

Chile

Drivers and Policies

Chile's transport sector accounts for 36% of final energy consumption. Of this total, 99% corresponds to oil derivatives, making the sector responsible for about 20% of the total emissions of greenhouse gases (GHG) in the country. In addition, pollution caused by consumption of oil derivatives occurs more frequently in urban areas. To mitigate this problem, Chile would like to promote the efficient use of energy by establishing an ambitious goal of a 20% reduction in energy demand with respect to that projected for the year 2025 (Ministry of Energy 2014).

At the same time, Chile has acquired and ratified international agreements on GHG emissions and climate change, committing itself on the level of mitigation to reduce by 2030 the intensity of emissions by 30% compared to the levels observed in 2007 (The Committee of Ministers for Sustainability and Climate Change 2015).

If the transport sector is responsible for one-third of the country's energy consumption, two public policies are important and directly impact energy efficiency and carbon dioxide (CO₂) reduction:

- Improvement of energy efficiency by promoting electromobility. Assuming challenges in the implementation of public policies and working with academia and the private sector, electromobility is a reality. The incorporation of 200 electric buses for public transport, which have operated since the beginning of this year in the Transantiago bus fleet, is part of the stimulus and support for electromobility at the national level.
- Promotion of a Law of Energy Efficiency Project. To improve energy efficiency in the transport sector, Chile will define the energy efficiency standards for fuel consumption in light, medium, and heavy vehicles. This project is currently under discussion in the Congress of Chile.

Since 2015, a collaboration framework agreement between the Ministry of Energy and the Ministry of Transport and Telecommunications has been in force. The objective is to advance regulations, policies, and programs aimed at improving energy efficiency in the country's vehicle fleet.

Public Transport of Santiago Bid

The Transantiago bid for buses for the beginning of 2018 was declared void. Another bid with a new design will be commissioned in 2019. The revised bid will primarily focus on achieving the following:

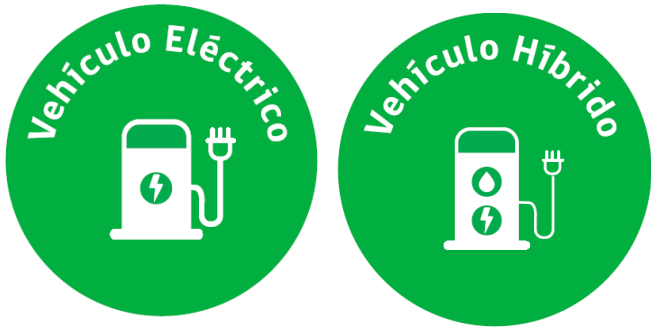
- Separate capital investment from operation expenses.
- Improve fleet standards.
- Promote competition in bidding processes and contracts.
- Reduce the cost of the system.
- Promote clean technologies.
- Facilitate operational continuity.
- Reduce unit size.
- Provide greater flexibility.

Environmental advantages of the fleet include an optional complementary criterion for bid evaluation in road tenders. In saturated zones, bidding bases must take into consideration additional scores for the presentation of fleets with non-polluting technologies, which provides an opportunity for the introduction of electric buses to the transport system. Of the total fleet to renew 6,500 buses during the next 4 years (which would operate until 2030), at least 500 electric buses will be incorporated.

Implementation of Vehicle Energy Efficiency Regulation

Chile was the first Latin American country to implement compulsory labeling of vehicular energy efficiency for new vehicles. As of February 2013, this labeling allows buyers of new light vehicles, fueled by either diesel or gasoline, to compare their energy performance (www.consumovehicular.cl). After June 2017, the vehicle energy efficiency label was expanded to include medium-sized vehicles (light trucks and vans) and hybrid and pure electric vehicles. In addition, as part of the labeling implementation, dealers must include city fuel consumption in written advertising (i.e., publications in magazines, newspapers, and other written publications).

According to Supreme Decree No. 145 of December 2017, Article 3 from the Ministry of Transport and Telecommunications defines a label to identify electric and hybrid vehicles and its implementation initiation from December 29, 2018. The label must be affixed to the rear window of the vehicle on its right inner surface (with respect to the observer) so that it is easily visible. The label must indicate “Electric Vehicle” or “Hybrid Vehicle,” as appropriate, and include a visual icon. The phrase must be in the upper area of the circle, while the icon must be centered below it. The label is green with white letters and must follow a specified size (Figure 1).



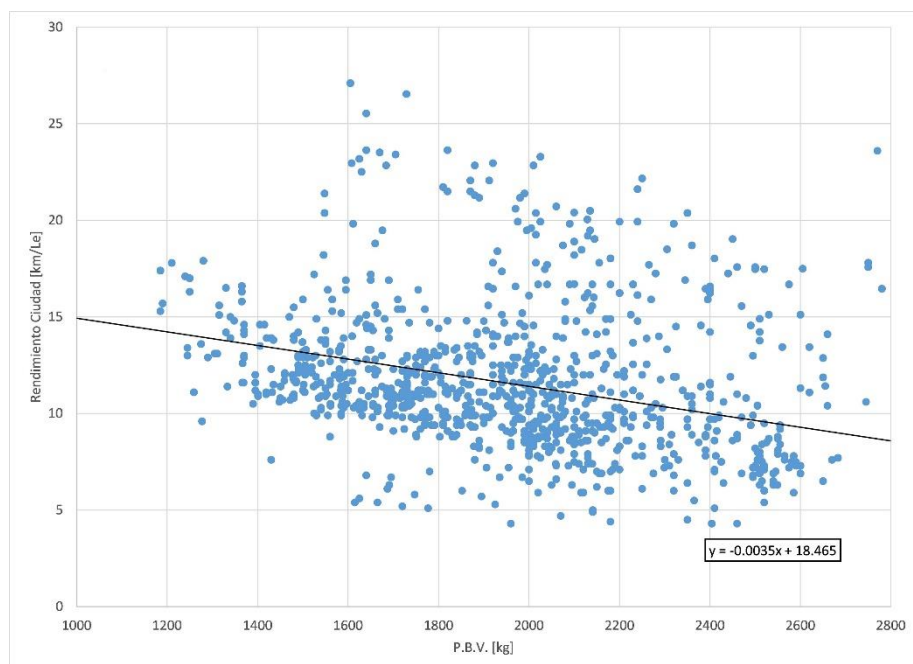
Measurement	Size (mm)
Diameter of circle	83
Height of letters	7,2
Width of letters	1,6
Width and height of icons	31 x 29 (electric vehicle) 30 x 20 (hybrid vehicle)

Fig. 1 Labels for Electric and Hybrid Vehicles in Chile, along with Their Specified Size Restrictions

Law of Energy Efficiency Project

The main objective of the Law of Energy Efficiency Project in the transport sector is to improve energy efficiency in Chile’s vehicle fleet. The project is currently in Congress under analysis by the Committees of the Senate of Mining and Energy.

The Ministry of Energy, together with the University of Chile through an agreement with the university’s Energy Center, developed a proposal of energy efficiency standards for light vehicles, simulating different scenarios, based on all the units sold (brands and models) in 2017 (Figure 2). This proposal is available for incorporation in the short term as regulation once the Energy Efficiency Law is approved. In addition, Chile is collecting data from medium-size vehicles (vans, light trucks) to make a medium-term request proposal. Further, a long-term standard or regulation for heavy vehicles will also be planned.



Chile sales 2017 light vehicles - Kilometers per liter of gasoline equivalent using weight as a descriptor
Source: Chile University

Fig. 2 Sales of Light Vehicles in Chile in 2017

Research and Demonstration Focus—*Energy Efficiency in Buses*

Measurement of Fuel Consumption in Transantiago

In accordance with Resolution 2243 of July 23, 2018, the Ministry of Transport and Telecommunications approved an official technical regulation to obtain energy consumption statistics in urban public transport buses in the city of Santiago. This regulation incorporates the TS DRIVING CYCLE - STGO. The development of this regulation was possible due to previous work by the Ministry of Transport and Telecommunications with the support of the Mario Molina Center of Chile, the Ministry of Energy of Chile, and the VTT Laboratory of Finland.

Measurement of Fuel Consumption in Buses from Other Cities, Urban and Interurban

Also, as in the Transantiago bus project, through an agreement with the Ministry of Transport and Telecommunications and the Ministry of Energy, and the Emissions Laboratory of Heavy Vehicles of the Vehicle Control and

Certification Center (3CV), the consumption of fuel was measured in the most representative buses driving in the cities most important in the country (outside Santiago). With these data, the ISCI Institute of the University of Chile developed a methodology that allows a comparison of the most efficient vehicles, considering distances, costs, and the number of passengers that move. The pending challenge is to implement a platform on a website that allows operators and decision makers to use this tool.

Outlook

Energy Route 2018–2022

Confirming its commitment to electromobility, the Ministry of Energy incorporated an electromobility strategy into a work plan called “Energy Route 2018–2022.” The Ministry of Energy is leading the implementation of the National Electromobility Strategy, together with the Ministries of Transport and the Environment, through the execution of the actions proposed in Energy Route 2018–2022, in the axis efficient transportation. The objective for the year 2022 is to have at least 10 times more electric vehicles on the streets compared with 2018 data.

Considering the 2050 target for light vehicles, it is estimated that the entry of electric vehicles would avoid the emission of 11 million tons of CO₂ per year and reduce the country’s energy expenditure by more than US \$3,300 million per year.

Additional Information Sources

- Transport: www.mtt.gob.cl
- Pollutant, Environment: www.mma.gob.cl
- Energy: www.energia.gob.cl
- Vehicles Fuel Economy (Label): www.consumovehicular.cl
- Type Approval or Certification: www.mtt.gov.cl/3cv

Benefits of Participation in the AMF TCP

Chile’s participation in the AMF TCP facilitates work on energy efficiency projects in the country’s transport sector by providing international support. Knowledge of the different programs of the various partner countries enables the implementation of best practices. The exchange of information with international experts from the various emissions laboratories and research centers is an invaluable experience.