for Electric Mobility	GEF-7 project
Action line 6: Explicit incorporation of vehicles and their components in the recycling law	Outputs 4.1 and 4.2
Action line 8: incentives for fixed-route taxis	Outputs 2.1, 2.2, 3.1, and 3.2
Action line 13: Electromobility training for emergency, rescue and injured care personnel	Output 1.3
Action line 15: Training of public officials and decision makers	Outputs 1.3 and 3.3
Action line 17: Development of commercial fleet pilot projects	Output 2.1
Action line 20: Diffusion of electromobility	Output 1.2
Action line 21: Definition of an institutional structure for the management of the electromobility strategy	Output 1.1
Action line 23: Participation of Chile in international instances	Participation of Chile in the Global Programme on Electric Mobility, through the child project

Coherence and complementarities with the GEF-6 project: “Supporting the Chilean Low Emissions Transport Strategy” The GEF-7 project has been designed to complement and build synergies with the aforementioned GEF-6 project. This section describes complementarities and synergies between the two projects. Chapter 6 explains coordination between the two.

To summarize the overall differences between the two projects, the GEF-6 project has a broader approach, focusing on sustainable transport as a whole, while the GEF-7 project focuses specifically on electric mobility. Geographically, the GEF-6 project will provide technical assistance for investments related to mass transport in Santiago, Temuco and Concepcion, integrated mobility in Villarica and fixed-route taxis in La Serena. The GEF-7 project will focus on electric mobility pilots for fixed-route taxis in Antofagasta, Puerto Montt and Talca. On areas of work, the GEF-7 project has been designed to complement that of the GEF-6. GEF-7 results and relevant information will be channeled

through the information and dissemination activities of the GEF-6 project. Data collected throughout the GEF-7 pilots will be made available through the open data strategy of the GEF-6 project. In limited areas both projects will explore common themes. For instance, both projects will focus on building capacity, however these will undertake a different focus, as noted in the table below. Furthermore, coordination (as described in section 6) will ensure that such efforts are complementary and build synergies. The GEF-7 pilots will also incorporate connectivity apps and digital payment platforms, consistent with activities in the GEF-6 project related to integrated urban mobility.

There are also areas in which the GEF-7 project has a different focus to that of the GEF-6. In the context of recent national developments, the GEF-7 project has adopted a strong social focus, establishing multi-stakeholder consultation strategies and social evaluations of the entire fixed-route taxi ecosystem. Furthermore, the GEF-7 project will focus directly on ensuring the scalability of electric mobility in the regions by creating financial instruments to help reduce the price gap between conventional and electric vehicles, and building investment plans and business models with the private sector. A further element of difference between the two projects is related to the environmental sustainability of vehicle electrification. The GEF-7 has a direct focus on building capacity and business models related to the reuse, recycle and responsible end-of-life disposal of electric vehicles. Table 7 summarizes the GEF-6 and GEF-7 outputs and highlights the identified coordination, complementarities, and synergies between the projects.

Table 7B. Interaction Coordination, complementarities and synergies between GEF6 and GEF7 proJects

GEF 6 Outputs[43] ⁴³	Coordination, complementarities and synergies between the projects	GEF 7 Outputs
Output 1.1.1. Information campaigns: Through specification of audiences, followed by diffusion and informative activities, different target audiences get to discern contextualized costs, impacts and benefits of sustainable mobility	All information generated by GEF 7 activities will be disseminated through the GEF 6 platform.	N/A

<p>Output 1.1.2. Training: Through specialized training, the professional/technical community within pilot initiatives and countrywide includes professionals and technicians knowledgeable of electric fleet (operation, maintenance, repairs).</p>	<p>All capacity building activities in both GEF 6 and GEF 7 projects will be complementary. While GEF 6 focuses on building the capacity of actors related to operations, maintenance, and repairs, GEF 7 will focus on capacity building of regional administrators, safety professionals and the stakeholders of the fixed route taxi ecosystem.</p>	<p>Output 1.3: Chilean region local governments and other stakeholders are trained on technical, financial, and regulatory aspects of electric mobility</p>
<p>Output 1.1.3. MRV system (Monitoring, Reporting and Verification)</p> <p>Through studies and thorough monitoring, reporting and verification, CLETS's effective costs, impacts and benefits will be demonstrated and disseminated.</p>	<p>MRV activities of each project will be separate and independent, however data will be shared through the GEF-6 platform (GEF 6, output 1.3.4).</p>	<p>Output 2.2: Evidence of the viability of electric vehicles in Antofagasta, Puerto Montt and Talca is disseminated to national and Chilean region decision-makers</p>
<p>Output 1.2.1. Support to the formalization and diffusion of the Chilean Low Emissions Transport Strategy</p>	<p>The GEF-7 national coordination body will support the diffusion and implementation of the GEF 6 strategy and facilitate coordination of all activities relevant to electric mobility.</p>	<p>Output 1.1: A national electric mobility coordination body is created for governmental stakeholders</p>
<p>Output 1.2.2. Experience exchange and dissemination, national level</p> <p>Through experience exchange and other knowledge-management interventions, the line of work will ensure that there are key professionals in regions knowledgeable of the effective costs, impacts, opportunities and benefits of sustainable mobility.</p>	<p>The multi-stakeholder consultation strategy will produce information related to uncertainties and concerns relevant to the fixed route taxi ecosystem and make this information available to the GEF6 team.</p>	<p>Output 1.2: A multi-stakeholder consultation strategy is implemented to engage all Chilean region stakeholders in the transition to electric mobility</p>
<p>Output 1.3.1. Support to the interoperability of methods of payment</p> <p>Through technical assistance, the project will support that more intermodal instruments are tested, and lessons are learnt and are widely available.</p>	<p>The GEF-7 pilot projects will enable the use of connectivity platforms and digital payment system. Where relevant these will build upon GEF-6 efforts on intermodal instruments.</p>	<p>Output 2.1: The viability of 6 electric vehicles as part of the fixed-route taxi fleet is demonstrated to local and national stakeholders in Antofagasta, Puerto Montt and Talca</p>

<p>Output 1.3.2. Energy certification of vehicles</p> <p>Through technical assistance, the line of work will contribute to a shared outcome that the certification process for vehicles does not contain fossil-fuel lock-ins. The project provides short-term support to 3CV to advance energy-consumption certification and labelling.</p>	<p>The GEF-6 output is independent of GEF-7 activities. Energy certifications promoting the use of low and zero emission vehicles is directly aligned with the GEF7 project objective.</p>	N/A
<p>Output 1.3.3. Collective-taxi information crowdsourcing</p> <p>The project will support innovation on processes for the useful digitization of colectivo routes, so that such processes are tested and systematized.</p>	<p>The GEF 7 project will draw on any mapping undertaken in GEF-6 for its analysis and recommendations for the electrification of this sector. Information generated throughout the GEF-7 project will be made available to the GEF6 management unit to support their analysis.</p>	<p>Output 3.2: Business models for deploying electric fixed-route taxis in Chilean regions are presented to national and regional government entities and the private sector for implementation</p>
<p>Output 1.3.4. Open Data strategy</p> <p>The project will support that a shared Open Data strategy is discussed and in implementation among all relevant actors, aiming at making all disclosable public data on mobility available and interoperable.</p>	<p>Data generated throughout the execution of GEF-7 pilot projects will be shared through the open data strategy developed throughout the GEF 6 activities.</p>	<p>Output 2.2: Evidence of the viability of electric vehicles in Antofagasta, Puerto Montt and Talca is disseminated to national and Chilean region decision-makers</p>
<p>Output 1.4.1. Dissemination (international level)</p> <p>The project supports exchange and policy-dialogue activities carried out by relevant initiatives under no geographical limitation but expected to focus primarily in Latin America. Activity will be carried out to ensure that links and channels exist for an enhanced co-learning between key professionals in like-minded initiatives worldwide.</p>	<p>The GEF-7 project is a child project of the GEF global programme on electric mobility. Through programme's regional platform, effort will be made to share also relevant experiences of the GEF-6 project.</p>	<p>GEF 7 Global Programme on Electric Mobility.</p>
<p>Output 1.4.2. Identification, systematization and promotion of best practices</p> <p>Hereby, it will be sought that CLETS implementation includes an effective mechanism for the identification, systematization and dissemination of best practice.</p>	<p>The GEF-7 project will draw on such best practices, where relevant, for its capacity building activities.</p>	N/A

<p>Output 2.1.1. ZLE (zero and low emission vehicles) Transantiago (knowledge source)</p> <p>Through the provision of capacity for Transantiago to act as knowledge source for replication and uptake, Transantiago's electrification strategy will account for gender, emissions and socioeconomic factors in its MRV system and count with established capacity for the identification, systematization and dissemination of lessons learnt.</p>	<p>This activity is independent of the GEF7 programme</p>	<p>N/A</p>
<p>Output 2.1.2. ZLE Bus in Concepción and Temuco</p> <p>Through its support to pilot initiatives in the cities of Concepción and Temuco, at least these two regional cities will have advanced (bus) elements of effective sustainable mobility strategies.</p>	<p>This activity is independent of the GEF7 programme</p>	<p>N/A</p>
<p>Output 2.1.3. ZLE Collective taxi in La Serena</p> <p>Through its support to a pilot initiative in the city of La Serena, at least this city will have advanced (collective taxi) elements of an effective sustainable mobility strategy</p>	<p>Together, the fixed route electric taxi pilots in La Serena (GEF 6) and Antofagasta, Puerto Montt and Talca (GEF 7) will produce evidence of the viability of electric taxis in different geographic and socio-economic conditions in the Chilean regions, for scale-up across the country. Through data sharing (see above) the pilots will ensure lessons learned and good practices from both GEF-6 and GEF-7 are cross-fertilized, to ensure good practices and lessons learned of each are incorporated into each project.</p>	<p>Output 2.1: The viability of 6 electric vehicles as part of the fixed-route taxi fleet is demonstrated to local and national stakeholders in Antofagasta, Puerto Montt and Talca</p>
<p>2.2.1. Integrated urban mobility intervention in Villarrica</p> <p>Through its support to a pilot initiative in the city of Villarrica, the project will contribute to enhanced attention to women and vulnerable population's needs within bicycle infrastructure standards, to the development of effective paternalization standards and to a contextualized analysis of barriers to intramodality.</p>	<p>This activity is independent of the GEF7 programme</p>	<p>N/A</p>

N/A	This activity is independent of the GEF6 programme.	Output 3.1: Financial instruments are created to incentivize fixed-route taxi owners to purchase electric vehicles in Chilean regions
N/A	This activity is independent of the GEF6 programme	Output 3.3: Investment roadmaps for the long-term viability of Chilean electricity grids to support electric vehicle uptake are presented for implementation by national policy-makers and regional electricity utility companies
N/A	This activity is independent of the GEF6 programme	Output 4.1: Waste companies are trained in reusing, recycling and final disposal of vehicles (both conventional and electric) and electric batteries
N/A	This activity is independent of the GEF6 programme	Output 4.2: Standards and legal framework for regulating the waste management, extended responsibility of the producer and recycling of electric vehicles and electric vehicle components are drafted for adoption by the Ministry of Environment.

Component 1: Institutionalization of low-carbon electric mobility

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This component aims to support the government in demonstrating enhanced coordination, consultation and increased capacity on promoting electric mobility in the Chilean regions. A national electric mobility coordination body will be established to facilitate coordination on the multitude of efforts being undertaken to promote electric mobility in the regions (including the GEF-6 project). A multi-stakeholder consultation strategy will ensure the social and economic viability of the scale-up of electric mobility in Chilean regions. Furthermore, activities will be undertaken to build the capacity of local and regional stakeholders on electric mobility, particularly those involved in fixed route taxi operation. The component builds on co-financing related to in-kind contributions provided by the Ministry of Energy and the Ministry of Transport and Telecommunications with regards to coordination and consultation. It is also leveraged by support deployed by CORFO to support the deployment of electric mobility across Chile. The component aims to directly support the implementation of the National Strategy on Electric Mobility, action line 13: Electromobility training for emergency, rescue and injured care personnel; action line 15: Training of public officials and decision makers; and action 21: Definition of an institutional structure for the management of the electromobility strategy.

Outcome 1: The government demonstrates enhanced coordination, consultation and capacity for promoting inclusive uptake of electric mobility in the Chilean regions.

Outputs:

●*Output 1.1: A national electric mobility coordination body is created for government stakeholders.*

Through this output, a national electric mobility coordination body will be created to coordinate and centralize information related to electric mobility activities on-going or in the pipeline across the country. This will consist of a working group which meets periodically, maintains a record of minutes and focuses on coordinating initiatives and keeping all relevant national and local government authorities informed and up-to-date on the progress of different electric mobility initiatives. The output aims to enhance the efficiency of human and financial resources and impact of interventions. The body will be constituted of government officials, including the Ministry of Energy (which will serve as the body's secretary), MTT, Ministry of Environment, Ministry of Finance and the Ministry of Interior. In addition, the coordination body will ensure close contact with the ministerial regional secretaries (SEREMI) in the Chilean regions, which act as ministerial representation in each Chilean region. They will enable contact with regional governments (GORE) authorities and help articulate activities with local stakeholders. Meetings will be held quarterly, with information stored on a document-sharing platform. Participants will be at the technical level, that are executing related activities (including the GEF-6 and GEF-7 mobility projects).

D1.1.1 – National electric mobility coordination body (including terms of reference, membership, and procedures).

D1.1.2 – Quarterly meetings (minimum 4 per year) and publicly available meeting minutes uploaded to the platform (D.1.1.3).

D1.1.3 – Document-sharing platform (drive, SharePoint or similar).

●*Output 1.2: A multi-stakeholder consultation strategy is implemented to engage all Chilean region stakeholders in the transition to electric mobility.*

Social issues in Chile have highlighted that broad and deep stakeholder consultation is needed to effective adoption of new technologies, including electric mobility. The scale-up of low-carbon electric mobility requires the involvement of local, regional and national governments, the private sector and civil society at the regional and local levels. In this context, a multi-stakeholder consultation strategy will be developed and implemented to engage all stakeholders involved in the deployment of the technology in the Chilean regions. The strategy will seek to consult key local stakeholders on the proposed interventions on electric mobility in the target cities (see component 2) and on other initiatives planned through-out the Chilean regions (for example, ENEL X's planned implementation of electric vehicle chargers through-out the country). It will seek to incorporate local

stakeholder views, needs and priorities into electric mobility initiatives in the regions, to ensure their social and economic viability and sustainability. A focus will be placed on engaging economically vulnerable groups, such as single-parent women, rural communities, people with reduced mobility and independent fixed-route taxi drivers. The results of the consultations will be shared with the coordination body (Output 1.1), as a feedback loop to enhance the effectiveness of initiatives on electric mobility. This information will also serve as inputs into the design of the financial instruments (output 3.1) and policies and regulations (output 4.2). Recommendations for a long-term consultation mechanism will be developed and delivered to key government actors.

D1.2.1 – Stakeholder consultation strategy.

D1.2.2 – Stakeholder consultation strategy activities (to be defined by D1.2.1, including consultation sessions at the three regional workshops of output 1.3).

D1.2.3 – Report with recommendations for a long-term consultation mechanism.

•*Output 1.3: Chilean region local governments and other regional stakeholders are trained on technical, financial, and regulatory aspects of electric mobility*

This output aims to build the capacity of regional and local governments, safety professionals and stakeholders of the fixed route taxi ecosystem. It will achieve this through the provision of workshops and other capacity-building activities held in the Chilean regions. Workshops will be held in the north, middle and south of the country on each of the following three topics (3 workshop sessions on each of the following three topics):

- Fixed-route taxi fleet electrification technical feasibility. The first workshop session will detail the results of the route selection process undertaken for each pilot city (see component 2) and the operating conditions encountered. The second will be undertaken six months after the start of the pilots and will discuss results, barriers and lessons learned. Also, it will present preliminary findings of work to develop business models for deploying electric fixed-route taxis (output 3.2) and investment roadmaps for ensuring viability of electric grids (output 3.3). The third workshop will be held at the end of the pilots and will provide an in-depth technical analysis of the pilot results. It will also present the final results of outputs 3.2 and 3.3.
- Electric mobility economic outlook for fixed-route taxi applications. The first workshop session will provide an overview of expected economic performance of the electric taxis under normal operating conditions for the selected routes of each regional city pilot. The second will be undertaken six months after the start of the pilots and will discuss economic results to date. Also, it will describe how fixed-route taxi drivers and owners can purchase electric vehicles through the project's financial instruments together with the MTT subsidy, by a reduction in the capital cost of electric vehicles (output 3.1). Finally, the third workshop will be held at the end of the pilots and will provide an in-depth economic analysis of the pilot results, taking into consideration the pilots. It will also highlight to drivers the available offer of the financial instruments (3.1) and provide details on how they can use these for purchasing an electric vehicle alongside the support of local financial institutions.

- First response emergency units on electric vehicle safety and accident intervention. The first workshop session will be held before the start of the pilots to train the regional cities first response units as to how approach an accident site in which an electric vehicle or electric vehicle charging infrastructure is involved (on all types of electric vehicles). The second will be undertaken six months after the pilots and will refresh the concepts presented in the first workshop and also discuss safety issues, lessons learned or any safety-related matters that have occurred during the first six months. It will also draw on experiences from other interventions in Chile (on all types of electric vehicles). Finally, a third workshop will summarize good practices, experiences and lessons learned on safety management of electric vehicles, drawing on the outcomes of the pilots, experiences in GEF-6 and other regional and national interventions.

The workshops will be held in the pilot cities (see component 2) to also highlight to a broad range of regional stakeholders the progress of the electric mobility pilots. The workshops will draw on good practices, experiences and lessons learned shared through the support and investment platform for Latin America and the Caribbean, hosted by Centro Mario Molina Chile. Selected stakeholders who participate in the platform activities will ensure information gathered is incorporated in the Chilean regional workshops. The workshops will be implemented with the support of Centro Mario Molina Chile, to build synergies and complementarities with the Global Programme. The support and investment platform will also provide a help desk which will support the identification of national and international experts for supporting the capacity-building exercises and undertaking of studies. The workshops will also draw on knowledge gained from the efforts to scale up the electric bus fleet in Santiago de Chile, including through the ZEBRA initiative. The workshops undertaken will be gender sensitive. Also, all workshops will be available online as a webinar, to facilitate participation by those unable to join due to distance or COVID-19 restrictions. Online workshops will also be coordinated with the UNEP MOVE platform, an electric mobility portal hosted by the UNEP Regional Office of Latin America and the Caribbean. The workshops will also share a report on good practices and lessons learned on enforcing regulations for electric vehicles and charging infrastructure in Chilean regions, to serve as a guide for regional and local governments on such regulation. This report will draw on the work of this project, the GEF-6 project and summarize in clear language related governmental regulations and policies. A third capacity-building activity will be focused on national stakeholders. While the Ministry of Energy has developed standards to regulate electric vehicle charging infrastructure, technical institutions have a lack of field experience on enforcing regulations. To address this and facilitate north-south technology transfer, national technicians will build capacity by undertaking an international visit to a city that has already enforced such regulations and has similar characteristics to those of Chile.

D1.3.1: Three Chilean regional workshops on fixed-route taxi fleet electrification technical feasibility.

D1.3.2: Three Chilean regional workshops on electric mobility economic outlook under current policy framework for fixed route taxi applications.

D1.3.3: Three Chilean regional workshops for first response emergency units on electric vehicle safety and accident intervention.

D1.3.4: International mission on enforcing regulations for electric vehicle charging infrastructure.

D1.3.5: Report on good practices and lessons learned on enforcing regulations for electric vehicles and charging infrastructure in Chilean regions

Component 2: Short-term barrier removal through low-carbon e-mobility energy demonstrations

This component aims to demonstrate to local and regional stakeholders the technical, financial and environmental viability of electric mobility in the regions, paving the way for the broad scale-up of the technology through-out the country. It will aim to achieve this by addressing barriers related to a lack of confidence of local actors in the viability of electric vehicles in local conditions. Such barriers will be addressed by piloting electric vehicles in three diverse and representative Chilean region cities in the north, middle and south of the country. The aim is that through the pilots and financial instruments (output 3.1), taxi drivers will have the confidence and financial means, as well as the infrastructure (see co-financing below), to shift to electric vehicles. Through the component a data management system will be developed to compile information generated by the tested vehicles and chargers. The component builds upon co-financing of the MTT and the private sector (Enel-X, SAESA and Enx) which are investing in the construction of electric vehicle charging infrastructure through-out the country. It also builds upon in-kind contributions from the Ministry of Energy, the Agency of Sustainability Energy (ASE), and CORFO to stimulate electric vehicle uptake. The component aims to directly support the implementation of the National Strategy on Electric Mobility, action line 8: incentives for fixed-route taxis; and action line 17: development of commercial fleet pilot projects.

To choose the cities, a multi-criteria selection process was undertaken by the Ministry of Energy, the Ministry of Transport and Telecommunications (MTT), the Energy Sustainability Agency, Centro Mario Molina and UNEP. The 16 largest regional cities were identified and then subject to a multi-criteria analysis using criteria including population size, fixed-route taxi fleet size, average vehicle fleet age, local PM pollution and percentage of renewable energy in the local electric matrix. A key deciding criteria was also on how cities were considered in the MTT's plans to formalize mass transport systems in regional cities. Under the MTT's guidance and in accordance with its long-term plan for mass transport, cities in which fixed-route taxis were no longer planned to play a major role were discarded. The cities were also filtered by:

- How representative they were of regional cities, as pilots for generating good practices, experiences and lessons-learned that could be replicated and scaled-up in other cities;
- How diverse they were from each other, to ensure that each chosen city would present unique geographical and socio-economic characteristics, to generate a diversity of good practices, experiences and lessons-learned for replication and scale-up;
- Their estimated potential global environmental impact (through reduction of GHGs) during the demonstration period and in the medium- to long-term.

Based on this process, the cities of Antofagasta, Puerto Montt and Talca were chosen. Following this, the cities were validated with the Ministry of Energy, the MTT, the private sector and civil society. Stakeholder consultations were then undertaken with local representatives of each city and local taxi associations to confirm the social, environmental and economic viability of demonstrating electric fixed-route taxis in the selected cities (see further information in the stakeholder consultation report).

Outcome 2: Citizens of Chilean regions begin to use electric mobility for their public transport needs.

Outputs:

•*Output 2.1: The viability of 6 electric vehicles as part of the fixed-route taxi fleet is demonstrated to local and national stakeholders in Antofagasta, Puerto Montt and Talca.*

The output aims is to address technological confidence and awareness barriers by demonstrating electric vehicles with fixed-route taxi drivers and the general public in Chilean regional cities. Through these demonstrations, a critical mass of taxi drivers, users and local decision-makers will develop an understanding of the economic, social, and environmental viability of electric fixed-route taxis in their jurisdiction and beyond. In addition, through output 1.3, interested taxi drivers and owners who have piloted the electric vehicles will be encouraged to purchase an electric fixed-route taxi through the support of the financial instruments created under output 3.1. Furthermore, the use of leasing to acquire the vehicles (as described following) aims to incentivize the private sector to participate in the regions and open up the exploration of new business opportunities for this sector (including through the expansion of EV availability through leasing and renting schemes). It will also support these companies to develop understanding on electric vehicle performance, operations and resale value.

This demonstration involves leasing two electric vehicles and purchasing the charging infrastructure in each of Antofagasta, Puerto Montt and Talca (six vehicles in total) and demonstrating their viability as fixed-route taxis over a period of at least one year. GEF project funds will cover the renting/leasing costs for the vehicles for the duration of the pilot. Local leasing companies will provide the vehicles, with such companies currently offering the leasing and renting of electric vehicles in Chile and expressing interest to participate in the project.^[44] Drivers will be rotated periodically (every two to three weeks) to build up a large number of users who have experiences with the vehicles. The demonstrations in these three cities will develop experiences, good practices and lessons learned for other cities with similar characteristics. The output will also test digital payment systems, user connectivity apps, and other fleet optimization strategies to maximize economic performance. This will include the use of a fleet management connectivity platform that will not only provide the mentioned services but also generate the data relevant to vehicle operation. This last point will be central to Output 2.2. To ensure that all

taxi drivers interested in testing the electric vehicles have the chance to do so, an operation schedule will be arranged with the local taxi association. Focal points will be identified in each city taxi association and supported to facilitate the pilot operations in each city. At the beginning and end of the test period each driver will answer questionnaires on their expectations before the test and their thoughts after it. The operation schedule will ensure that interested female taxi drivers are included in the demonstration.

Whilst the charging station will be placed in a fixed location, the route evaluation will identify all routes where vehicles could operate without the need for additional charging during the day. This will allow for the vehicles to be picked up in the morning and returned at night. At the end of demonstration, the leased vehicles will be returned to the leasing company or companies that provided them. The demonstration will draw on the experiences of the use of 30 electric taxis in Santiago through the support of Engie, and the pilot of two electric fixed route taxis in Coyhaique through the electricity provider SAESA. Information from these will support the technical design of this demonstration, including with regards to route selection, vehicle type, electricity usage, charging locations and vehicle usage performance. The experiences in Santiago with digital payment systems will also contribute to the design of such systems for this demonstration.

D2.1.1: Provisional fixed-route taxi licenses and insurance acquired for the six pilot electric vehicles.

D2.1.2: Identification of taxi routes on which the electric vehicles will operate for each of the three cities.

D2.1.3: Technical requirements of vehicle charging infrastructure for each of the three cities.

D2.1.4: Technical requirements of the electric vehicles for each of the three cities.

D2.1.5: Leasing of two light-duty electric vehicles for each city, based on specifications established in D2.1.4.

D2.1.6: Electric vehicle charging infrastructure and its installation in each city, based on specifications established in D2.1.3. This will include the purchase of a multi-standard light duty vehicle charging station capable of charging two vehicles at the same time.

D2.1.7: Vehicle monitoring (including data management system in each city), digital payment systems and user connectivity apps.

D2.1.8: Driver test drive protocol, operation and safety training in consultation with the local fixed-route taxi association.

D2.1.9: Start (2.1.9.a) and end (2.1.9.b) of pilots in Antofagasta, Talca and Puerto Montt.

•*Output 2.2. Evidence of the viability of electric vehicles in Antofagasta, Puerto Montt and Talca is disseminated to national and Chilean region decision-makers.*

As noted in section 1, due to the lack of experience with electric vehicles in the Chilean regions, there is also a lack of data on the use of electric vehicles in such conditions. This results in a lack of information for supporting the national and regional governments, the private sector, academia and other key actors in developing, monitoring and evaluating policies, regulations and initiatives for promoting the uptake of electric mobility in the regions. This output will focus on collecting operational data generated through the pilots, analyzing it, and communicating the results to national and local authorities, city fixed-route taxi associations and the general public. Through D2.1.7, the vehicles will be equipped with monitoring devices. The information generated by these will be uploaded to city data management platforms, where it will be post-processed. The results and information will then be made available online through the GEF-6 project open-data strategy for stakeholders to visualize and evaluate the performance of the demonstrated electric vehicles in their jurisdiction and those of the other two cities. The University of Talca (Maule Region), University Austral (Los Lagos) and University of Antofagasta (Antofagasta), will be invited to participate in efforts to monitor and collect data on the electric vehicle pilots and in comparison to internal combustion engine fixed-route taxis.^[45] Furthermore, the data and information will permit the calculating of potential air quality and economic benefits, based on a comparison with business-as-usual scenarios. All information will be shared through the open data strategy developed as part of the GEF-6 project.

D2.2.1: Electric vehicle and charging infrastructure data acquisition methodology.

D2.2.2: Monitoring and evaluation methodology, including before and after drivers' questionnaires.

D2.2.3: Personnel in each city trained in access the vehicle monitoring data management system.

D2.2.4: Quarterly operation and performance reports (minimum 4).

D2.2.5: Final report on electric vehicle techno-economic and environmental performance in the pilots, differentiated by city.

D2.2.6: Postprocessed data is online on the city data management system (D2.1.7) and accessible for interested stakeholders through the GEF-6 open data strategy.

Component 3: Preparing for scale-up and replication of low-carbon electric mobility

This component aims to build upon current efforts of the Chilean government and scale-up the demonstrations in component 2. Firstly, it will develop financial instruments that build upon the existing vehicle renewal scheme to provide affordable financing to regional taxi drivers for purchasing electric vehicles. The instruments will address the higher upfront cost and build upon lower total costs of ownership of electric vehicles, to ensure a long-term and sustainable replication of the project's pilots through-out Chilean regions. Secondly, business models for deploying electric fixed-route taxis in Chilean regions will be developed. These will catalyse market development and participation of the private sector in electrifying the fixed-route taxi sector. Finally, the component will achieve long-term scale-up by supporting Chilean regions with developing long-term investment roadmaps for electricity grids, to ensure that local infrastructure accompanies the scale-up of electric vehicles.

This component builds on private sector co-financing of energy providers ENEL X, ENEX and SAESA, which are investing in the development of a broad network of charging station infrastructure through-out the regions. Such infrastructure, together with the building of confidence through the pilots, will be key factors in the success of the financial instruments, business models and roadmaps. The component also builds on the MTT vehicle renewable subsidy scheme, which will provide funds to help close the price gap between conventional and electric vehicles. The component also builds upon funds committed by the MTT as part of their mass transport electrification strategy for regional cities. Also, this component will receive co-financing in the form of in-kind contributions from the Ministry of Energy and the Agency of Sustainability Energy (ASE). The component aims to directly support the implementation of the National Strategy on Electric Mobility, action line 8: incentives for fixed-route taxis.

Outcome 3: The private sector purchases electric vehicles to use as fixed-route taxis in Chilean regions.

Outputs:

●*Output 3.1: Financial instruments are created to incentivize fixed-route taxi owners to purchase electric vehicles in Chilean regions.*

This output aims to scale-up the purchasing of electric fixed-route taxis in the Chilean regions through financial instruments and a grant fund. It aims to address the barrier of higher upfront costs of electric vehicles, as even with the existing MTT subsidy taxi drivers have not purchased electric fixed-route taxis.

Firstly, the output will support the Banco Estado to develop financial products that meet the needs of fixed-route taxi drivers in Chilean regions who wish to purchase electric taxis. The bank currently provides loans to more than 75% of the fixed-route taxi market in Chilean regions. It has a methodology to calculate risks in lending to fixed-route taxi

drivers who purchase conventional vehicles, based on factors including individual credit-worthiness, driver income, fuel costs and maintenance costs.[46]⁴⁶ This output will support the bank to develop a methodology for assessing the risk of lending to fixed-route taxi drivers who wish to purchase electric vehicles. This will be based on a total cost of ownership assessment for electric vehicles versus conventional ones, and other factors such as credit worthiness, route-location, electricity prices, vehicle technology and estimated income. Based on this methodology and international good practices, the output will support the bank to develop financial products that offer interest rates and related monthly payments, as well as other features, that are attractive to fixed-route taxi drivers and encourage them to purchase electric vehicles.

Secondly, the output will pilot a dynamic subsidy that is applied in addition to the existing subsidy provided by MTT. This will be undertaken with the aim of support the MTT in increasing its existing subsidy to a level sufficient to incentivize fixed-route taxi drivers to purchase electric vehicles. The MTT has noted that it is currently exploring increasing its current subsidy available for fixed-route taxi drivers to purchase electric vehicles, as to date the actual subsidy has not been used for the purchasing of any electric vehicles. However, the MTT is unable to test different subsidy levels and dynamic subsidies, due to the slowness of governmental processes and the implications and possible market distortions that such testing at scale could induce.

To determine an effective subsidy in real conditions, through this output, the Agency for Sustainability Energy will create and manage a grant fund that will provide an additional subsidy to interested fixed-route taxi drivers in the regions.[47]⁴⁷ GEF funds will also provide initial seed funding. The grant fund will provide an additional incentive to early technology adopters in the regions until market forces reduce the cost differential and total cost of ownership considerations to levels which are covered by a lower (or the existing) MTT subsidy and private sector financial offer. The grant fund will be dynamic to ensure that it does not create a market distortion. It will offer a dynamically-calculated additional subsidy which will be determined based on a series of factors that together estimate the ‘real’ difference in purchase costs of electric and conventional vehicles. Such factors will include an analysis of electric fixed-route taxi total system costs (i.e. total cost of ownership analysis and taxi driver cashflow[48]⁴⁸), vehicle unit prices, MTT subsidy value, electricity costs, private sector financial offer and vehicle re-sell value. In time, the size of the grant offered will be reduced, depending on the aforementioned factors. The Agency will work with the MTT in the development of the additional subsidy, to ensure coherence with the ministry subsidy (including its operations and criteria). During the project, the grant fund will support taxi-drivers to purchase between 30-50 fixed-route taxis in the regions. To incentivize drivers that participate in the component 2 pilot to draw on the financial instruments, a series of information sessions will be held in the pilot cities through output 1.3, explaining how the mechanism works and how drivers can access finance through it.[49]⁴⁹ The grant pilot will serve to generate evidence to the MTT of the benefits of a dynamic subsidy and to the level required to incentive large-scale adoption of fixed-route electric taxis. The results of the pilot will be presented to the MTT for its consideration and revision of its current subsidy, with a view to it incorporating the findings of the Agency pilot into a revised dynamic MTT subsidy.

The development of the grant fund will build upon the work undertaken through the GIZ Moving Chile project, which is supporting the development of financial mechanisms for electric buses in the regions. While the modalities and nature of vehicle purchasing will be distinct (in buses MTT is moving towards large-scale purchasing models similar to what is currently undertaken in Santiago), where possible the GEF project will build upon lessons-learned and good practices.

D3.1.1: Banco Estado financial instrument for fixed-route electric taxis, based on a credit methodology and international good practices.

D3.1.2: Design of ASE grant fund, including dynamic grant calculation methodology and fiduciary guidelines.

D3.1.3: Operation of ASE grant fund.

D3.1.4: Recommendations for revising the existing MTT subsidy presented to the MTT for adoption, based on an analysis of the ASE grant fund.

•*Output 3.2: Business models for deploying electric fixed-route taxis in Chilean regions are implemented by regional government entities and the private sector*

This output aims to support regional governments and private sector to identify and implement business models for electrifying the fixed-route taxi sector (of more than 50,000 vehicles) in the regions. Such business models will incorporate considerations of the specificities of the use of fixed-route taxis in the regions. These are often owned by the driver and support a myriad of functions beyond the creation of income. There is a strong social element involved, as the taxis generally support the undertaking of family roles. Such business plans will be developed to ensure coherence with MTT plans for formalizing mass public transport in Chilean regions (see section 2). This output will draw upon the consultation strategy (Output 1.2) and assess the ecosystem of fixed route taxis in Antofagasta, Puerto Montt and Talca, to identify barriers and propose recommendations for business models for accelerating the transformation to electric fixed-route taxis in these cities and the regions in general. In addition to the in-depth analysis undertaken in the three cities, a high-level national assessment of the fixed-route taxi fleets operating in regional Chile will be undertaken to understand the requirements for future fixed-route EV deployment across the country. This output will lead to the identification of business models for local and regional governments and the private sector to implement, leading to an economically sustainable transition to a low-carbon fixed-route taxi sector. Key private sector actors to be engaged include vehicle distributors, maintenance operators, leasing companies and taxi companies. The recommendations and business models will be presented to the cities through workshops under output 1.3.

D3.2.1: Report on the fixed-route taxi ecosystems of Antofagasta, Puerto Montt and Talca, detailing, inter alia, fleet structure, routes, operating hours and off-work requirements.

D3.2.2: Electric vehicle business model analysis and recommendations on public and private business models for each city.

D3.2.3: Analysis of fixed-route taxi ecosystem in all Chile regions, including fleet size, mapping of route, vehicle average age, average daily kilometres, and summary of international lessons-learned and good practices in electrifying taxis.

D3.2.4: Recommendations on public and private business models for deploying and scaling-up fixed route electric taxis in Chilean regions.

•*Output 3.3: Investment roadmaps for the long-term viability of Chilean electricity grids to support electric vehicle uptake are presented for implementation by national policy-makers and regional electricity utility companies.*

This output aims to determine the impact that different penetrations of electric vehicles would have on regional city electricity distribution grids. It will also establish the required investment to support different scenarios of electric mobility penetration for fixed-route taxi fleets as well as private vehicles. As test cases, the output will focus in detail on the electricity grids of the three pilot cities (Antofagasta, Puerto Montt and Talca). In addition, it will provide high level insight into the requirements and state of appropriateness of the grid in all regions of the country to absorb future demand generated by the electrification of fixed route taxi fleets and incorporation of electric vehicles across the country. It will build upon in-kind co-financing of the Agency of Sustainability Agency, including through its collaboration with UNEP ROLAC on an EUROCLIMA+ project to support the Government of Chile in the promotion of interoperability of electric vehicle charging in Latin America. The roadmaps will be presented to the cities through workshops under output 1.3.

D3.3.1: Report on current state and structure of the electricity distribution grid of each of the three pilot project cities: Antofagasta, Puerto Montt and Talca. The report will establish correlations between findings to determine if these are local, regional or national.

D3.3.2: Report on electricity demand for different scenarios of electro mobility in each city, considering fixed route taxi fleets and private vehicles.

D3.3.3: Investment roadmaps to satisfy additional electricity demand due to different scenarios of electric mobility penetration in Antofagasta, Puerto Montt and Talca.

D3.3.4: High-level investment roadmaps for achieving grid readiness of all Chilean regions for large scale electric mobility fleets (fixed route taxis, buses and private vehicles), including recommendations for increasing readiness.

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Component 4: Long-term environmental sustainability of low-carbon electric mobility

This component aims to enhance the long-term environmental sustainability of electric mobility in Chile. It aims to develop local capacity on responsible end-of-life disposal of electric vehicle batteries and support the Ministry of Environment to develop the required regulations for electric vehicles and their batteries. The component builds upon in-kind co-financing contributions of the Ministry of Energy, the Agency of Sustainability Energy (ASE) and the Ministry of Environment. It aims to support the implementation of the National Strategy on Electric Mobility, action line 6: Explicit incorporation of vehicles and their components in the recycling law.

Outcome 4: The Chilean government takes action towards implementing standards for ensuring the environmental sustainability of electric mobility.

Outputs:

•*Output 4.1: Waste companies are trained in reusing, recycling and final disposal of vehicles (both conventional and electric) and electric vehicle batteries.*

Chilean regional actors have a lack of capacity to undertake the environmental management of electric vehicles and their batteries, leading to hesitation amongst regional decision-makers in promoting electric mobility. This output aims to train key stakeholders in regional cities on the reuse, recycling and final disposal of vehicle components (conventional and electric). Workshops will be held in-conjunction with the regional workshops of output 1.3, on topics including:

- General aspects of end-of-life vehicle disposal (conventional and electric).
- Vehicle used battery management and battery reuse.
- Hazardous waste management.
- Lithium ion recycling technology.

Key actors to participate will include private recycling companies, national importers, automobile-related companies, mining companies (for instance, lithium miners), government entities and civil society that are involved in such activities. In addition, the output will support the development of circular economy business models for the reuse, recycling, and final disposal of used electric vehicle components and batteries. This aims to extend the life duration of electric vehicle components and batteries to reduce the quantity of waste produced and improve their economic and environmental life-cycle performance. A workshop will also be held to support private companies to identify possible

business models for such efforts adapted to the local context of the Chilean regions. The workshops will draw on good practices, experiences and lessons learned shared through the support and investment platform for Latin America and the Caribbean, hosted by Centro Mario Molina Chile. Selected stakeholders who participate in the platform activities will ensure information gathered is incorporated in the Chilean national workshops. The workshops will be implemented with the support of Centro Mario Molina Chile, to build synergies and complementarities with the Global Programme. The support and investment platform will provide a help desk which will support the identification of national and international experts for supporting the capacity-building exercises and undertaking of studies. The training workshops will be gender-sensitive, for instance, ensuring that the organizers consider when, where and how the workshop will be conducted so women can comfortably participate. All activities will be established in collaboration with Ministry of Environment and local governments

D4.1.1: Three regional training workshops on vehicle (conventional and electric) recycling, final disposal, and electric battery reuse.

D4.1.2: Three workshops on the development of circular economy business models for electric vehicles, including its batteries and components.

•Output 4.2 Standards and a legal framework for regulating the waste management, extended responsibility of the producer and recycling of electric vehicles and electric vehicle components (including batteries) are developed and drafted for adoption by the Ministry of Environment.

As noted in section 1, Chile does not have a legal framework for the recycling and extended producer responsibility (EPR) of vehicles, either conventional or electric. The law 20.920, the umbrella legal framework for waste management, EPR and recycling, includes six products waste streams, one of which is vehicle batteries. However, to date regulations have not been developed under this law for vehicle batteries. While Chile has advanced with incorporating electric buses into Santiago, the life-time of buses means that the government has not yet considered vehicle battery disposal, as there will still be some years before this waste arises. However, this lack of regulation results in uncertainty among key stakeholders, including the private sector, about the long-term environmental impact and related costs of the reuse and disposal of electric vehicles, leading to hesitation to market entry. This output will support the development of standards by the Ministry of Environment, under the existing law, for the waste management, EPR and recycling of vehicle batteries, including electric vehicle batteries. This output will also develop inputs for the establishment of a legal framework on the recycling and EPR for conventional and electric vehicles. Standards are required for all vehicles to ensure that there is a level playing field for electric vehicles with conventional ones, avoiding additional costs being added to the cost of electric vehicles to cover for end-of-life management. Development of the draft standards and inputs will draw upon consultations under output 1.2.

D4.2.1: Report on good practices, and social and economic impacts for standards on waste management, EPR and recycling of vehicle batteries, including electric vehicle batteries.

D4.2.2: Draft of standards for waste management, EPR and recycling of vehicle batteries, including electric vehicle batteries, is presented to the Ministry of Environment for adoption, and additional support on data and justification of the standards is provided to facilitate adoption.

D4.2.3: Report on good practices, and social and economic impacts for standards for legal frameworks for waste management, EPR and recycling of vehicles (conventional and electric) as input into the development of a legal framework on this area by the Ministry of Environment.

d. Alignment with GEF Focal Area and/or Impact Program strategies

This programme is aligned with Objective 1 of the Climate Change Focal Area to “Promote innovation and technology transfer for sustainable energy break-throughs”, through CCM 1-2 - Promote innovation and technology transfer for sustainable energy breakthroughs for electric drive technologies and electric mobility.

e. Incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF, LDCF, SCCF, and co-financing

As noted in section 1, key barriers exist which impede Chile from transitioning to electric mobility in the Chilean regions. As noted in that section, in the regions there is, inter alia, a lack of technological confidence in electric vehicles, a lack of successful experiences, and a lack of effective financial instruments. Consequently, the baseline or business-as-usual scenario estimates a slow uptake in Chile of plug-in and battery electric vehicles sales, resulting in a fleet share of new sales of just over 10% of electric vehicles by 2040, and a total fleet share of less than 10% by 2040.^[50]⁵⁰ In this context, based on the business as usual scenario the transport sector will continue to predominate national GHG emissions until 2040 and beyond. The incremental cost reasoning of the GEF trust fund intervention contends that by addressing the aforementioned barriers, Chilean regions can accelerate the uptake of electric mobility significantly beyond the baseline of 10% by 2040. As the region’s electric grids are relatively clean, and the country is investing in renewable energy supplies and retiring coal power plants, the intervention is thus expected to have significant global environment benefits, through the mitigation of greenhouse gas emissions as quantified in section 6. The global environmental benefits will be tracked through the project results framework, in particular the core indicator A: *tons of direct*

GHG emissions avoided during project. Co-financing plays a key role in the incremental cost reasoning. In particular, co-financing provided by the National Energy Company (ENEX) to build a national grid of electric vehicle chargers, to the value of US\$2,000,000, plays a key role in supporting GEF interventions in addressing barriers and providing an enabling environment for electric vehicle scale-up.

f. Global environmental benefits (GEFTF) and/or adaptation benefits (LDCF/SCCF)

Total top down emission reduction potential 2021 to 2036, tCO2	1,097,657
Thereof	
Total direct emission mitigation from demonstration, tCO2	10,413
Total secondary direct emission mitigation, tCO2	215,366
Total indirect impact emission mitigation, tCO2	219,531
Total project related emissions reductions, tCO2 (causality factor 40%)	445,310

Methodology for the estimation of GHG reductions and energy savings benefits (for further detail refer to Annex M)

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A uniform methodology was applied to all GEF Global E-Mobility Child Projects for assessing the short, medium and long-term benefits in terms of GHG emission reductions and energy savings. The methodology compares two scenarios, the “benchmark scenario” and the “e-mobility scenario”. In the benchmark scenario, the transport sector evolves assuming a “business as usual” behavior with regards to vehicle fleet growth, vehicle use, technology and fuel use. It is based on the current policy framework with no or limited incentives to buy and use clean and efficient electric vehicles. The e-mobility scenario uses the same projections with regards to vehicle fleet growth but assumes a high penetration of electric vehicles within the new vehicle market, as a consequence of the project interventions including the adoption, where relevant, of EV policies, the use of business models and the existence of financial mechanisms. The scenarios use a “top-down approach” targeting the national vehicle market. The child projects tackle the introduction of electric vehicles for one or multiple modes. In the latter case, calculations are performed for several modes (e.g. passenger cars, buses and 2&3 wheelers).

Projections of fleet growth, energy use and GHG emissions are based on country specific data, and region-specific parameters. Projection of the vehicle fleet growth is based on the elastic relationship between per capita income and vehicle acquisition. Therefore, country specific scenarios for population growth (based on the UNDESA medium scenario) and projections for gross domestic product (GDP PPP) from the World Economic Outlook of the International Monetary Fund (IMF) are used. Vehicle fleet projections are based on vehicle sales and assumptions on technical lifetime of vehicles. A comprehensive set of parameters describing the technologic and economic parameters of various vehicle technologies are used. Country specific grid emission factors for the carbon footprint of electricity are used. For petroleum-based fuels, well-to-wheel emission factors are used. Historic development of the vehicle fleet is based on country specific vehicle stock and sales data. Emission reductions which accrued during and after the project timeframe are taken into account. GHG emission benefits are classified as direct and indirect GHG emission reductions. This categorization follows the methodology suggested by the GEF.

g. Innovativeness, sustainability, and potential for scaling up

Innovativeness:

The project deliverables provide the following innovations:

- Technical:** Electric mobility is still incipient in Chilean Regions outside the metropolitan areas of Santiago, with only a handful of vehicles operating and limited knowledge and awareness among regional stakeholders and users. The project will not only introduce electric vehicles and their charging infrastructure for drivers and users of the fixed route taxi systems to use and test, but will also seek to understand, bottom-up, the entire operation ecosystem and propose recommendations for local scale-up. In line with this, the project will seek to understand the current state and future requirements of regional networks to support the expansion of the electric fleet.
- Business innovativeness.** Through output 3.2, business models will be developed for electric fixed-route taxi fleets. Such models will be innovative in terms of introducing potential new business structures for this traditional public sector, including options such as leasing for public and private fleets, car-sharing based mobility services, and fleet management services or battery leasing. Furthermore, the pilots seek to enable the use of modern connectivity and digital payment platforms, all of which open new business development opportunities. Finally, the development of circular economy business models for the reuse of vehicle components and battery systems will enable opportunities areas such as in energy storage and grid auxiliary services.
- Environmental.** In terms of environmental innovativeness, the project provides a unique opportunity to modernize the waste management sector and incorporate a diverse part of the private sector, to be eventually expanded to other products, such as electronic appliances. If successful, it will provide guidance to other countries heavily dependent on

imports of manufactured products and to integrate re-use and recycling chains associated to the expansion of e-mobility. Incorporating circular economy business models into the private sector will facilitate innovation in environmental management of this electric mobility.

- Social. The project will look to improve the public transport system of regional cities in Chile, by introducing electric vehicles into the system and also improving its quality, safety and coverage by introducing connectivity systems, which aim to improve the mobility conditions of vulnerable groups, women and people with reduced mobility. Essentially, such connectivity systems facilitate reduced waiting times and better monitoring of services, enhancing efficiency of transport usage and increasing safety of vulnerable groups (e.g. due to less waiting times in unlit and isolated taxi stops).

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Environmental Sustainability:

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From a greenhouse gas emission-mitigation perspective, the environmental sustainability of the project is strongly related to the ability of creating a growing market for electric vehicles and promoting sustainable passenger mobility options. As mentioned in section 2, Chile's energy system, whilst still highly dependent on fossil fuels, has a relatively low average carbon emission per MWh generated and therefore the replacement of a conventional vehicle with an electric one results in a direct reduction of GHG emissions. Furthermore, given the country's topography, several of its cities, including its capital, have considerable air pollution problems. The scaling of electric mobility will help reduce air pollution agents currently generated by fuel combustion in vehicles. The project also supports establishing more sustainable passenger mobility practices such as passenger connectivity apps to strengthen the public transport sector, so that it can provide higher quality services and entice citizens to use it rather than private cars. This would reduce the number of cars on the road and their associated GHG emissions.

From a waste management perspective, the project actively contributes to addressing the currently unsustainable patterns in end of life vehicle disposal management, so that the expansion of electric vehicles is undertaken within a context in which they do not become the source of additional environmental hazards. The project undertakes an integrated approach, targeting all vehicles and not only electric vehicles, as otherwise this would create an additional barrier to the latter compared to conventional vehicles. Accordingly, the project activities within component 4 are also effective in addressing these environmental risks, as discussed in the risk management section.

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Sustainability of market development after the project:

Several project deliverables are expected to ensure the sustainability of project outcomes:

- The creation of a national coordination body will help coordinate and connect projects, determine synergies amongst them, identify unattended requirements and/or barriers and establish an overall comprehensive approach. This will help maximize the impact of both private and public investment and activities.
- Investment in electric mobility will be facilitated by the creation of financial instruments that will help close the current upfront cost gap between electric and conventional vehicles, the de-risking of the technology through capacity building and demonstrations, as well as the development of a comprehensive understanding the overall ecosystem around fixed route taxis.
- The multi-stakeholder consultation strategy established by the project will help steer the implementation of the electric mobility strategy, including identifying social aspects of the deployment guaranteeing that the expansion of EV in different regions does not have negative impacts on vulnerable groups in the community.
- Business models for the electrification of regional fixed-route taxis in Chilean regions will provide key regional stakeholders and the private sector with an identification of the means to develop long-term markets on electric mobility in the regions.
- Investment roadmaps for Chilean electricity grids will support the development of infrastructure that can support the growing demand for electric vehicles and its associated charging stations, thus ensuring that market development goes beyond vehicle development to also include its supporting ecosystem.

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Potential for scaling-up:

The potential for scaling up of electric mobility after project completion will build upon the following project activities:

- Managers of public and private car and van fleets can be expected to become keenly interested in including electric vehicles into their fleets, due to barrier removal provided by the project (availability of electric vehicles in the country regions, incentives, technological de-risking, capacity building) and the availability of financing tools competitive with those of conventional cars. Considering the experience in other countries, the government exemplary role in the electrification of its fleet and the project activities, this potential is high.
- In addition to the pilot projects, which will help build confidence on the capabilities of the technology, the incorporation of car leasing companies for the purchase of fixed route taxis will help reduce the financial risk for taxi owners as this is shared with the leasing companies. This in addition to the financial instruments developed by the project will facilitate the implementation of sound financial incentives to targeted consumers, including less affluent ones. This should help eliminate the current price gap and reduce the financial risk of early adopters. This should promote the development of the electric vehicle market in regional Chile, which should in turn result in a faster technology scale-up.

- Complementary to this, analysis of the state of situation and future requirements of regional electricity distribution infrastructure will help direct investment already committed by the private sector in terms of deployment of charging infrastructure. This should further facilitate the adoption of electric vehicles by fixed route taxi drivers and the population in general.
- Furthermore, incorporating civil society and other pertinent stakeholders in the project and specially in the different capacity building activities will help forward the discussion towards a more inclusive transport system but also identify business opportunities that spin off the development of a new ecosystem. The growth of the latter will help consolidate investments and promote the scale-up of the entire sector.
- The data collected throughout the pilot projects will allow the development of business models to support existing companies (car dealers, maintenance workshops, waste management companies, public transport and taxi operators) and new entrepreneurs to competitively operate in this emerging market and benefit from its associated business opportunities.
- Ultimately, by piloting electric fixed route taxis and supporting their scale-up through financial instruments, the project aims to scale-up the adoption of electric mobility more broadly with private consumers, through the increased visibility of electric vehicles in the regions (increasing confidence in the technology), and the emergency of private sector actors in the regions on electric mobility (as leasers, car retailers, and financial retailers).

Finally, Chile will also explore how to scale up the GEF-7 project through a potential Green Climate Fund (GCF) project. The country is currently participating in a regional readiness programme on electric mobility, which started late 2020. As the GEF-7 project starts in 2021, effort will be made to ensure the development of a pipeline of GCF project proposals that builds upon the GEF project, for example, through the scaling up of the fixed-route electric taxi fleet based on GEF-7 project experiences.

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[8] Ruta Energética 2018-2022, Ministerio de Energía

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[12] The gross domestic product (GDP) of Santiago and its metropolitan region is considerably higher than that of the rest of the country, accounting for 45% of the national GDP (see table below. Other regions, like mining regions, (Antofagasta or Atacama), have high GDP per capita but have small populations making markets less attractive. (Sources: GDP: Observatorio logístico, PIB Regional de Chile, 2018: <https://datos.observatoriologistico.cl/dataviews/236358/pib-regional-de-chile/>; Population: Instituto Nacional de Estadísticas, CENSO 2017: <http://resultados.censo2017.cl/>).

Region	GDP[12] [Million US\$]	GDP [%]	Population[12]	Population [%]	GDP per capita [US\$]
Metropolitan region	116,379	45%	7,112,808	42%	16,362
Antofagasta	26,031	10%	607,534	4%	42,847
Valparaíso	22,811	9%	1,815,902	11%	12,562
Biobío	21,346	8%	1,556,805	9%	13,712
O'Higgins	12,504	5%	914,555	5%	13,672
Maule	9,589	4%	1,044,950	6%	9,176

Los Lagos	9,570	4%	828,708	5%	11,548
Coquimbo	7,780	3%	757,586	4%	10,269
Araucanía	7,398	3%	957,224	6%	7,729
Tarapacá	6,296	2%	330,558	2%	19,046
Atacama	5,929	2%	286,168	2%	20,717
Los Ríos	3,790	1%	384,837	2%	9,849
Magallanes	2,914	1%	166,533	1%	17,497
Arica y Parinacota	2,062	1%	226,068	1%	9,121
Aysén	1,535	1%	103,158	1%	14,882

[13] http://www.subtrans.cl/subtrans/doc/taxis_colectivos_urbanos_ppales_ciudades_0211.pdf. The website <http://www.ubicatucolectivo.cl/> presents a mapping for a few Chilean cities.

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[23] Ibid.

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[36] Clean Energy Ministerial, plenary intervention, Minister of Energy, H.E. Juan Carlos Jobet.

[37] Chile Biennial Update Report 2018. Government of Chile.

[38] <https://energia.gob.cl/electromovilidad/reglamentacion>

[39] Compromiso público y privado por la electromovilidad 2020, Ministerio de Energía, Ministerio de Transportes y Telecomunicaciones y Ministerio del Medio Ambiente, 2020.

[40] <https://www.cooperativa.cl/noticias/pais/transportes/sistema-de-transportes-red-llegara-a-regiones-con-buses-electricos/2019-05-29/154035.html>

[41] <https://www.enel.cl/es/conoce-enel/prensa/news/d202007-enel-x-se-asocia-a-fondo-de-inversion-y-apuesta-a-triplicar-flota-de-buses-electricos.html>

[42] http://www.subtrans.cl/subtrans/doc/taxis_colectivos_urbanos_ppales_ciudades_0211.pdf.

[43] As per information contained in the approved project document.

[44] Correspondence with leasing/renting companies MITTA (www.mitta.cl) and Europcar/ Tattersall (<https://www.europcar.cl/>).

[45] Universities that expressed interest during the project development phase. An invitation will be extended to all relevant academic institutions.

[46] The current loan model is not effective for electric vehicles, as the higher up-front cost skews the monthly repayments by more than 100%.

[47] The Banco Estado has informed that it would not be able to administer a fund of this size. The Agency was chosen to administer the grant fund as it is affiliated with the Ministry of Energy, is leading the Public and Private Commitment for Electromobility 2020, with close connections with the private sector, and is proposed executing agency of the GEF-7 project.

[48] Based on an potential reduction in income due to differences in electric vehicle and conventional vehicle performance.

[49] Further incentives to the drivers participating in the pilots will be avoided, to ensure that the mechanism is equally accessible to all fixed-route taxi drivers and owners in the regions, irrespective of whether or not they had the opportunity to participate in the pilot.

[50] *Electromovilidad. Proyección y propuestas para avanzar* (2018). Agency of Sustainability Energy (ASE) and Ernst Basler + Partner.

1b. Project Map and Coordinates

Please provide geo-referenced information and map where the project interventions will take place.

Chile is a long country stretching over 5000 km from south to north, limited by the Andes mountain range to the east and the Pacific Ocean to the west. Demonstration projects will take place in Antofagasta, Talca and Puerto Montt.



Figure 1. Map of Chile identifying Antofagasta, Talca, and Puerto Montt.

Table 8. Coordinates of the three PILOT cities

Demonstration sites	Latitude	Longitude
Antofagasta	-23.64	-70.40
Talca	-35.42	-71.66
Puerto Montt	-41.47	-72.94

1c. Child Project?

If this is a child project under a program, describe how the components contribute to the overall program impact.

The current project is hosted under the “Global Programme to Support Countries with the Shift to Electric Mobility”, led by UNEP.

The Global Programme to Support Countries with the Shift to Electric Mobility was submitted (June 2019 GEF Council) with child projects in Antigua and Barbuda, Armenia, Burundi, Chile, Costa Rica, India, Cote d’Ivoire, Jamaica, Madagascar, Maldives, Peru; Seychelles, Sierra Leone, Saint Lucia, Togo, Ukraine, Uzbekistan, as well as a global child project. For each child project, a concept note was prepared including national background, policy status, baseline scenario and description of individual national components.

The Global Programme is divided into 4 components:

- Component 1: Global thematic working groups and knowledge materials

- Component 2: Support and Investment Platforms
- Component 3: Country project implementation
- Component 4: Tracking progress, monitoring and dissemination

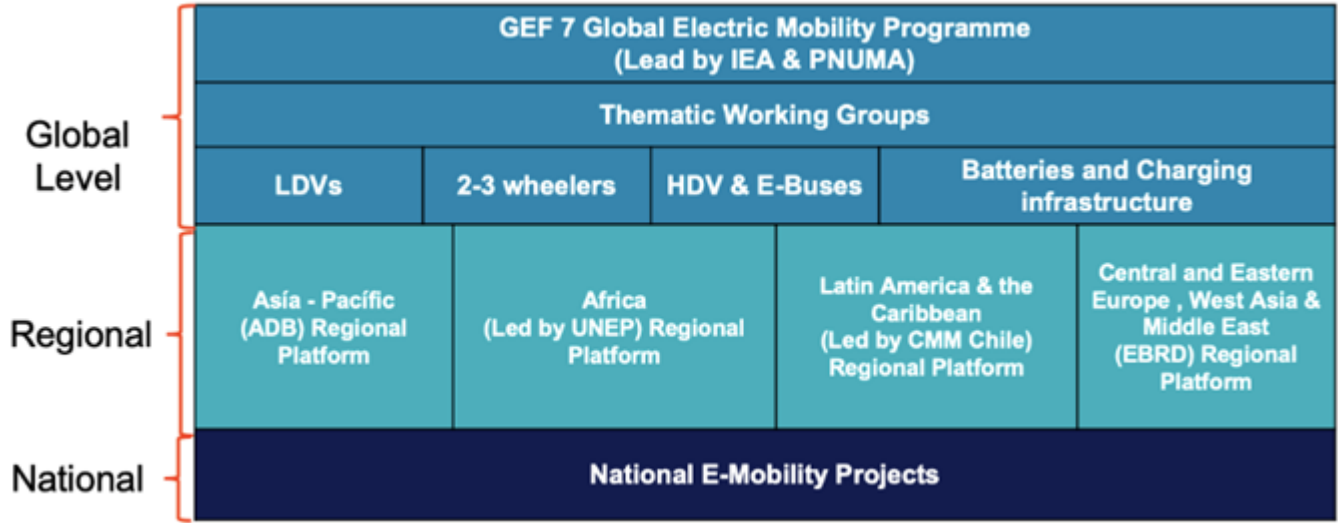
The Global Programme has put in place the monitoring framework below to track progress both globally and at the level of the country child projects. 10 indicators have been designed for this purpose: 4 relying on global level information (highlighted in blue) and 6 relying on country level information (highlighted in green).

Global E-mobility Programme Monitoring Framework			
		Global level monitoring	Country level monitoring
Component 1 Global thematic working groups and knowledge materials	Component 2 Support and Investment Platforms	Component 3 Country project implementation (Child Projects)	Component 4 Tracking progress, monitoring and dissemination
Outcome 1 Knowledge products are generated to support policy making and investment decision-making through four global thematic working groups	Outcome 2 Conditions are created for market expansion and investment in electric mobility through support and investment platforms	Outcome 3 Conditions are created at country and city level for the introduction of electric mobility demonstration projects, and wider up take of electric mobility	Outcome 4 Projects and electric mobility markets are tracked, and key developments, best practices and other lessons learned are shared to promote wider uptake of electric mobility
<u>Indicator 1.1</u> # of knowledge products developed by the four thematic working groups and used by the Support and Investment platforms in their training and outreach activities	<u>Indicator 2.1</u> # of countries using services and knowledge products offered by the Support and Investment Platform	<u>Indicator 3.1</u> # of countries with an improved institutional framework and a strategy to promote the uptake of low-carbon electric mobility	<u>Indicator 4.1</u> # of countries generating and sharing best practices and other lessons learned on low-carbon electric mobility with the global programme
	<u>Indicator 2.2</u> # of US\$ leveraged to scale-up low-carbon electric mobility through the support and investment platforms	<u>Indicator 3.2</u> # of countries with nationally generated evidence of the technical, financial and/or environmental benefits of low-carbon electric mobility	<u>Indicator 4.2</u> # of e-mobility knowledge products refined based on evidence coming from the country projects
		<u>Indicator 3.3</u> # of countries that have improved preparedness to accelerate market transformation towards low-carbon electric mobility	<u>Indicator 4.3</u> # of non-e-mobility programme countries committing to actively promote the uptake of low-carbon e-mobility
		<u>Indicator 3.4</u> # of countries with measures in place to ensure the long-term environmental sustainability of low-carbon electric mobility	

The global project will report against this framework on an annual basis, using (1) the global level data from the Global Thematic Working Groups and from the Support and Investment Platforms, and (2) country level data provided by each country project during their annual Project Implementation Review (PIR) process.

For this purpose and whenever applicable, the global level indicators highlighted in green are translated into a country-level indicator in the Project Results Framework located in Annex A of the present CEO Endorsement Document. During project implementation, the Project Executing Agency (National Ministry of Energy) will be requested to report against the indicators of the country Project Results Framework (Annex A) on an annual basis, during the PIR process.

At the global level, a steering committee integrated by the International Energy Agency (IEA) and the United Nations Environment Programme will coordinate and monitor the implementation and the outputs of the GEF 7 Electric Mobility Programme. On technical gaps, four thematic working groups at the global level will support the rapid introduction of electric mobility in GEF recipient countries. These working groups will generate universal knowledge products that contain best practices, factsheets, interactive tools and guidance, as well as experiences from countries that have advanced their e-mobility market. The working groups will be integrated by representatives from the global programme regional platforms, GEF-7 countries, IEA, vehicle manufacturers, utilities, researchers and the civil society. The governance structure is presented in the figure below. For Latin America and the Caribbean, the regional platform will be led by Centro Mario Molina Chile.



Governance structure between the global programme, the national e-mobility projects, and the regional platform

The coordination between the global program, the steering committee, the thematic working groups, and the national projects will be facilitated by the regional platform. The role of the regional platform is to provide customized technical assistance to ensure the success of the country projects. Moreover, knowledge products developed by the working groups will be adapted and disseminated by the regional platform according to the regional and national context, specific needs and languages.

The LAC regional support and investment platform, hosted by Centro Mario Molina Chile, will interact with and support participating countries in the region to link with each other through the following activities:

- The creation of a community of practice for the GEF 7 regional countries;
- Facilitation of knowledge transfer between countries, and regions, especially those with common characteristics like SIDS;
- The creation of thematic groups in light-duty vehicles (LDVs), 2-3 wheelers, and buses at regional level;
- A marketplace between countries, technology providers and financial institutions;
- Help desk for technical assistance to GEF 7 LAC countries;
- Personalized assistance from international experts in electric mobility;
- Generation of training sessions and workshops.

The national child projects will generate a learning curve on electric mobility that can be transferred to other countries within and outside of the region through the global programme. As a first contact point, the regional platform will facilitate the flow of learnt lessons from child projects, such as: data and demonstration results, working business models, operational know-how, working financial instruments, and working policies and regulations. At the global level, the scenarios proposed to share country knowledge and experiences on electric mobility are the thematic working groups, while at the regional level the countries will participate in the community of practice, the thematic regional groups, the marketplace, trainings and workshops. Participating in the activities of the global programme will also support the country to implement the National Strategy on Electric Mobility, action line 23: Participation of Chile in international instances.

2. Stakeholders

Please provide the Stakeholder Engagement Plan or equivalent assessment.

Please refer to the report: “Summary of stakeholder consultation meetings and validation workshop”, for information on the engagement of stakeholders during the development of the CEO Endorsement document and associated annexes.

This stakeholder engagement plan builds upon the interviews and workshops conducted during project preparation. The project will aim at maintaining a fluid and two-way dialogue with the relevant national and local government institutions and agencies, the private sector, and civil society for national and Chilean region activities, as well as with local and international NGOs, the international community and other participating countries at the global programme level.

Public consultation will follow relevant national guidelines and the GEF Guidelines,^[1] which require that all GEF-funded projects meet best international practice and specifically the requirements for stakeholder engagement and public consultations. In addition, consultation is the focus of a specific project output (output 1.2), with the output dedicated to the development and implementation of a stakeholder consultation strategy. The project stakeholder engagement activities will be robust, and disclosure on information will be made in order to promote better awareness and understanding of its strategies, policies and operations. During disclosure, the project will: (1) Identify people or communities that are or could be affected by the project as well as other interested parties; (2) ensure that such stakeholders are appropriately engaged on environmental and social issues that could potentially affect them, through a process of information disclosure and meaningful consultation; and (3) maintain a constructive relationship with stakeholders on an on-going basis through meaningful engagement during project implementation. The stakeholder consultations will be an on-going process taking place during the project life and will ensure that stakeholders are informed about environmental and social consequences of the project implementation and ensure the opportunity for feedback.

Given that the deployment of electric mobility throughout Chilean regions requires efforts from different government bodies, at both a regional and national level, ministries and the involvement of different private sectors, companies and community sectors, Output 1.2 focuses on the implementation of a multi-stakeholder consultation strategy, with strong focus on engaging economically vulnerable groups. The strategy will allow all actors to have an equal voice and express their concerns and uncertainties as well as engage in the different proposed activities throughout the project. It will seek to address barriers mentioned in section 1 especially with regards to raising awareness, creating buy-in, increasing coordination, and ensuring the development and implementation of socially acceptable solutions.

In addition, provide a summary on how stakeholders will be consulted in project execution, the means and timing of engagement, how information will be disseminated, and an explanation of any resource requirements throughout the project/program cycle to ensure proper and meaningful stakeholder engagement.

Identification of stakeholders for engagement and methods of communication

In order to ensure inclusive participation and consultation, the following stakeholders have been identified for consultation. The list includes the identified social groups that are associated with the project in different ways: those directly or indirectly engaged in the outcomes of project implementation; those directly or indirectly participating in the project, and those with a capacity to influence and decide on project implementation and outcomes.

List of stakeholders

Key stakeholder groups have been identified and presented in the table below (Table 9).

Table 9. Project Stakeholders

Stakeholder group	main	Stakeholder name	Existing activities with potential to be leveraged	Content engagement, contributions to the project (identified by Component)
Government		Ministry of Energy (ME)	The Ministry of Energy is in charge of establishing and enforcing Chile’s energy policy for all sector of the economy. In line with this the Ministry has established very ambitious carbon mitigation objectives and has developed several work lines to achieve the latter. The Ministry leads all national efforts on electric mobility.	As executing agency of the project, the ME has been involved in the development, detailed design of the project and will play a key role in the execution of the project. It will be in charge of approving, implementing, monitoring, and enforcing the related project activities. The ME will be a member of the project steering committee

Stakeholder group	main	Stakeholder name	Existing activities with potential to be leveraged	Content engagement, contributions to the project (identified by Component)
Government		Ministry of Transportation and Telecommunications (MTT)	Amongst many other responsibilities the MTT is responsible for public transport systems across the country. It is also leading the execution of the GEF-6 project.	The MTT is a key partner in the project execution. It was consulted constantly through the project development and activities are aligned with the ministry transport master plan for Chilean regions. The MTT will lead the meetings and contacts involving taxi associations in the different cities, it will provide support in matters related to the implementation of the pilot projects and will be a member of the project steering committee. In particular the MTT will have a strong role in component 2. Amongst other activities it will assist in the deployment of pilot projects, and acquire the vehicle temporary taxi permits. It will participate in all outputs of the project.
Government		Ministry of Environment (MEnv)	In matters related to the project the Ministry of Environment is charge of establishing the policy framework for the management of different waste streams, amongst which are car batteries and vehicles. It led the development of the GEF-6 project.	The MEnv will have a central role in component 4. However, it will also participate in the project steering committee to ensure alignment with other ministry initiatives.
Private sector		Agency of Sustainability Energy (ASE)	The Agency of Sustainability Energy (ASE) is a non-profit private entity. Its mission is to promote, strengthen and consolidate the efficient and sustainable use of energy by coordinating relevant actors, at a national and international level, and by implementing public-private initiatives in the different sectors of energy consumption, contributing to the competitive and sustainable development of the country.	As designated executing agency of the project by the Ministry of Energy, the Agency of Sustainability Energy (ASE) will play a key role in project execution. In conjunction with the ME it will oversee, approve, implement, monitor, and enforce the related project activities. The Agency will be a member of the project steering committee.

Stakeholder group	main	Stakeholder name	Existing activities with potential to be leveraged	Content engagement, contributions to the project (identified by Component)
Government		Ministerial regional secretaries (SEREMI) of MTT, ME, MEnv for Antofagasta, Maule (Talca) and Los Lagos (Puerto Montt)	Regional Office of the national ministries of the three regions where pilot projects will be deployed	SEREMIs in the different regions will be the local support of the different national ministries in the country regions. They will enable contact with GORE authorities and help articulate project activities with local stakeholders. They will participate in project components 1, 2 and 3 under the guidance of the parent ministries.
Government		Regional governments (GORE) of the Chilean regions, particularly of Antofagasta, Maule (Talca) and Los Lagos (Puerto Montt)	Support to the existing vehicle replacement subsidy.	These entities will play a key role in ensuring the success of the component 1 regional workshops and the component 2 pilot activities. The GORE will also play different regions are a key player for component 3 as these are the institutions responsible for establishing and approving the budget destined to the “renueva tu coche” vehicle replacement program which the project will use as leverage to promote the adoption of EVs in the regions.
Government		Production Development Corporation (CORFO)	Government agency articulated as a non-profit corporation, dependent of the Ministry of Economy, Development and Tourism. CORFO supports entrepreneurship, innovation, and competitiveness in the country, along with strengthening human resources and technological capabilities. It is currently promoting the development of national electric mobility capacity and innovation.	CORFO is a key player in the support and development of electric mobility in Chile. It will play a key role in supporting project capacity-building and market development activities. It will also facilitate a strong connection to the private sector.
Government		Ministry of Women and Gender Equity	Government ministry responsible for gender equity.	To be consulted in the design of training activities and other activities where relevant to ensure activities are gender sensitive.

Stakeholder group	main	Stakeholder name	Existing activities with potential to be leveraged	Content engagement, contributions to the project (identified by Component)
Private Sector		Enel-X, ENEX and SAESA (Energy providers)	Both utility companies leading the way in matters related to investment and deployment of electric vehicles and charging infrastructure in Chilean regions.	Both companies will participate in activities related to stakeholder consultation in component 1. May also serve as an electricity provider for the regional pilots of component 2. They will be a strong consultation source for grid related studies pertinent to component 3 and will be part of the capacity building activities related to battery waste management pertinent to component 4. Both companies have provided co-financing for the project materialized in recurrent investments in topics related to components 2 and 3, and in the case of SAESA also component 4.
Financial institutions		Banco del Estado	Banco del Estado de Chile is the only publicly owned commercial bank in Chile. It provides financial services to individuals and companies. Its main lines of business are savings, mortgage loans, to small and medium companies and companies in general. It has a strong involvement in the public transport systems of the different regional cities as one of the most important providers of financing for vehicle owners.	Banco del Estado main role in the project will be support the development of context-specific financial instruments for fleet acquisition and operation developed in component 3.
Private Sector		Fixed-route taxi owners and fixed-route taxi associations	As mentioned in sections 1 and 2 of the current documents, transport systems in regional cities are mostly composed of individual bus and car owners. Therefore, these are a key player to enable the up uptake of electric mobility in cities outside Santiago de Chile.	Fixed route taxi owners and related taxi associations will: C1- Participate in capacity building workshops and in consultation studies. C2 - Operate the pilot electric taxis and charging infrastructure. C3 - Access funds to buy an electric taxi through the financial instruments.

Stakeholder group	main	Stakeholder name	Existing activities with potential to be leveraged	Content engagement, contributions to the project (identified by Component)
Civil society organization		Centro Mario Molina Chile	R&D centre based in Chile that supports the development and undertaking of activities to promote electric mobility, sustainable transport and cleaner air. Host of the investment and support platform for the LAC region of the GEF-7 global programme on electric mobility.	C1 and C4 – Support capacity-building activities, building synergies and economies of scale with the activities of the global programme. C1, C2, C3, C4 – participate in technical working groups to provide inputs into the development of technical project activities, drawing on experience and expertise in supporting the implementation of related initiatives.
Academia		University of Talca (Maule Region), University Austral (Los Lagos) and University of Antofagasta (Antofagasta)	These universities provide undergraduate technical education to locals and will be an important part of the long-term transition to electric mobility	C1- Provide support for workshops and technical studies. C2 - Support electric vehicle monitoring and evaluation. C3 and C4 - Provide advice and support on the development of financial instruments and standards.
Private Sector		Car dealers	Car dealers are authorized vehicle importers and sales companies	C1 – Participate in capacity building workshops and in consultation studies. C2 – Provide vehicles to the leasing agencies for the pilot projects. C3 – Key stakeholders for electric mobility scale-up through the increase of electric vehicle markets.

Stakeholder group	main	Stakeholder name	Existing activities with potential to be leveraged	Content engagement, contributions to the project (identified by Component)
Civil society groups		Talca Communal Union of Neighborhood Boards (Maule Region), Talca Senior Adult Communal Union (Maule Region), Social Security Mothers Centre (Antofagasta), Movement for Universal Public Transport (Antofagasta), Favorecedora neighbors union (Antofagasta), Communal Union of Parents and Representatives (Antofagasta), Communal Union of Neighborhood Boards (Antofagasta), Blind and Visually Diminished of Antofagasta (Antofagasta), COSOC (From Spanish “Consejo de la Sociedad Civil”) of energy (Maule Region)	Users of fixed-route taxis and other stakeholders relevant to the project development.	Support consumer survey, consultations and focus group discussions with women and social groups. Will have a strong participation in C1.
Private sector		Car leasing agencies: - MITTA - Tatersall	Agencies that have been identified to participate in the leasing of the electric vehicles for the pilot projects.	C2 – Provide the required vehicles for the pilot projects. C3 – Provide vehicle offer for purchasing through the financial instruments. C4 – Participate in discussions related to end of life vehicle and battery disposal will also involve car leasing agencies.

[1] GEF (2014). Guidelines for the Implementation of the Public Involvement Policy. Accessed at http://www.thegef.org/sites/default/files/council-meeting-documents/39_EN_GEF.C.47.Inf_.06_Guidelines_for_the_Implementation_of_the_Public_Involvement_Policy_4.pdf in December 2019.

Select what role civil society will play in the project:

Consulted only;

Member of Advisory Body; Contractor;

Co-financier;

Member of project steering committee or equivalent decision-making body;

Executor or co-executor;

Other (Please explain) Yes

Civil society will participate in the pilots, the workshops and the training programs undertaken in the project.

3. Gender Equality and Women's Empowerment

Provide the gender analysis or equivalent socio-economic assesment.

Part 1. Gender Analysis

1.1. Barriers and Gender Gaps in Chile

In Chile 57.6% of households are led by women (about 3.3 million) and 9.2% of them are in a poverty situation (2017); There is 48.9% of female labor participation (2019), their income is 27% lower than that of men (2018), and there is evidence of 32.8% of women without their own income (2017). Regarding education, 52.5% of the total enrolled in higher education are women (2019), and (2017) those older than 15 years have 11.1 years of schooling, however, between 15 and 29 years there is 17.5% of women in the “NINIS” category (don’t study, don’t work, from Spanish “ni estudian ni trabajan”). (Women of Chile: Last Decade. Ministry of Women and Gender Equity, Chile, 2020). Pandemic Effect: UNHOLSTER (2020) reports that the National Employment Rate (18-59 years old) decreased in Men from 81% to 67% and in Women from 55% to 41% (Base: Mobile Quarter March-May 2019 v/s 2020, INE-Chile). According to the latest data (2018) of the UNDP Human Development Index, Chile has a gender inequality index of 0.288

and a gender development index of 0.962, with an overall human development index ranking of 42nd in the world.^[1] In the Global Gender Gap Index 2020 rankings, Chile is ranked 57th overall, with a score of 0.723.

1.2. City, Land Use, Mobility & Gender

General Patterns: having a child at school increases a woman's number of trips by 23%; women take their children to school 3 times more often than men; women with children under the age of 5 are 87% less likely to drive than a man; in Latin America and the Caribbean the participation of women in the construction and operation of transportation systems does not exceed 15% (Chile: 17%); Training women in non-traditional jobs is not effective if the possible bias in potential employers and / or clients is ignored (The reason for the relationship between gender and transport, IDB, 2016).

In Santiago, 68% of women use public transport (45% men) and 55.3% of them travel on foot (39.5% men). Travel for health purchases or picking up someone represents almost 50% of women's trips (while they are only 20% of men's transfers), and commuting trips to work reach 15% for them. (35% for men) (The reason for the relationship between gender and transport, IDB, 2016).

Chile concentrates 87% of its inhabitants in cities (increases are expected in the coming years) and its growth has been accompanied by an increasing socio-territorial segregation of its inhabitants (with a low number of sub-centers) and / or an increase in densified areas (Problems of Urban Mobility: Strategy and Measures for their Mitigation, Presidential Advisory Commission, URBAN PROMOVILITY, Chile, 2014). Some externalities:

- Quality of Life Cost: long travel times subtract times with family, study, rest, others.
- Productive Cost: stress and more aggressiveness within work (deteriorating productivity) and towards the outside (image of the service is affected).
- Environmental and Health Cost: more exposure to increased polluting gases, more noise, more accidents.
- Democratic Cost: loss of credibility in the quality and effectiveness of the service, or the expected results of a transportation system.

1.3. Barriers and Gender Gaps: Transport Sector

Considering the goal of Electric Mobilization of 40% in private vehicles and 100% in Urban Public Transport by 2050 (National Strategy for Electromobility, Ministry of Energy, Chile, 2017), at national level, five gender problems have been detected in this scope: mobility, accessibility, security, efficiency, and the labor market (Policy of Gender Equity in Transport, Ministry of Transport, Chile, 2018).

- ü Mobility: women (*assigned role*) have defined displacement times, travel times, modes of transport and travel reasons (unpaid work - "care mobility": shopping, escorting, walks, visits; in times of least congestion, and on shorter routes).
- ü Accessibility: “neutral” planning of the transport system makes it difficult for women to participate in the public context. They reach 52.5% of the users of public transport and suffer difficulties due to the frequency of journeys, their distances, and the lack of adequate infrastructure.
- ü Safety: this aspect becomes relevant for users to make mobility decisions (their perception is key for them to fully use, or not, a transport system). Up to 50% of assaults occur on public transport, 30% on the street, and 20% on the subway. Between 9 and 18 years old, they suffer more frequently harassment and / or intimidation on public transport (extent of overcrowding) and / or episodes of exhibitionism.
- ü Efficiency: women maximize their resources (economy and time) by surveying the frequency of journeys and the design of the infrastructure and operation of public transport (most demanded journeys; avoid exposing themselves to grievances in long waits; privilege the good travel experience).
- ü Labor Market: female drivers went from 0.83% (2013) to 33% (2017) with targeted measures to break entry barriers (granting of a driver's license, etc.) and stereotypes. The perception surveys have positively valued its insertion into this market (a more friendly, respectful, and safe transport system is configured).

1.4. Pilot Regions: some scopes regarding Gender

●**Antofagasta:** houses 60% of the population of its region (48% women; CENSUS 2017). The center groups highly demanded public spaces (commerce, malls, hotels, museums, port, stadium, historic center, 3 artificial beaches, old regional hospital, La Vega fair, Universidad Católica del Norte -47% registered women 2018); to the south end housing complexes and the University of Antofagasta - Coloso Campus (58% women enrolled 2018; public transport until 7:00 p.m.), and to the north end INACAP - La Chimba plus the

urban extension to the airport. Urban Transport (without integrated fare, low-light areas) consists of small buses (30 passengers, high overcrowding at peak times) that go, in the summer, from the Juan López Spa (in the extreme north) to Caleta Coloso (in the extreme south), with transfers eventually (mode available until 11 p.m., except in summer). Its north-south length is such (1.5 hours by car approx.) that it has been thought to implement an Urban Train. There are groups (numbered, with deferred rates, they do not reach the entire city, with no stops) that, like the buses, reach the urban periphery (for example, the upper part of the city, with about 16,300 people in 63 Irregular camps -they grew by 500% in the last 8 years; 59% of these households are led by a Head of Household, and in 60% of them there are children under 18 years of age; National Camp Cadastre, Ministry of Housing, 2019) .

•**Talca:** it houses 22% of the population of its region (51% women; CENSUS, 2017). The center groups highly demanded public spaces (commerce, hotels, museums, the old town, regional hospital, Río Claro border, market) and to the east -crossing Route 5- new public spaces (mall-cinemas). Urban Transport (without unified fare) consists of intercity buses from Maule, San Clemente, San Javier, Molina, etc. (Maule Regional Public Transportation Plan, s / a), buses (small “hares”) circulate until 10 pm, and despite the existence of whereabouts, they stop anywhere at the request of users; after the 2010 earthquake the center was renovated with better lights) and buses (deferred fares, they operate by zone, they compete to get passengers on the same routes). It has a homogeneous distribution (checkerboard) with the old sector (to the south), growing real estate development to the north and east (“villas”) and profuse academic development: to the north, Universidad de Talca (53% of female enrolment in 2020), to the east - crossing Route 5- the Universidad Católica del Maule, to the center -western University Autónoma, Santo Tomás and AIEP Institute. Collective locomotion is almost nil towards Cerro La Virgen (new homes). Two camps (of 11 at the regional level) with 49 people are verified, and 36% of these households are led by a Head of Household. Since 2016 the Plan for Environmental Decontamination (PPDA) - Saturated Zone by PM 10 and PM 2.5 (Ministry of the Environment, s / a) has been in force.

•**Montt port:** 89.5% population is urban (50% women; CENSUS, 2017). The center groups highly demanded public spaces (commerce, malls, hotels, museums, port, old town) and contains mainly the Professional Universities and Institutes (except to the east, Austral University of Chile, and to the west, University of Los Lagos). New regional hospital (north access). The Urban Transport (without unified fare) consists of intercity bus lines (Llanquihue-Frutillar-Fresia with service until 10 pm; without Universities or Professional Institutes), micro local (30 passengers, until 11 pm) that move to its terraces in height (due to the rainy weather, low lighting and vandalism, its whereabouts are not in optimal condition). Its extension has been developed with peripheral areas such as Larch (1 hour to the center), El Tepual and Chiquihue (30 min. To the center). There are groups (numbered, deferred rate, no stops) that reach its radial periphery (Los Lagos Regional Public Transportation Plan, s / a). There are 15 camps (of 43 at the regional level) with 1,600 people, and 61% of those households are led by a Head of Household. In 2019, studies began to declare a Saturated Zone by PM 2.5.

Part 2: Gender action plan

2.1. Conceptual framework

The following conceptual framework will be used to structure the proposed gender measures.

Barriers	Description
Informative	They may be due to the lack of information on the existing alternatives, on their benefits, or on the potential for a user and / or company. In addition, in certain cases there is no credibility of the information about its benefits.
Cultural	In many cases, even having the information and facilities, there is a reluctance to adopt for cultural or behavioral reasons. There is resistance to change, risk aversion, and little importance assigned to the topic (this point can slow down investment decisions).
Economic	In general, associated with investment costs. The selection of technologies is normally made based on the initial cost (usually higher than those with less efficiency). In many cases there is difficulty in accessing credit (they are insufficient; low interest is not transferred to users; financial institutions are not familiar with the evaluation of these projects; the productive agent may have its debt capacity already taken or is using it for different purposes). Sometimes the available resources prioritize the increase of production over the reduction of costs.
Technical	Often the alternatives that are presented do not correspond to the best technologies (because they do not exist in the market, or because there is no human capital with knowledge about it). Furthermore, there is a reduced ability to specify the required equipment and, particularly, to assess the direct and indirect benefits of the new technology. There is insufficient or no instrumentation in critical areas that limits the possibility of measuring consumption before and after, vital to assess the benefits of technology.
Institutional and Regulatory (I&R)	They can be of a regulatory and business type, such as: nonexistence of management units within the company, or when they exist, they do not have sufficient authority or are unrelated to the level of decision-making, for example, team selection ; absence of directives issued at the highest level that specifically define the incorporation of a certain technology or operating model; targeting investment and operating decisions (normally the production area does not have a strong enough voice in investment decisions and opts for equipment repair alternatives instead of buying more efficient new equipment). At the same production capacity and technology quality (input, product, etc.), equipment with lower investment cost is normally chosen

Adapted from World Energy Council (WEC) - World Energy Perspective, 2013.

2.2 Project risk analysis with respect to gender and gender action plan for the project

Output	Gender Objectives “07 Principles for the Empowerment of Women” UN Women, 2011	Measurements (ICETI & R)	Indicators / Goals	Actions to achieve goals	Expected Results and Risks of not articulating gender measures.
Output 1.1	Promote gender equality from the top management	(I&R) The national electromobility coordination body will be mixed.	Indicator: percentage [%] of women in the national electro-mobility coordination body, national body Goal: at least 40% are women ^[2]	Encourage participating entities to nominate women members of the committee. Track gender balance of the committee and provide updates at each annual steering committee meeting.	Expected results: the inclusion of activities and measures of gender equality becomes a common factor within the electro-mobility agenda of the different national ministries. The results and advances in the area are shared within the coordination body. Risk to the gender issue by not executing this measure: Lack of legitimacy of the project (potential adverse communication effect) and diversity of views in its comprehensive implementation ^[3]

Output 1.2 [4]	<p>Community Leadership and Commitment</p> <p>(guarantee sufficient representation of women in any public consultation mechanism)</p>	<p>(I) All consultations and activities carried out within the framework of the proposed consultation strategy should actively seek the inclusion of women within the different groups of civil society and the private sector.</p>	<p>Indicator: percentage [%] of women attending activities</p> <p>Goal: Given the diversity of the different stakeholders involved in the deployment of electro-mobility in the different regions of Chile, including drivers, their families, users, private companies, government offices, civil associations, etc. The contracted consultant will establish, together with the gender officer of the Ministry of Energy and its counterpart in the regional SEREMI offices, the goal of % of women who should participate in the different groups.</p> <p>Global Goal: 35% of women participate in the consultation strategy.</p>	<p>Ensure that the design of the consultation strategy (D1.2.1) is gender sensitive and establishes means to effectively consult women. Track gender balance of the consultations and provide update at each annual steering committee meeting.</p>	<p>Expected results: Guarantee and / or ensure that the project includes the gender dimension in the design, implementation, monitoring and evaluation phases.</p> <p>Gender risk by not executing this measure: Lack of legitimacy and adherence to the project, and weak sustainability over time[5]</p>
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Output 1.3	Equal opportunities, integration and non-discrimination	(T) Women's training	<p>Indicator: percentage [%] of women directly trained.</p> <p>Goal: at least 35%^[6] are women according to their qualification (potentialities are identified in local study centers with related careers).</p>	<p>Ensure that the design of the capacity-building activities is gender sensitive and establishes means to effectively capacitate women.</p> <p>Track gender balance of the capacity-building activities and provide update at each annual steering committee meeting.</p>	<p>Expected results: Technical Capacity. The female employment dimension is integrated throughout the value chain (both in managerial and operational positions, line and support)</p> <p>Gender risk by not executing this measure: Lack of participation of women in the labor force (perpetuating male stereotypes in an emerging area of the economy)^[7]</p>
Output 2.1	Business Development, Supply Chain and Marketing Practices	(T and C) The participation of female drivers in pilot tests is encouraged	<p>Indicator: percentage of registered female drivers participating in the pilot tests.</p> <p>Goal: 100% of the female drivers participate in the pilot tests, and at least 52.5% of passengers are women.</p>	<p>Ensure that the design of the pilots is gender sensitive and establishes means to effectively engage women.</p> <p>Track gender balance of the pilots and provide update at each annual steering committee meeting.</p>	<p>Expected results: Promote the participation of women in the deployment of electro mobility in the regions from the beginning.</p> <p>Risk to gender issues by not executing this measure: Lack of adherence to the project and poor adoption of an integrated management model (without stereotypes)^[8]</p>

Output 3.1	Business Development, Supply Chain and Marketing Practices	(E) Dissemination of Financial Opportunities at the local level.	<p>Indicator: Incorporate into the financial instruments requirements and facilities that are specific to women, giving female drivers the same opportunity to access the available funds as male drivers.</p> <p>Goal: The percentage of women who access the financing mechanism is equivalent to at least the percentage of female drivers in the collective taxi fleet nationally (% is currently unknown and to be determined during the project).</p>	<p>Ensure that the design of the financial instruments are gender sensitive and incorporate means to effectively engage women.</p> <p>Track gender balance of clients drawing on the financial instruments and provide update at each annual steering committee meeting.</p>	<p>Expected results: Financial Capacity. Promotion of solutions that integrate the gender dimension in terms of subsidies, loans and credits[9]</p> <p>Risk to the gender issue by not executing this measure: Less economic autonomy of potential women subjects of these financial instruments (their informal work and job insecurity are perpetuated)[10]</p>
Output 4.1	Business Development, Supply Chain and Marketing Practices	(E) Dissemination of Local Chain Opportunities	<p>Indicator: percentage [%] of women attending training</p> <p>Goal: at least 35% of women participate in the proposed workshops.</p>	<p>Ensure that the design of the capacity-building activities is gender sensitive and establishes means to effectively capacitate women.</p> <p>Track gender balance of the capacity-building activities and provide update at each annual steering committee meeting.</p>	<p>Expected results: The female employment dimension is integrated throughout the value chain (both in managerial and operational positions; line and support).</p> <p>Gender risk by not executing this measure: Lack of participation of women in the labor force (perpetuating male stereotypes in an emerging area of the economy)[11]</p>

Figure 2 summarizes the relative weight of each type of gender measure adopted relative to the total number of measures to be implemented. The project Regional and Gender Officer will have the responsibility of implementing and monitoring the gender action plan, in consultation with the Gender Officer of the Ministry of Energy.

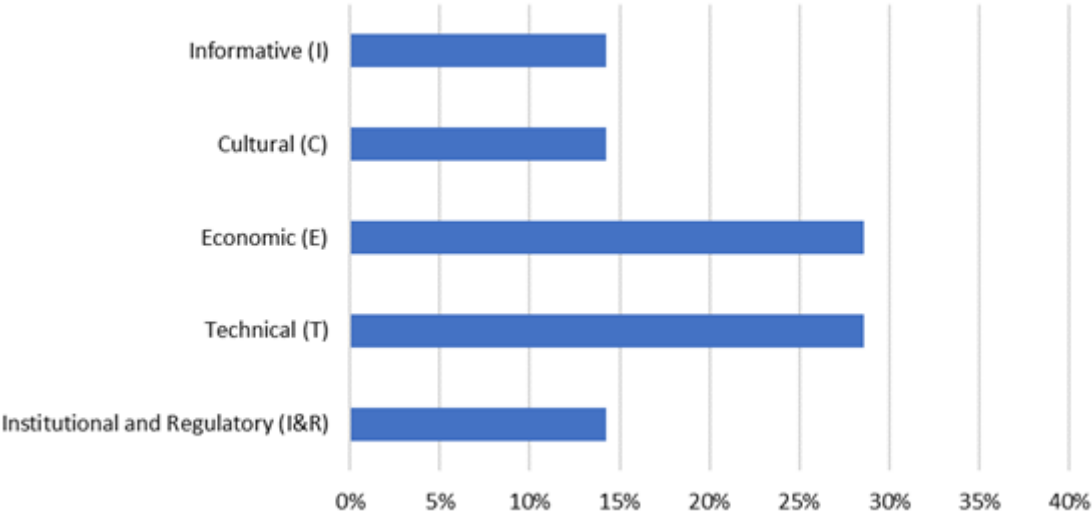


Figure 2. Relative percentage of each type of gender measure over the total number of measures implemented

[1] <http://www.hdr.undp.org/en/data>.

[2] The Public Companies System (SEP) reached (2017) the goal of 40% of female representation on Boards (Instrument: Presidential Mandate, Chile). UN proposes 30% in High Charges.

[3] It does not echo the ILO Centennial Global Declaration, The Future of Work, 2019: ensuring equal opportunities, equal participation and equal treatment.

[4] In March 2020, the Senate approved the Constitutional Reform Project by 28 votes, guaranteeing gender parity in the candidacies for the formation of the constituent body that, eventually, is created to formulate a New Constitution (Instrument: Draft Law, Chile)

[5] Ditto Footnote No. 2. Additionally, representative, and participatory democracy and inclusive societies are strengthened and consolidated (XIII LAC Regional Conference on Women, ECLAC, 2016)

[6] The 1st Solar Thermal Plant in Latin America (Cerro Dominador, Maria Elena commune) used in the construction phase local female labor (35%). The contractor was required to train in the required skills for women and a% recruitment. This "Mirrors Program" was awarded in the "Best Practices Competition for a More Sustainable Electric Future" 2019.

[7] Potential violation of ILO Convention 111, 1958, on Discrimination in Employment and Occupation.

[8] Idem Footnote No. 6.

[9] The Ministry of Transport has a “Collective Taxi Renewal Program” that does not distinguish sex (it does not offer affirmative actions for women).

[10] The Right to Development of Women is not protected as a fundamental Human Right, scope: Economic Rights (various binding ILO Conventions; ECLAC, 2016)

[11] It does not echo the ILO Centennial Global Declaration, The Future of Work, 2019: ensuring equal opportunities, equal participation and equal treatment.

Does the project expect to include any gender-responsive measures to address gender gaps or promote gender equality and women empowerment?

Yes

Closing gender gaps in access to and control over natural resources;

Improving women's participation and decision making Yes

Generating socio-economic benefits or services or women

Will the project's results framework or logical framework include gender-sensitive indicators?

Yes

4. Private sector engagement

Elaborate on private sector engagement in the project, if any

Private sector involvement is crucial for the success of the project, and a list of key private sector actors is contained in Table 7 above. Utility companies are one of the main promoters of electric mobility in Chile and have shown strong interest in the project, with two companies providing co-financing. Car dealers will participate in components 2, 3 and 4. The private sector will also engage in the stakeholder consultation strategy implemented in Output 1.2. Overall, the project will engage the private sector in a variety of ways:

- As project beneficiary: project activities will increase demand for electric vehicles, vehicle charging infrastructure. Car leasing companies will be engaged to provide the electric vehicles for pilot projects as well as their maintenance services. This will increase the presence of this companies in regional Chile, but also provide a new business acquisition plan for fixed route taxi drivers. Furthermore, these stakeholders will benefit from additional supporting actions from the project, such as the development of financial schemes (Output 3.1), which will encourage them to develop their own market strategies.
- The fixed route taxi owners are direct beneficiaries of the project given that these will be able to test the technology under local operating conditions at no cost. These private sector actors will engage directly in the demonstrations to identify potential business opportunities without the risk of technical uncertainty. Furthermore, they will also benefit from project activities in order to gain access to the benefits provided by electric vehicles within a more favorable legal and financial framework.
- The incorporation and testing of digital payment systems along with user connectivity apps, amongst others, will allow for future business opportunity for platform developers but also for public transport users and providers.
- The banking sector will participate directly in the creation and use of financial instruments created through the project.

Some private stakeholders will be particularly active as their involvement in some of the project activities is crucial for the long-term sustainability of electric mobility across the country. As mentioned above CORFO is a key player in promoting the entrepreneurship and dynamism of the private sector with a long-standing relation with the sector. The private sector is also targeted by capacity-building activities included in the project:

- Capacity building activities within component 1 are targeting decision makers and professionals in the public and private sector, and will focus on technical, financial, and regulatory aspects of integrating electric mobility and their growth prospects.
- Capacity building activities within component 4 will facilitate the involvement of private companies in the management of EVs at their end of life, opening new business opportunities in this sector.

5. Risks to Achieving Project Objectives

Elaborate on indicated risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and, if possible, the proposed measures that address these risks at the time of project implementation.(table format acceptable):

Risk description	Main categories	Risk level rating - probability	Risk level rating - impact	Risk Mitigation Strategy and Safeguards	By Whom / When?
Difficulties to obtain provisional license plates for the pilot vehicles	Political, organizational	Low	High	The Ministry of Transport and Telecommunications is already working to obtain permissions for the license plates. Once the project starts, this activity will be given highest priority and will be initiated immediately. This provides for a period of one year to obtain the plates. Furthermore, if required higher level political support will be provided through the Ministry of Energy to ensure the plates are obtained.	MTT, Ministry of Energy, Project Management Unit.
Rental companies do not participate in the project.	Economic	Low	High	<p>Three rental companies have confirmed they have fleets of electric vehicles and are interested to participate in the pilots.</p> <p>Maintain constant contact with potential rental companies from the beginning of the project, to inform them of progress and maintain interest</p> <p>Organize meetings between government officials and rental companies to build high-level political support with the companies.</p>	Ministry of Energy, PMU

Risk description	Main categories	Risk level rating - probability	Risk level rating - impact	Risk Mitigation Strategy and Safeguards	By Whom / When?
Reduced MTT subsidy due to changing priorities	Political	Low	High	<p>While Chile is currently undergoing a reconsideration of its political priorities due in part to the recent social protests and COVID pandemic, decarbonizing its transport system continue to be a key priority.</p> <p>To mitigate this risk, the PMU will work closely with the Ministry of Energy and MTT to ensure that a political alignment is constantly maintained.</p>	MTT, Ministry of Energy, Project Management Unit.
Lack of technical support on the maintenance and deployment of vehicles and infrastructure in regional cities reduces pilot effectiveness	Capacity	Low	Medium	<p>The maintenance costs of all vehicles purchased will be included in the procurement process of the vehicles in order to ensure the availability of specialized mechanics and spare parts. Furthermore, corrective maintenance expenses have been included in the budget in case of an incident. In addition, capacity building trainings will focus on supporting local actors to build technical capacity on vehicle usage</p>	ME, MTT, vehicle importers, contracted experts, rental companies.
Administrative obstacles due to lack of coordination between different government levels after execution of project activities	Organizational	Low	Low	<p>Coordination is being specifically addressed through output 1.1, to ensure effective inter-ministerial collaboration.</p>	Project management unit, led by Ministry of Energy

Risk description	Main categories	Risk level rating - probability	Risk level rating - impact	Risk Mitigation Strategy and Safeguards	By Whom / When?
Lack of access to affordable credit by potential electric taxi purchasers may reduce scale-up potential of project	Financial	Medium	Medium	Through output 3.1 the project directly aims to address such risk.	Ministry of Energy, Project Management Unit, financial institutions
Social unrest leads to a change in national priorities, affecting political support for the project	Political	Medium	Medium	Civil society continues to place high-importance on citizen well-being, including as related to air quality and access to public transport. As the project aims to improve both, it is not envisaged that social unrest would lead to lessening political support for the project. To ensure this doesn't occur, the project has a dedicated output on stakeholder engagement and consultation (1.2). The PMU will ensure that outcomes from such consultations are fed back into the national electric mobility coordination body (output 1.1), to ensure that government stakeholders are aware of the project's importance for civil society.	PMC, Ministry of Energy, Ministry of Transport and Telecommunications.
High impact event such as an earthquake could disrupt power generation, damage electric vehicles, destroy infrastructure, etc.	Environmental	Medium	Low	High-priority routes will be chosen, ensuring local governments prioritize the returning to functionality of these routes. Also, given that vehicles will be leased in case of damage the insurance and replacement of these will be responsibility of the leasing company. Finally, given that the pilot project is of 1-year duration the project has sufficient time to reschedule the testing period if required.	ME, MTT and regional SEREMI and GORE /throughout the project

Risk description	Main categories	Risk level rating - probability	Risk level rating - impact	Risk Mitigation Strategy and Safeguards	By Whom / When?
In-effective disposal of electric vehicle batteries leads to soil or water contamination.	Environmental	Low	Moderate	Effective disposal of electric vehicle batteries to be addressed directly through component 4.	PMU

Climate risk assessment, climate risks and risk mitigation

(i) How will the project's objectives or outputs be affected by climate risks over the period 2020 to 2050, and have the impact of these risks been addressed adequately?

Studies rate Chile as a country which faces moderate potential impacts due to climate change. Germanwatch rates Chile as having the 87th highest climate risk index,^[1] while the Notre Dame Global Adaptation Initiative ranks it the 22nd least vulnerable country in the world to climate change impacts, and 36th in terms of climate readiness.^[2]

According to the World Bank, Costa Rica's key vulnerabilities to climate change are in the following areas:^[3]

- “Chile has suffered many instances of drought, including a drought between 2008-2015 that affected much of the southern and central areas. Drought impacts human health by changing water availability and food production, agricultural production, energy, mining, among other important sectors. Rising temperatures and changing climatic patterns could impact the incidence of droughts in certain regions.
- The area between Santiago and Puerto Montt are most exposed to fire. Wild fire affects human health, urban populations, forests, agricultural lands, soil health, among other important sectors. Changes in precipitation and water management can leave forested areas vulnerable to wildfires during fire season. Chile was affected by extensive wildfires in 2017.

- Precipitation patterns, land use, wind, glacial and snow melt, and other climatic conditions affect river systems. Flooding can impact human population, energy production, critical infrastructure, agricultural production, and water quality. Most flooding occurs during the rainy season between April and September. However, Chile has recently experienced flash flooding in connection to temperature changes and snow melt.
- Flooding and wildfire events occur with higher frequency while earthquake, the third most frequent disaster represents a significant percentage of mortality and economic damages caused by natural disasters.”[4]

In this context and in that of the project, the primary risks to the project are due to La Niña, which would cause extremely high rainfall, and due to El Niño, which would cause droughts. Both have a moderate potential to affect the project’s objectives and outputs. Heavy rainfalls could cause flooding and landslides, damaging electric vehicle charging infrastructure, power grid infrastructure and general road infrastructure. At the same time, such rainfalls could potentially result in a steady supply of water for the country’s multiple hydropower plants, ensuring a steady and potentially reduced price of electricity. Droughts could potentially have the opposite effect, reducing supply for the hydropower plants or increasing competition for water resources (for instance, for agriculture and drinking water).

These potential impacts have been addressed through project design. To mitigate the potential impact of flooding or fires, the project pilots have been chosen to occur in large urban areas which are less prone to such events and have organized safety protocols and systems in place. In addition, the pilot fixed-route taxi routes will be chosen on high priority routes which have a low probability of impact from climate change. The use of high-priority routes will ensure that local governments prioritize these routes when undertaking efforts to mitigate or recover from flooding and fires. Routes will also be chosen to ensure that they are less likely to be affected by such extreme events. Furthermore, pilot drivers will be trained as part of the vehicle safety protocol (output 2.1) on responsible and safe usage of the electric pilots during such events.

Possible drought events, which could affect electricity prices, will be monitored carefully and incorporated into the business models and recommendations for accelerating electric taxi adoption in the regions. Unfortunately such extreme weather events are predicted to occur more frequently in the future, so it is important to incorporate such behavior into economic modelling. Predictions of possible increased in electricity prices will be incorporated into the development of the financial instruments under output 3.1. For instance, such cost variations will be factored into total cost of ownership modelling under output 3.1, ensuring that Banco Estado takes into account conservative (high) electricity prices when creating a financial instrument for the uptake of electric taxis.

(ii) Has the sensitivity to climate change, and its impacts, been assessed?

Yes, refer to the answer to the question above.

(iii) Have resilience practices and measures to address projected climate risks and impacts been considered? How will these be dealt with?

The overall focus of the project is on building resilience by reducing the country's dependence on fossil fuel imports through the uptake of electric vehicles. Such imports are susceptible to severe price fluctuations due to global shocks, including those caused by climate change. Thus, by reducing such imports, the country is directly increasing its overall resilience.

(iv) What technical and institutional capacity, and information, will be needed to address climate risks and resilience enhancement measures?

The operators of the fixed-route taxi pilots will need to have information on severe weather events and any changes in vehicle operation and routes during this time. Such information will be provided by the executing agency through its engagement with governmental actors participating in the national electric mobility coordination body (output 1.1). Similarly, such operators will require technical capacity to ensure effective operation, which will be provided through training on safety for vehicle pilot operation (output 2.1).

COVID risk and opportunity analysis

Risk analysis

The COVID-19 pandemic has the potential to affect the project in the following ways:

- Reduced fixed-route taxi operations. Whether due to mobility restrictions imposed by health authorities, the increased possibility of teleworking, the need for social distancing, or a significant economic contraction, the COVID-19 pandemic has the potential to reduce the levels of public transport travel in the Chilean regions. In such a situation, fixed-route taxi drivers could suffer losses in income and become less open to adopting new technologies, such as electric vehicles. This result would negatively impact on the effective execution of the project's outputs, potentially leading to a slower adoption of electric fixed-route taxis in the Chilean regions.

- Lockdown and movement restrictions. Mobility restrictions and the need for social distancing due to the pandemic could also lead to reduced possibility for activities that have traditionally required in-person participation, such as workshops, meetings, trainings and consultations.
- Government priorities. In the event of an extreme economic contraction, the pandemic could lead to a reduced focus by legislative powers on the adopting of policies, laws and standards related to electric mobility. It could also lead to a reconsideration of regional subsidies promoting electric mobility.

Mitigation measures:

- Reduced fixed-route taxi operations. The project pilots are planned to take place in 2022 and 2023, by which stage it is projected that the COVID pandemic will no longer impact the daily lives of citizens to the extent experienced today (2020). In the event that lockdowns and travel restrictions continue to impact communities, the project management unit will re-evaluate the project workplan to postpone field activities until the third year of project execution (2023). On the possibility of reduced use of public transport, the pilot routes will be chosen based on those of high-usage. This will ensure that even in reduced-usage scenarios there will continue to be demand for the pilot taxis. As noted in section 2, fixed-route taxis play an essential role in Chilean regional cities and the needs of civil society to commute will continue to exist.
- Lockdown and movement restrictions. In the event of mobility restrictions and the need for social distancing, alternative and innovate forms of meeting organization and communication will be implemented (i.e. using online platforms). The impacts of the pandemic in 2020 have meant that such technologies are already becoming commonplace and acceptable for usage by a broad range of stakeholders.
- Government priorities. The promotion of electric mobility continues to be a key priority for national government. In addition, civil society continues to highlight air pollution issues in Chilean cities, especially in the country's south. In this context, it is not perceived that the pandemic will result in a shift in governmental priorities away from low-carbon sustainable development.^[5] Project activities requiring governmental consideration of laws and decrees is planned primarily for the project's second and third years, when it is estimated that action on the pandemic will be in place and less of a requirement for legislative authorities. In the event that the pandemic continues to requiring the attention of decision-makers, such project activities will be rescheduled for the project's third year. Furthermore, due to reduced demand for MTT fixed-route subsidies in 2020 (due to reduced demand), it is not envisioned that the MTT will descale the subsidy in the short- to medium-term (in fact, as noted in the baseline section, it is understood that the MTT is evaluating an increase in the subsidy).

Opportunity analysis

- With initial studies indicating that the effects of COVID-19 are intensified by poor air quality, the pandemic has led to an increased focus on this situation in Chile. Some cities in the Chilean regions, particularly in the south, have levels of air quality which are among the poorest in Latin America and the Caribbean, and thus efforts to improve the situation are embraced by civil society and health authorities. As the GEF project directly aims to improve air quality through a reduction in polluting internal combustion engine vehicles, there will be significant opportunities for synergies with other initiatives and increased interest in scaling up the project's outcomes

[1] https://germanwatch.org/sites/germanwatch.org/files/20-2-01e%20Global%20Climate%20Risk%20Index%202020_14.pdf

[2] <https://gain.nd.edu/our-work/country-index/rankings/>

[3] <https://climateknowledgeportal.worldbank.org/country/chile/vulnerability>.

[4] Ibid.

[5] Recently reinforced in the July 2020 Clean Energy Ministerial, plenary intervention, of the Minister of Energy, H.E. Juan Carlos Jobet.

6. Institutional Arrangement and Coordination

Describe the institutional arrangement for project implementation. Elaborate on the planned coordination with other relevant GEF-financed projects and other initiatives.

· Institutional arrangements:

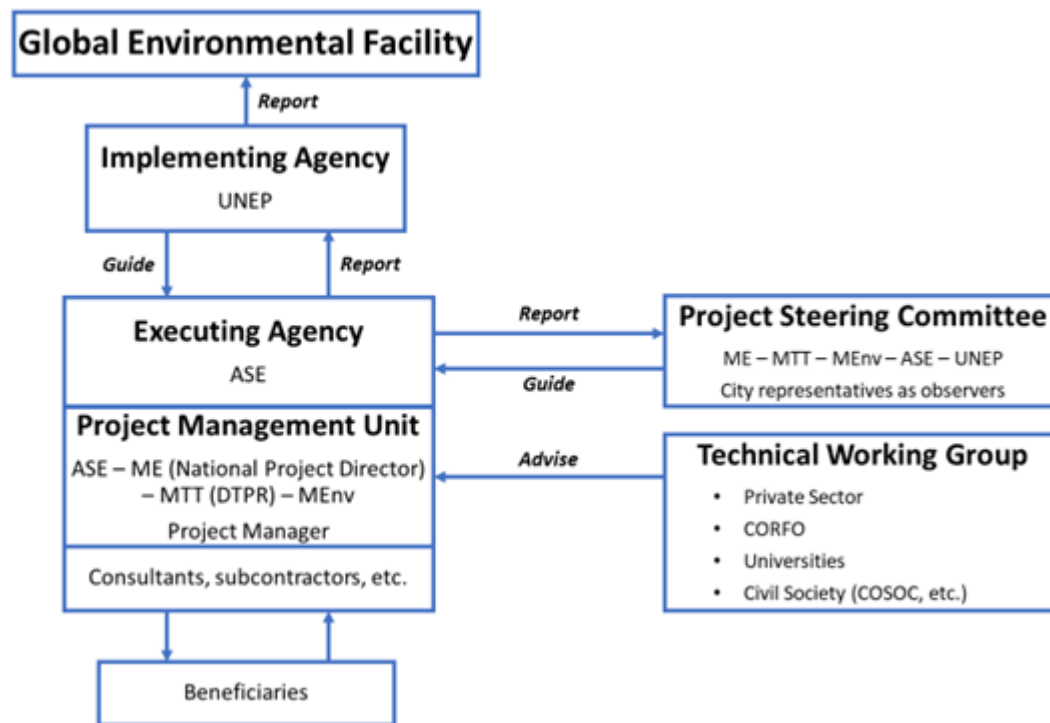


Figure 3. Institutional SETUP and coordination structure

Institutional structure acronyms

ASE	Agency of Sustainability Energy
ME	Ministry of Energy
MEnv	Ministry of Environment
MTT	Ministry of Transports and Telecommunications

UNEP	United Nations Environment Programme
DTPR	Regional Public Transport Division, from Spanish “División de Transporte Público Regional”
CORFO	Production Development Corporation, from Spanish “Corporación de Fomento de la Producción”
COSOC	Civil Society Council, from Spanish “Consejo de la Sociedad Civil”

UNEP is the proposed GEF Implementing Agency, based on its significant experience in support electric mobility interventions globally and in the region. Globally, it is the implementing agency of the GEF Global Programme on Electric Mobility. It also leads work on, inter alia, the *Partnership for clean fuels and vehicles* and the *Global fuel economy initiative*. In the region, UNEP through its Regional Office for Latin America and the Caribbean (ROLAC) supports coherence and coordination on electric mobility through its platform [MOVE](#). Furthermore, it support the regional political agenda on electric mobility through its leadership to organize the annual Forum of Environmental Ministers. Amongst other activities, UNEP ROLAC is leading the implementation of GCF readiness proposal *Advancing a regional approach to e-mobility in Latin America* in Argentina, Costa Rica, Cuba, El Salvador, Guatemala, Honduras, Nicaragua, Panama, Paraguay and Uruguay.

The Agency of Sustainability Energy will be the project’s Executing Agency, as nominated by and accountable to the Ministry of Energy. The Agency for Energy Sustainability (ASE) is a private non-profit foundation created in 2010 with the mission to promote, strengthen and consolidate the efficient and sustainable use of energy through the coordination of relevant actors at the national and international level, implementing public-private initiatives in different sectors and thus contributing to the competitive and sustainable development of Chile. The Sub-secretary of Energy, Ministry of Energy, is the President of the Board of Directors of the Agency. ASE is also serving as the executing entity for the GEF Project ID: 10087. Accelerating investment in efficient and renewable district energy systems in Chile.

Refer to Annex K for further details on the roles and responsibilities of the Implementing and Executing Agencies. The Agency of Sustainability Energy will be accountable to the Ministry of Energy and UNEP/GEF for ensuring the Executing Agency activities (see Annex K). The project will be managed by a Project Manager at the ASE that works in close cooperation with the Project Director at the Ministry of Energy. The project will be executed in line with the procedures established by the Ministry of Energy, and the Agency of Sustainability Energy will take overall responsibility for the execution and success of the project.

The project’s organogram is shown in Figure 4 above. For more details on the roles and responsibilities of the Implementing and Executing Agencies refer to Annex K. The main project bodies are the following (refer to Annex K for more details):

The **Project Steering Committee (PSC)** is a high-level cross-sectorial committee comprising of lead policy makers and heads of departments. It consists of the Ministry of Energy, Ministry of Transport and Telecommunications, Ministry of Environment, UNEP, the Agency of Sustainability Energy and the Chile GEF Operational Focal Point. The PSC will be established to provide overall guidance and oversee the progress and performance of the project as well as to enhance and optimize the coordination and contribution with various project partners. It will focus mainly on procurement, institutional arrangements, and financial management of the project. The PSC will be chaired by the National Project Director (NPD), and will convene at least once per year. The selection of consultancies and companies is responsibility of the PSC. Representatives of the pilot cities will be invited to participate as observers to the PSC meetings at the invitation of the PSC.

The **Project Management Unit (PMU)** is composed by the Agency of Sustainability Energy, the Ministry of Energy, Ministry of Transport and Telecommunications and the Ministry of Environment and will manage day-to-day operation of the project. Its core structure consists of a Project Manager (PM) and component coordinators (such as consultants and subcontractors) with specialized expertise hired to work on specific components within the project. The PMU is designed to achieve efficiency and coordination in the management of funding, and of project activities that are similar and inter-dependent on each other for execution. The project Regional and Gender Officer will have the responsibility of implementing and monitoring the gender action plan, in consultation with the Gender Officer of the Ministry of Energy.

The **Technical Working Group (TWG)** is a mechanism that enhances coordination and communication between ministries and key stakeholders. It involves private sector entities, CORFO, Centro Mario Molina Chile (as host of the LAC support and investment programme of the GEF-7 global programme on electric mobility), universities and the civil society. The latter provide sustained technical guidance, policy recommendations, support for areas within their expertise, and enhance the involvement of the most vulnerable groups of society to achieve policy coherence among the country's objectives and maximize social benefits.

· Coordination with other initiatives:

To coordinate efforts and maximize the output of both the GEF-6 sustainable mobility and this GEF-7 electric mobility projects, the Ministry of Environment, focal point of the GEF-6 project, and the Ministry of Energy, focal point of the GEF-7 project, have already that both ministries as well as the Ministry of Transport and Telecommunication will be included in the steering committees of both the GEF-6 and GEF-7 projects. This will be undertaken to ensure effective coordination between the two projects and to ensure that the projects are complementary, avoid duplications and build synergies (as noted in section 3 above).

The key mechanism to ensure coordination between this GEF-7 project and other transport initiatives being undertaken nationally will be the inter-ministerial coordination group established under output 1.1 The body will be constituted of government officials, including the Ministry of Energy (which will serve as the body's secretary), the Ministry of Transport and Telecommunications, Ministry of Environment, Ministry of Finance and the Ministry of Interior. In addition, the coordination body will ensure close contact with the ministerial regional secretaries (SEREMI) in the Chilean regions, which act as ministerial representation in each Chilean region. They will enable contact with regional governments (GORE) authorities and help articulate activities with local stakeholders. Meetings will be held quarterly, with information stored on a document-sharing platform. Participants will be at the technical level, that are executing related activities (including the GEF-6 and GEF-7 transport projects).

The coordination group will also ensure coordination and the building of synergies with the GCF regional readiness programme on electric mobility. As work on the GCF programme advances in 2021 (it began in late-2020), the coordination group will ensure alignment and complementarity. In particular, as the GEF-7 project starts in 2021, effort will be made to ensure the development of a pipeline of GCF project proposals that builds upon the GEF project, for example, through the scaling up of the fixed-route electric taxi fleet based on GEF-7 project experiences.

The Ministry of Energy, together with the Ministry of Transport and Telecommunications and Ministry of Environment will also ensure coordination with other ongoing relevant GEF-financed projects in Chile in climate change focal area. The following table lists selected GEF project on climate change (GEF-5 to GEF-7).

TABLE 10. GEF-financed projects in Chile in climate change focal area

ID	Title	Implementing Agencies	Executing Agencies	Period	Status	Relevance
9831	Third Biennial Update Report and Fourth National Communication under the UNFCCC	United Nations Development Programme	Ministry of Environment	GEF-6	Project Approved	Indirect. The results of the project will support UNFCCC reporting.
9742	Supporting the Chilean Low Emissions Transport Strategy CLETS	Development Bank of Latin America	Ministry of Environment (MMA), Ministry of Transport and Telecommunications (MTT), (Ministry of Energy will be on the project steering committee)	GEF-6	Project Approved	Direct
9496	Leapfrogging Chilean's markets to more efficient refrigerator and freezers	United Nations Environment Programme	Ministry of Energy	GEF-6	Project Approved	Indirect: supporting GHG reduction.
5598	First Biennial Update Report	GEF Secretariat	Agencia de Cooperación Internacional de Chile, AGCI (Chilean Agency for International Cooperation)	GEF-6	Project Approved	Indirect. The results of the project will support UNFCCC reporting.
5150	Delivering the Transition to Energy Efficient Lighting	United Nations Environment Programme	Energy and Environment Ministries	GEF-5	Project Approved	Indirect: supporting GHG reduction.

The project will coordinate with the global programme on electric mobility by engaging in the LAC regional platform's activities. In particular, country representatives will participate in the regional platform-led community of practice. This will include participating in LAC platform task teams on LDVs, 2&3 wheelers, buses, batteries and charging infrastructure, participating in meetings of the LAC platform and participating in marketplace meetings on technology and finance. The country will coordinate with other child projects in the region through the help desk and the community of practice, in particular the task teams and platform meetings. Engagement through the platform will ensure effective two-way coordination, with country representatives sharing project updates, raising challenges and sharing good practices with platform representatives. Platform representatives will share good global practices, identify solutions to challenges raised, and ensure regional coordination and alignment. With the LAC regional platform hosted by Centro Mario Molina Chile, based in Santiago, Chile, this centre will play a key role in supporting coordination between the child project and the activities of the global programme. The Centre will participate actively in child project activities, as noted previously (see for instance outputs 1.3 and 4.1, as well as the stakeholder section). Participating in the activities of the global programme will also support the country to implement the National Strategy on Electric Mobility, action line 23: Participation of Chile in international instances.

7. Consistency with National Priorities

Describe the consistency of the project with national strategies and plans or reports and assessments under relevant conventions from below:

NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, INDCs, etc.

The project is consistent with national strategies and plans/reports and assessments under the following relevant conventions:

- National Electromobility Strategy
- National Energy Strategy 2012-2030
- Energy 2050 (Chile's Energy Policy)
- National Action Plan for Climate Change 2017-2022
- National Determined Contributions (NDC) Paris Agreement
- Long-term low greenhouse gas emission development strategies under UNFCCC (Article 4, paragraph 19, of the Paris Agreement)
- National Climate Change Adaptation Plan

- United Nations Development Assistance Framework (UNDAF)
- 4th National plan of equality between men and women 2018-2030 of the Ministry of Women and Gender Equity.

National Electromobility Strategy: As noted in section 2, the strategy was launched in 2017. Through this, the country aims to electrify 100% of all public transport by 2040 and 40% of the country's private car fleet by 2050. This is undertaken with the aim of contributing to the goals of energy efficiency and mitigation of GHG emissions and contributing to improving mobility and quality of individuals' life; along with other benefits such as reduction of emissions of local pollutants and the adverse effects on the population's health. The strategy sets forth an action plan with a series of key messages to achieve these targets:

National Energy Strategy 2012-2030: Chile's National Energy Commission (CNE) has adopted a policy document, "National Energy Strategy: 2012–2030," which outlines its commitment to expand the sector capacity by supporting the use of non-conventional renewable sources. The Strategy contains six main pillars, among which:

- Increase the use of non-conventional renewable sources,
- Promotion of energy efficiency.

Energy 2050 (Chile's Energy Policy): The Energy Policy defines a vision of Chile's energy sector by the year 2050 as reliable, inclusive, competitive and sustainable. The Energy Policy is based on four pillars: Quality and Security of Supply, Energy as a Driver of Development, Environmentally friendly Energy, and Energy Efficiency and Energy Education. The principle energy targets for 2050 are:

- The GHG emissions of Chile's energy sector are in line with the thresholds defined by international guidelines and with the corresponding national emissions reduction goal, making an important contribution to a low carbon economy,
- Regional and local territorial planning and land-use instruments are in line with the guidelines of the Energy Policy,
- At least 70% of the electricity generated in Chile will come from renewable energy sources (60% by 2035),
- 100% of new buildings meet OECD standards for efficient construction, and are fitted with intelligent energy control and management systems,
- Improvement of energy producers, distributors, consumers and users' behaviors.

National Action Plan for Climate Change 2017-2022: Chile's Plan of Action for Climate Change is a road map that integrates and systematizes future climate actions for the country. The action plan has 16 specific objectives and 30 action lines that are materialized in 96 measures, divided in four areas of action: adaptation, mitigation, means of implementation and management of climate change at regional and communal level.

National Determined Contributions: Chile has submitted its INDC to the Secretary of the UNFCCC in September 2015. The country's commitments are divided into 5 pillars: i) mitigation, ii) adaptation, iii) capacity building and strengthening, iv) development and Technology Development and Transfer, and v) financing.

In the case of the Mitigation Pillar, Chile is committed to reduce its CO₂ emissions per GDP unit by 30% below their 2007 levels by 2030, considering a future economic growth which allows to implement adequate measures to reach this commitment.

In addition, and subject to the grant of international monetary funds, the country is committed to reduce its CO₂ emission per GDP unit by 2030 until it reaches a 35% to 45% reduction with respect to the 2007 levels, considering, in turn, a future economic growth which allows to implement adequate measures to achieve this commitment.

In the specific contributions to the LULUCF sector, Chile has committed to the sustainable development and recovery of 100,000 hectares of forest land, mainly native, which will account for greenhouse gas sequestrations and reductions of an annual equivalent of around 600,000 tons of CO₂ as of 2030. This commitment is subject to the approval of the Native Forest Recovery and Forestry Promotion Law.

Long-term low greenhouse gas emission development strategies under UNFCCC (Article 4, paragraph 19, of the Paris Agreement: The development of the long-term climate strategy to 2050 is currently underway through a participatory process. It is estimated that the strategy will be finalized in 2021. Once finalized, it will be ensured that the project is aligned with and builds upon this strategy.

National Climate Change Adaptation Plan: Chile's National Climate Change Adaptation Plan was adopted in 2015 and provides the overall framework for the coordination of adaptation activities of different sectors and different territorial administrative levels. Climate Change Adaptation Plan for Energy Sector is based on measures related to energy efficiency on demand side and use of non-conventional renewable energy on energy generation side. According to this Plan, in order to increase the energy efficiency it is necessary to introduce measures to popularize the development of energy efficiency projects and develop massive campaigns and educational programs in energy efficiency; while in order to increase the use of non-conventional sources it is necessary to encourage the integration of non-conventional sources of energy in line with Renewable Energy Law and the use of solar energy in residential sector.

United Nations Development Assistance Framework (UNDAF): Chile has signed the United Nations Development Assistance Framework (UNDAF) for the period 2019-2022 in August 2019. It identifies areas of joint cooperation on issues of institutional, social and economic development, gender equality and environmental sustainability. This project is aligned with strategic priority 4 – environmental development, direct effects 7 and 8.

4th National plan of equality between men and women 2018-2030 of the Ministry of Women and Gender Equity: is a planning and management instrument that makes it possible to ensure compliance with the gender commitments signed by the State and the approved legal and legislative frameworks that guarantee women's rights. It also allows monitoring compliance and alignment with the purposes of substantive equality and autonomy of women, the gender goals and objectives included in the policies, plans and strategies of the different ministries, framed in the Sustainable Development Goals and Agenda 2030, whose compliance by the State constitutes a global commitment and challenge. The project's gender action plan is aligned with this national plan, in particular with regards to areas on 2. Economic rights (promoting greater participation of women in the workforce) and 4. Right to a life free of violence and discrimination (safety in public transport).

8. Knowledge Management

Elaborate the "Knowledge Management Approach" for the project, including a budget, key deliverables and a timeline, and explain how it will contribute to the project's overall impact.

The project will generate several streams of information which need to be managed. The national coordination body created as part of output 1.1, will have periodical meetings. Minutes and presented content in these meetings will be uploaded to a digital platform for all members to access. The project management unit implementing the consultation strategy (Output 1.2) will produce quarterly reports based on the interviews and meetings held with the different stakeholders as part of the implementation of the strategy. This information will also be uploaded to the digital platform. On the different capacity building activities, these will be available via webinar to all stakeholders interested. Furthermore, content will have to be presented by consultants in a digital format for it to be easily transferred and disseminated. This information will be available on the digital platform, for governmental actors to draw upon in the design and implementation of future initiatives. Finally, the component 2 pilot projects will generate performance indicators, lessons learned and identify barriers, valuable information that will allow decision makers and the project steering committee to take action to maximize the project's impact. This information will be captured through data management platforms in each of the pilot cities and then disseminated more broadly through the open data strategy developed under GEF-6. As shown in the table below, the project will use the knowledge and information dissemination platform developed by the GEF6 initiative to communicate and disseminate the information generated by the different outputs. This table related only to knowledge management is an extract of the table in section 3 focused on interactions between the two projects.

Table 11A. Interactions on knowledge management between gef 6 and gef 7 outputs

GEF 6 Outputs[1]	Coordination, complementarities and synergies between the projects	GEF 7 Outputs
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<p>Output 1.1.3. MRV system (Monitoring, Reporting and Verification)</p> <p>Through studies and thorough monitoring, reporting and verification, CLETS's effective costs, impacts and benefits will be demonstrated and disseminated.</p>	<p>MRV activities of each project will be kept separate and independent</p>	<p>Output 2.2: Data from the pilot programme in Antofagasta, Puerto Montt and Talca is collected, analyzed and disseminated</p>
<p>Output 1.2.1. Support to the formalization and diffusion of the Chilean Low Emissions Transport Strategy</p>	<p>The GEF-7 national coordination body will support the diffusion and implementation of the GEF 6 strategy and facilitate coordination of all activities relevant to electric mobility.</p>	<p>Output 1.1: A national electric mobility coordination body is created</p>
<p>Output 1.2.2. Experience exchange and dissemination, national level through experience exchange and other knowledge-management interventions, the line of work will ensure that there are key professionals in regions knowledgeable of the effective costs, impacts, opportunities and benefits of sustainable mobility.</p>	<p>The multi-stakeholder consultation strategy will produce information related to uncertainties and concerns relevant to the fixed route taxi ecosystem and make this information available to the GEF6 team.</p>	<p>Output 1.2: A multi-stakeholder consultation strategy is implemented to identify the social (including gender) and economic viability of the scale-up of electric mobility in Chilean regions.</p>
<p>Output 1.3.3. Collective-taxi information crowdsourcing</p> <p>The project will support innovation on processes for the useful digitization of colectivo routes, so that such processes are tested and systematized.</p>	<p>The GEF 7 project has various outputs that focus on fixed route (colectivo) taxis. Information generated throughout the GEF-7 project will be made available to the GEF6 management unit to support their analysis.</p>	<p>Output 3.3: The fixed-route taxi ecosystem in Chilean regions is analyzed and recommendations for deploying electric fixed-route taxis in Chilean regions are presented for adoption.</p>
<p>Output 1.3.4. Open Data strategy</p> <p>The project will support that a shared Open Data strategy is discussed and in implementation among all relevant actors, aiming at making all disclosable public data on mobility available and interoperable.</p>	<p>Data generated throughout the execution of GEF-7 pilot projects will be shared through the open data strategy developed throughout the GEF 6 activities.</p>	<p>Output 2.2: Data from the pilot programme in Antofagasta, Puerto Montt and Talca is collected, analyzed and disseminated</p>

<p>Output 1.4.1. Dissemination (international level)</p> <p>The project supports exchange and policy-dialogue activities carried out by relevant initiatives under no geographical limitation but expected to focus primarily in Latin America. Activity will be carried out to ensure that links and channels exist for an enhanced co-learning between key professionals in like-minded initiatives worldwide.</p>	<p>The GEF 7 project is a child project of the GEF global programme on electric mobility. The global programme has regional support and investment platforms, which will facilitate the diffusion of international experiences and globally adopted best practices. It will also provide a common platform for all child projects to interact and share knowledge and experiences. Efforts will be made to ensure coordination with the GEF-6 international dissemination activities.</p>	<p>GEF 7 Global Programme on Electric Mobility.</p>
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Table 11B. Knowledge management Products of the GEF-7 project

Deliverable code	Knowledge management products	Budget USD
1.1.3	Document-sharing platform (drive, SharePoint or similar)	1,500
1.3.5	Report on good practices and lessons learned on enforcing regulations for electric vehicle charging infrastructure	6,250
2.1.7	Vehicle monitoring (including data management system in each city), digital payment systems and user connectivity apps procured.	60,500
2.2.4	Quarterly operation and performance reports (minimum 4)	8,000
2.2.6	Postprocessed data is online on the city data management system (D2.1.7) and accessible for interested stakeholders through the GEF-6 open data strategy.	(Through the GEF-6 project)
3.2.1	Report on fixed-route taxi ecosystem for Antofagasta, Puerto Montt and Talca, detailing, inter alia, fleet structure, routes, operating hours, and off-work requirements	15,000

3.3.1	Report on current state and structure of the electricity distribution grid of each of the three pilot project cities: Antofagasta, Puerto Montt and Talca. The report will establish correlations between findings to determine if these are local, regional or national.	30,000
3.3.2	Report on national electricity demand for different scenarios of electro mobility in each city, considering fixed route taxi fleets and private vehicles.	30,000
Total budget		151,250

The project is part of the global GEF-UNEP Programme on Electric Vehicles. It will actively participate in the global programme's global and regional activities through its component 1, for example by participating and contributing to the knowledge exchange in the regional knowledge and investment platforms and the relevant global working groups, as well as by providing insights and knowledge.

[1] As per information contained in the approved project document.

9. Monitoring and Evaluation

Describe the budgeted M and E plan

Monitoring and Evaluation (M&E) activities and related costs are presented in the costed M&E Plan (Annex J) and are fully integrated in the project budget. The project will comply with UNEP standard monitoring, reporting and evaluation procedures. Reporting requirements and templates are an integral part of the legal instrument to be signed by the Executing Agency and the Implementing Agency

The project M&E plan is consistent with the GEF Monitoring and Evaluation policy. The Project Results Framework presented in Annex A includes SMART indicators for each expected outcome as well as end-of-project targets. These indicators along with the key deliverables and benchmarks included in Annex L will be the main tools for assessing project implementation progress and whether project results are being achieved. The means of verification to track the indicators are summarized in Annex A.

The M&E plan will be reviewed and revised as necessary during the project Inception Workshop (IW) to ensure project stakeholders understand their roles and responsibilities vis-à-vis project monitoring and evaluation. Indicators and their means of verification may also be fine-tuned at the inception workshop. General project monitoring is the responsibility of the Project Management Unit (PMU) but other project partners could have responsibilities in collecting specific information to track the indicators. It is the responsibility of the Project Manager to inform UNEP of any delays or difficulties faced during implementation so that the appropriate support or corrective measures can be adopted in a timely fashion.

The project Steering Committee (PSC) will receive periodic reports on progress and will make recommendations to UNEP concerning the need to revise any aspects of the Results Framework or the M&E Plan. Project oversight to ensure that the project meets UNEP and GEF policies and procedures is the responsibility of the UNEP Task Manager. The Task Manager will also review the quality of draft project outputs, provide feedback to the project partners, and establish peer review procedures to ensure adequate quality of scientific and technical outputs and publications.

Project supervision will take an adaptive management approach. The UNEP Task Manager will develop a project Supervision Plan at the inception of the project, which will be communicated to the Project Management Unit and the project partners during the Inception Workshop. The emphasis of the Task Manager's supervision will be on outcome monitoring but without neglecting project financial management and implementation monitoring.

Progress vis-à-vis delivering the agreed project global environmental benefits will be assessed with the Steering Committee at agreed intervals. Project risks and assumptions will be regularly monitored both by the Project Management Unit, the project partners and UNEP. Risk assessment and rating is an integral part of the Project Implementation Review (PIR). The PIR will be completed by the Project Manager and ratings will be provided by the Task Manager. The quality of project monitoring and evaluation will also be reviewed and rated as part of the PIR. The Task Manager will have the responsibility of verifying the PIR and submitting it to the GEF. Key financial parameters will be monitored quarterly to ensure cost-effective use of financial resources.

Since this is a Medium-Size Project (MSP) of less than 4 years of duration, no Mid-Term Evaluation (MTE) will be undertaken. However, if the project is rated as being at risk or if deemed needed by the Task Manager, he/she may decide to conduct a Mid-Term Review (MTR). This review will include all parameters recommended by the GEF Evaluation Office for Terminal Evaluations (TE) and will verify information gathered through the GEF tracking tools, as relevant. The review will be carried out using a participatory approach whereby parties that may benefit or be affected by the project will be consulted. Such parties were identified during the stakeholder analysis (see section 2 above). Members of the project Steering Committee could be interviewed as part of the MTR process and the Project Manager will develop a management response to the review recommendations along with an implementation plan. Results of the MTR will be presented to the Project Steering Committee. It is the responsibility of the Task Manager to monitor whether the agreed recommendations are being implemented.

In-line with UNEP Evaluation Policy and the GEF's Monitoring and Evaluation Policy the project will be subject to a Terminal Evaluation (TE) commissioned by the UNEP Evaluation Office at the end of project implementation. The EOU will be responsible for the Terminal Evaluation and will liaise with the Task Manager and Executing Agency's Project Management Unit throughout the process. The TE will provide an independent assessment of project performance (in terms of relevance, effectiveness and efficiency), and determine the likelihood of impact and sustainability. It will have two primary purposes: (i) to provide evidence of results to meet accountability requirements, and (ii) to promote learning, feedback, and knowledge sharing through results and lessons learned among UN Environment, the GEF, executing partners and other stakeholders.

The TE will be initiated no earlier than 6 months prior to the operational completion of project activities and, if a follow-on phase of the project is envisaged, should be completed prior to completion of the project and the submission of the follow-on proposal. TE must be initiated no later than 6 months after operational completion.

The draft TE report will be sent by the UN Environment Evaluation Office (EOU) to project stakeholders for comments. Formal comments on the report will be shared by the EOU in an open and transparent manner. The project performance will be assessed against standard evaluation criteria using a six-point rating scheme. The final determination of project ratings will be made by the EOU when the report is finalized and further reviewed by the GEF Independent Evaluation Office upon submission. The evaluation report will be publicly disclosed and will be followed by a recommendation compliance process. A review of the quality of the evaluation report will be done by EOU and submitted along with the report to the GEF Evaluation Office not later than 6 months after the completion of the evaluation.

The GEF Core Indicator Worksheet is attached as Annex F. It will be updated at mid-term and at the end of the project and will be made available to the GEF Secretariat along with the project PIR report. As mentioned above, the MTR/MTE and TE will verify the information of the tracking tool. The direct costs of reviews and evaluations will be charged against the project evaluation budget. A summary of M&E activities envisaged is provided in Annex J. The GEF contribution for this project's M&E activities (including audits and evaluations) is US\$ 66,800.

10. Benefits

Describe the socioeconomic benefits to be delivered by the project at the national and local levels, as appropriate. How do these benefits translate in supporting the achievement of global environment benefits (GEF Trust Fund) or adaptation benefits (LDCF/SCCF)?

In terms of direct benefits for the local population, incorporating electric vehicles into the public transport fleet, in particular fixed route taxis, will help reduce local pollution through a reduction of NOx, carbon monoxide and particulate matter emission, improving quality of air in regional urban areas and thus reducing the impact on human health. This is a significant benefit as some of the Chilean regions have some of the lowest air qualities in Latin America. This will further have a positive benefit on human health given that preliminary studies suggest that the COVID pandemic has a more significant impact on regions of poor air quality. Thus, by improving air quality the project may contribute indirectly to reducing the impact of the COVID pandemic. Estimates of the reduction in air pollution will be calculated based on data obtained through output 2.2. By tracking vehicle

odometers and other performance indicators, the emissions of the electric vehicle pilots will be compared with a calculation of those of existing old fixed-route taxis. The potential for a positive through-out the regions will then be extrapolated based on a controlled scale-up of fixed-route taxis.

Furthermore, introducing electric vehicles into the public transport system will improve the quality of the service in terms of comfort by reducing noise and vibrations. Furthermore, the use of connectivity apps to connect operators with passengers will promote a modal shift from the use of private transport to the public transport system, as it will facilitate the development of a more enhanced service, which could in turn result in an improvement of traffic conditions in the different cities.

As is expected when incorporating a new technology into a given system, this will result in a new ecosystem for business which enables opportunities but could also affect current employment areas. The project will put in place activities to ensure that the work force transition (Output 1.2, and 3.3), and does not result in the loss of employment of current workers of transport sector. Also, given the strong gender focus of the project and the experience of the Ministry of Energy personnel in the area, the project aims to result in new employment opportunities for women. This will be done by ensuring that companies involved in the procurement, installation or sale of systems, infrastructure and equipment related to low carbon electric mobility include gender diverse initiatives into their operating structure, in accordance with the gender action plan.

In terms of economic benefits, the project will help promote investment in the Chilean regions, where market pull, and push have not been strong enough to consolidate business opportunities related to electric mobility. Although the incorporation of electric mobility will also require importation, thus capital expenditures, the transition will make the country less dependent of global oil prices. This should reduce investment uncertainties, which should in turn result in a more favorable investment environment reducing interest rates and short term expected returns, making long term investments more attractive. Furthermore, the transition to electric mobility will create a new market for the power generation and electricity distribution sectors making such investments more attractive, thus, improving the reliability and reliance of the Chilean regional power systems.

11. Environmental and Social Safeguard (ESS) Risks

Provide information on the identified environmental and social risks and potential impacts associated with the project/program based on your organization's ESS systems and procedures

Overall Project/Program Risk Classification *

PIF

CEO Endorsement/Approval

MTR

TE

Medium/Moderate

Measures to address identified risks and impacts

Elaborate on the types and risk classifications/ratings of any identified environmental and social risks and impacts (considering the GEF ESS Minimum Standards) and any measures undertaken as well as planned management measures to address these risks during implementation.

An assessment of the environmental, social and economic impact of the project was undertaken by an independent team with the United Nations Environment Programme (UNEP). In its analysis, the team interviewed the project consultants and UNEP Task Manager on the project and reviewed the project against a series of environmental, social and economic indicators (contained in annex P of the CEO endorsement document). The assessment determined that this is a moderate risk project, based on UNEP's Environment, Social and Economic Sustainability (ESES) guidelines. In providing this rating, the UNEP Safeguard Advisor noted that:

- Potential long-term environmental and health impact need to be considered although the scope and budget of the project is limited to piloting of small number of taxi fleets. These will be considered as part of the project's component 4.
- The project also includes financing instruments that ease financial burden to the taxi owners. Terms and conditions of such loan should be done through extensive analysis on potential economic feasibility to the borrowers. These will be considered as part of outputs 1.2 and 3.1.
- The project also aims to support Chilean government to take action towards implementing policy frameworks for ensuring the environmental sustainability of electric mobility. Would there be possibility of having insufficient interest for recycling Lithium considering Chile has large Lithium mining and industry? This will be considered through outputs 1.2 and component 4.
- If COVID-19 pandemic continues during the project implementation phase, attention should be given to occupational safety and health (OSH) issues of the partners, subcontractors and anyone who may participate in the stakeholder consultations. This will be considered through outputs 1.2 and the risk section.
- UNEP ESSF guiding principles-- resilience and sustainability; human rights, gender equality and women empowerment, accountability and leave no one behind--are also applicable for all UNEP projects. Detailed attention should be given to potentially affected marginalized and vulnerable population in terms of project's proposed policy and strategies for them. This will be considered directly through output 2.1.

· Project level grievance mechanism should be stated clearly in the project document and established to handle any complaints swiftly. Share UNEP’s grievance mechanism with the affected population for any grievance issues that are not unresolved at the project level. This will be achieved through output 1.2 and the institutional arrangements (see section 6 and annex k).

In conclusion, the Advisor noted that this project can take the “good practice” approach” on safeguards (a separate Environmental and Social Assessment or Management Plan is not necessary). But requested to track the baseline data (mentioned above) and monitor safeguard issues closely during the project implementation.

Supporting Documents

Upload available ESS supporting documents.

Title	Module	Submitted
UNEP ESERN	CEO Endorsement ESS	

ANNEX A: PROJECT RESULTS FRAMEWORK (either copy and paste here the framework from the Agency document, or provide reference to the page in the project document where the framework could be found).

Project Objective	Objective level Indicators	Baseline	Mid-Point Target (if applicable)	End of project Target	Means of Verification	Assumptions & Risks	UN Environment MTS reference
Accelerate and scale-up the adoption of electric vehicles in Chilean regions.	Indicator A: Tons of direct GHG emissions avoided during project.	Baseline A: 0 tons avoided	Mid-point target A: 20 tons avoided	End-of-project target A: 200 tons avoided	Monitoring of mileage and energy consumption of electric vehicles deployed in demonstration projects	Vehicles are effectively inserted into the city fixed-route taxi ecosystem and work effectively under local conditions. Local political support for the pilots.	UNEP MTS 2018-2021 Climate Change Objective: Countries increasingly transition to low-emission economic development and enhance their adaptation and resilience to climate change
	Indicator B: Number of direct project beneficiaries (women and men)	Baseline B: 0	Mid-point target B: 0	End-of-project target B: Women: 2,880 Men: 2,650	Taxi trip records and workshop and consultation strategy records	Vehicles are effectively inserted into the city fixed-route taxi ecosystem and work effectively under local conditions. Local political support for the pilots.	

Project Outcomes	Outcome level Indicators	Baseline	Mid-Point Target (if applicable)	End of project Target	Means of Verification	Assumptions & Risks	MTS Expected Accomplishment
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Outcome 1: The government demonstrates enhanced coordination, consultation and capacity for promoting inclusive uptake of electric mobility in the Chilean regions	Indicator 1A: Number of e-mobility initiatives undertaken involving participation of multiple governmental agencies or ministries	0	2	6	Meeting reports.	Sustained political support by ministries to coordinate	Expected Accomplishment (b): Countries increasingly adopt and/or implement low greenhouse gas emission development strategies and invest in clean technologies
	Indicator 1B: Number of reports on experiences and lessons learned from the Chile child project shared with the Global Programme on Electric Mobility	0	0	2	Confirmation by global programme team of receipt of best practices	Project management unit produces deliverables D1.3.5 and D2.2.5 and shares them with the global programme	
Outcome 2: Citizens of Chilean regions begin to use electric mobility for their public transport needs	Indicator 2: Number of Chilean region citizens using electric mobility for their public transport	0	0	Women: 2,835 Men: 2,565	Electric taxi usage records	Vehicles are effectively inserted into the city fixed-route taxi ecosystem and work effectively under local conditions. Local political support for the pilots.	
Outcome 3: The private sector purchases electric vehicles to use as fixed-route taxis in Chilean regions	Indicator 3: Number of vehicles purchased with support of financial instruments for use as fixed-route taxis	Existing vehicle replacement scheme	0	30	Financial instruments financial records	Mechanism is effectively meeting needs of consumers; electric vehicles are available on the market	

Outcome 4: The Chilean government takes action towards implementing standards for ensuring the environmental sustainability of electric mobility.	Indicator 4: Proposal for standards for waste management, extended producer responsibility and recycling of vehicle batteries, including electric vehicle batteries, is considered formally by the Ministry of Environment for adoption	0	0	Proposal is considered formally on at least one occasion by the Ministry of Environment	Government records	Political support to consider standards	
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ANNEX B: RESPONSES TO PROJECT REVIEWS (from GEF Secretariat and GEF Agencies, and Responses to Comments from Council at work program inclusion and the Convention Secretariat and STAP at PIF).

Please refer to the separate pdf files uploaded to the GEF portal:

- Annex B.1 – Responses to GEF secretariat reviews on the PFD;
- Annex B.2 – Responses to GEF secretariat reviews on the PFD addendum;
- Annex B.3 – Responses to STAP comments;
- Annex B.4 – Responses to GEF Council comments.

ANNEX C: Status of Utilization of Project Preparation Grant (PPG). (Provide detailed funding amount of the PPG activities financing status in the table below:

PPG Grant Approved at PIF: US\$	
<i>Project Preparation Activities Implemented</i>	<i>GETF/LDCF/SCCF Amount (US\$)</i>

	<i>Budgeted Amount</i>	<i>Amount Spent to date</i>	<i>Amount Committed</i>
GEF Consultant	33,547	33,547	0
UNEP Air Quality and Mobility Unit	11,000	11,000	0
GEF Consultant travel	5,453	5,453	0
Total	50,000	50,000	0

ANNEX D: CALENDAR OF EXPECTED REFLOWS (if non-grant instrument is used)

Provide a calendar of expected reflows to the GEF/LDCF/SCCF/CBIT Trust Funds or to your Agency (and/or revolving fund that will be set up)

n/a

ANNEX E: Project Map(s) and Coordinates

Please attach the geographical location of the project area, if possible.



Figure 4. Map of chile identifying antofagasta, talca and puerto montt.

Table 9. COORDINATES of the three PILOT cities

Demonstration sites	<i>Latitude</i>	<i>Longitude</i>
Antofagasta	-23,64	-70,40
Talca	-35,42	-71,66
Puerto Montt	-41,47	-72,94

ANNEX F: Project Budget Table

Please attach a project budget table.

Project Components	Project Outputs	Umoja budget class	Budget line number	Budget line description	Budget allocation per Year			
					Year 1	Year 2	Year 3	Total
Component 1: Institutionalization of low-carbon electric mobility	Output 1.1: A national electric mobility coordination body is created for governmental stakeholders	125 - Operating & Other Costs	1251	Coordination body operating costs	1,500	1,500	1,500	4,500
		<i>Sub-total Output 1.1</i>			<i>1,500</i>	<i>1,500</i>	<i>1,500</i>	<i>4,500</i>
	Output 1.2: A multi-stakeholder consultation strategy is implemented to engage all Chilean region stakeholders in the transition to electric mobility.	010 - Staff & Personnel (Including Consultants)	0103	Regional and Gender Officer	1,563	3,125	3,125	7,813
		120 - Contract Services	1203	Consultancy on socio-economic impact and safety of electromobility	15,000	15,000	15,000	45,000
		160 - Travel	1601	Travel expenses of the Regional and Gender Officer	2,000	2,000	2,000	6,000
		<i>Sub-total Output 1.2</i>			<i>18,563</i>	<i>20,125</i>	<i>20,125</i>	<i>58,813</i>
	Output 1.3: Chilean region local governments	010 - Staff & Personnel (Including Consultants)	0102	Technical/Financial Officer	1,923	3,846	3,846	9,615

	and other stakeholders are trained on technical, financial, and regulatory aspects of electric mobility	010 - Staff & Personnel (Including Consultants)	0103	Regional and Gender Officer	1,563	3,125	3,125	7,813	
		120 - Contract Services	1201	Consultancy on transport and vehicle electrification	6,250	6,250	12,500	25,000	
		120 - Contract Services	1202	Consultancy on electricity distribution grid stabilization	-	-	10,000	10,000	
		120 - Contract Services	1203	Consultancy on socio-economic impact and safety of electromobility	-	10,000	20,000	30,000	
		120 - Contract Services	1206	Workshops	-	7,500	7,500	15,000	
		160 - Travel	1601	Travel expenses of the Regional and Gender Officer	-	2,000	2,000	4,000	
		160 - Travel	1603	Travel expenses for charging infrastructure policy and regulation enforcement mission	-	20,000	-	20,000	
		160 - Travel	1604	Travel expenses for public authorities	2,000	2,000	2,000	6,000	
		160 - Travel	1605	Travel expenses for participation in the global and regional programmes on electric mobility	8,000	8,000	8,000	24,000	
		Sub-total Output 1.3				19,736	62,721	68,971	151,428
		Total Component 1				39,798	84,346	90,596	214,740

Component 2: Short term barrier removal through low-carbon e-mobility energy demonstrations	Output 2.1: The viability of 6 electric vehicles as part of the fixed-route taxi fleet is demonstrated to local and	010 - Staff & Personnel (Including Consultants)	0102	Technical/Financial Officer	1,538	3,077	3,077	7,692
		010 - Staff & Personnel (Including Consultants)	0103	Regional and Gender Officer	4,063	8,125	8,125	20,313

	national stakeholders in Antofagasta, Puerto Montt and Talca	010 - Staff & Personnel (Including Consultants)	0104	Pilot taxi association focal points (x3)	-	7,500	7,500	15,000
		120 - Contract Services	1201	Consultancy on transport and vehicle electrification	35,000	-	-	35,000
		120 - Contract Services	1205	Vehicle monitoring (including data management system in each city), digital payment systems and user connectivity apps	-	60,500	-	60,500
		135 - Equipment, Vehicles & Furniture	1210	Leasing of electric vehicles	-	72,000	72,000	144,000
		125 - Operating & Other Costs	1252	Taxi pilot project running costs and operation and maintenance expenditures (insurance, data collection, connectivity, power and vehicle maintenance)	-	36,000	36,000	72,000
		135 - Equipment, Vehicles & Furniture	1351	Procurement of electric vehicle charging infrastructure and its installation	-	135,000	-	135,000
		160 - Travel	1601	Travel expenses of the Regional and Gender Officer	4,000	4,000	4,000	12,000
		160 - Travel	1604	Travel expenses for public authorities	2,000	2,000	2,000	6,000
		Sub-total Output 2.1			46,601	328,202	132,702	507,505
	Output 2.2: Evidence of the viability of electric vehicles in Antofagasta, Puerto Montt and Talca is	010 - Staff & Personnel (Including Consultants)	0102	Technical/Financial Officer	1,923	3,846	3,846	9,615
		010 - Staff & Personnel (Including Consultants)	0103	Regional and Gender Officer	3,125	6,250	6,250	15,625

	disseminated to national and Chilean region decision-makers.	120 - Contract Services	1201	Consultancy on transport and vehicle electrification	-	17,500	17,500	35,000
		160 - Travel	1601	Travel expenses of the Regional and Gender Officer	2,000	2,000	2,000	6,000
		160 - Travel	1604	Travel expenses for public authorities	2,000	2,000	2,000	6,000
		Sub-total Output 2.2			9,048	31,596	31,596	72,240
	Total Component 2				55,649	359,798	164,298	579,745
Component 3: Preparing for scale-up and replication of low-carbon electric mobility	Output 3.1: Financial instruments are created to incentivize fixed-route taxi owners to purchase electric vehicles in Chilean regions	010 - Staff & Personnel (Including Consultants)	0102	Technical/Financial Officer	12,578	25,157	25,157	62,892
		120 - Contract Services	1201	Consultancy on transport and vehicle electrification	-	20,000	-	20,000
		120 - Contract Services	1207	Grant fund seed funding and operating costs	-	200,000	200,000	400,000
		120 - Contract Services	1211	Consultancy on financial instruments	-	22,154	22,154	44,308
		Sub-total Output 3.1			12,578	267,311	247,311	527,200
	Output 3.2: Business models for deploying electric fixed-route taxis in Chilean regions	010 - Staff & Personnel (Including Consultants)	0103	Regional and Gender Officer	1,250	2,500	2,500	6,250
		120 - Contract Services	1201	Consultancy on transport and vehicle electrification	-	25,000	25,000	50,000

	are presented to national and regional government entities and the private sector for implementation				<i>Sub-total Output 3.2</i>	<i>1,250</i>	<i>27,500</i>	<i>27,500</i>	<i>56,250</i>
	Output 3.3: Investment roadmaps for the long-term viability of Chilean electricity grids to support electric vehicle uptake are presented for implementation by national policy-makers and regional electricity utility companies	010 - Staff & Personnel (Including Consultants)	0103	Regional and Gender Officer	1,563	3,125	3,125	7,813	
		120 - Contract Services	1202	Consultancy on electricity distribution grid stabilization	-	40,000	40,000	80,000	
		<i>Sub-total Output 3.3</i>			<i>1,563</i>	<i>43,125</i>	<i>43,125</i>	<i>87,813</i>	
	Total Component 3				15,391	337,936	317,936	671,263	
Component 4: Long-term environmental sustainability of low-carbon electric mobility	Output 4.1: Waste companies are trained in reusing, recycling and final disposal of vehicles (both conventional	010 - Staff & Personnel (Including Consultants)	0103	Regional and Gender Officer	1,250	2,500	2,500	6,250	
		120 - Contract Services	1201	Consultancy on transport and vehicle electrification	-	12,465	12,465	24,929	
		120 - Contract Services	1206	Workshops	-	3,500	7,000	10,500	

	and electric) and electric vehicle batteries	Sub-total Output 4.1			1,250	18,465	21,965	41,679
	Output 4.2: Standards and a legal framework for regulating the waste management, extended responsibility of the producer and recycling of electric vehicles and electric vehicle components are drafted for adoption by the Ministry of Environment	010 - Staff & Personnel (Including Consultants)	0103	Regional and Gender Officer	1,875	3,750	3,750	9,375
		120 - Contract Services	1201	Consultancy on transport and vehicle electrification	-	19,500	19,500	39,000
		Sub-total Output 4.2			1,875	23,250	23,250	48,375
	Total Component 4				3,125	41,715	45,215	90,054
M&E	Monitoring and evaluation	010 - Staff & Personnel (Including Consultants)	0101	Project Manager	5,040	5,040	6,720	16,800
		120 - Contract Services	1291	Terminal Evaluation	-	-	50,000	50,000
		Sub-total Audits / Evaluations			5,040	5,040	56,720	66,800
	Total M&E				5,040	5,040	56,720	66,800

Project Management Costs (PMC)	Project Management Costs (PMC)	010 - Staff & Personnel (Including Consultants)	0101	Project Manager	25,803	38,705	38,705	103,212
		160 - Travel	1602	Project Manager travel	3,500	7,000	3,500	14,000
		010 - Staff & Personnel (Including Consultants)	0105	Administrative Personnel	7,000	7,000	7,000	21,000
		120 - Contract Services	1209	Independent financial audits	7,000	7,000	7,000	21,000
		130 - Supplies, Commodities & Materials	1301	IT and office supplies	3,048	-	-	3,048
	Total PMC				46,351	59,705	56,205	162,260
	Project Grand Total				160,314	883,499	674,249	1,784,862