

IEA-Advanced Motor Fuels ANNUAL REPORT 2016



Chile

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Drivers and Policies

Chile has considerable potential for implementing energy efficiency measures that would improve the safety of the country's energy supply and achieve significant economic, social, and environmental impacts.

The transport sector represents almost one-third of Chile's final energy consumption, of which 82.6% is due to land transport. Of this energy, 99% is derived from oil, resulting in a high dependence on this energy source, which is mostly imported. Chile only produces about 2% of the oil it consumes.

In 2017, the City of Santiago will initiate one stage of improving public transport through a bidding process for bus operators. The goals of this effort are to reduce travel times, ensure economic sustainability, and improve air quality and energy efficiency. These improvements will be incorporated into the current bus fleet, making the buses cleaner and more efficient.

New Vehicle Energy Efficiency Regulation

The most important targets in relation to the energy efficiency of vehicles in 2016 were the agreements with industry, and the development (administrative, technical, and legal procedures) and final enactment of Decree 107, a new vehicle energy efficiency regulation.

Decree 107 allows for the extension of current Supreme Decree No. 61, enacted in June 2012. This incorporates other vehicle categories under the label of energy efficient, and requires that vehicle energy efficiency be included in written vehicle advertisements, a very important step in advancing regulation. Decree 107 includes all light-duty and medium-duty vehicles that carry cargo and passengers, use diesel fuel, gasoline, are hybrid or electric, and weigh less than 3,860 kg. This regulation was published in December 2016 and should be applicable beginning June 26, 2017. Supreme Decree No. 61 only included light-duty, diesel, and gasoline vehicles up to 2,700 kg used for passenger transport.

Project of Law – Energy Efficiency

This regulation is still being developed, and it is expected to be submitted to Congress in 2017 to initiate official procedures for its approval. The main objective in the transport sector is to gradually improve the energy efficiency of Chile's vehicle fleet. The first step will be to incorporate standards for light vehicles and later establish standards for other vehicle categories. Development and support are being provided by the Ministry of Energy and the Energy Center of the University of Chile, with the participation of the Ministry of Transport and Telecommunications.

Research and Demonstration Focus

Clean and Energy-Efficient Buses

During 2016 and 2017, Chile has been developing a drive cycle test for Transantiago buses. Transantiago is Santiago's public transport system. Research on heavy vehicles is being conducted at the Center for Vehicle Control and Certification (3 CV) emissions laboratory (Figure 1). The objective is to develop a methodology for establishing requirements for clean and energy-efficient buses. In stage one, the Ministry of Energy, the Ministry of Transport and Telecommunications, and the Mario Molina Center of Chile are obtaining parameters from real bus operations in different routes, lines, and the main avenues of Santiago. These parameters will serve as the basis for developing a drive cycle dynamometer chassis to measure the energy efficiency of the buses. The second stage consists of developing the theoretic cycle, which is being supported by the VTT Technical Research Centre of Finland and AMF programs through Annex 53, Sustainable Bus Systems.



Fig. 1 Chilean Emission Laboratory for Heavy Vehicles with Chassis Dynamometer in the 3CV

Outlook

Metropolitan Region – Santiago, Euro VI Standards for New Buses from 2019

In October 2016, the Chilean Government announced the new phase of its implementation plan for the City of Santiago, which includes Euro VI standards for new buses starting in 2019.

Also, at the end of December 2016, the Ministry of Transport initiated a bidding process for public transport operators in the City of Santiago. New buses were to include Euro VI requirements.

Bus manufacturers responded quickly at the start of 2017 and presented buses for certification (emission, dimension, and safety compliance). Mercedes Benz brought two types of buses built under the Santiago requirements. One uses a European chassis with a body built in Brazil (two buses are running in a regular route). A second Mercedes Benz bus arrived for certification, with a body built by another Brazilian manufacturer. Volvo brought its first bus with a Swedish chassis and Brazilian body for the same process.

Table 1 presents prices for buses in Chile based on information collected in 2016, through consultation with bus manufacturers and dealers.

Table 1 Bus Prices in Chile, 2016

	Urban Bus Diesel Euro V MB from Brazil	Urban Bus Diesel Euro VI MB from Europe	China Bus Yutong Euro V	China Bus Yutong Euro VI ^a	Urban Bus Diesel Euro VI Volvo from Europe	Urban Bus HEV Euro VI Volvo from Europe ^b	Urban Bus PHEV Volvo from Europe
Price aprox. (\$1,000 US)	197	224	185	222	231	254	461
Increase in cost over Euro V Brazil		14%	-5%	13%	17%	29%	134%
Comments						10% over diesel version	100% over diesel version

^a Euro VI buses from China are not in the market yet, but dealers are actively promoting them.

^b HEVs from Volvo are still Euro V from Brazil; no information is available about when Volvo will bring a Euro VI version from Sweden.

Figure 2 shows Euro VI buses arriving for certification in December 2016.



Mercedes Benz Euro VI – CAIO Body



Volvo Euro VI – CAIO Body

Fig. 2 Euro VI Buses Arriving for Certification in December 2016

The City of Santiago is currently the test laboratory for the development of Latin American low-emission buses. This has been demonstrated by the participation of bus manufacturers in the City's bidding process for bus operators.

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.