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Colombia Moves Towards Euro 6/VI for Diesel Vehicles, Euro 3 Motorcycle Standards, Reduction of Diesel Fuel Sulfur Limits and National B12 Mandate

Stratas Advisors

In an effort to control vehicle emissions and particle pollutants from diesel fueled vehicles and motorcycles, the Congress of Colombia passed [Law 1972](#) on July 18, 2019 to regulate exhaust emissions according to Euro 6/VI standards for new diesel light-duty (LDVs) and heavy-duty vehicles (HDVs) and Euro 3 standards for new motorcycles. Within the text of the law, the Colombian Congress states that the Ministry of Mines and Energy must guarantee the production, distribution and quality of the fuels necessary to comply with the emission standards defined in the law. As a result, sulfur limits for diesel fuel will reduce from the current 50 ppm to 10-15 ppm by Jan. 1, 2023, and three years later fully to 10 ppm by Dec. 1, 2025.

To provide further assurance to the country regarding their effort to improve air quality in the country, the Colombian Congress establishes this goal under Article 1 of Law 1972; in which it is stated that “the purpose of this law is to establish measures aimed at reducing pollutant emissions into the air from mobile sources that circulate through the national territory, emphasis on particulate matter, in order to protect life, health and enjoyment of a healthy environment”. In order to help fulfill this goal, the formation of the Intersectorial Commission of Air Quality was created to work with all the municipalities and districts of the country to formulate, implement and monitor the new programs intended to reduce contamination, identify the actions and measures to reduce the concentration levels of the pollutants to levels below the established maximums. The commission will consist of the following government entities, those being:

- Ministry of Environment and Sustainable Development;
- Ministry of Health and Social Protection;
- Ministry of Mines and Energy (MME); and
- Ministry of Transportation.

Diesel Vehicles

The Colombian Congress addressed the need to reduce exhaust emissions from diesel fueled vehicles in circulation throughout the national territory. Under article 4 of Law 1972, the Congress established that all new diesel vehicles that are manufactured, assembled or imported into the country, with a national operating range, will have to comply with the

maximum permissible emission limits for air pollutants under the Euro 6/VI standards or higher by Jan. 1, 2023.

Furthermore, under Article 5 of the law, it establishes that as of Jan. 1, 2035, all diesel-powered vehicles in circulation in the country will have to comply with the maximum permissible emission limits for air pollutants corresponding to Euro 6/VI technologies in use; their equivalent or higher.

In particular, Law 1972 establishes the maximum sulfur content for diesel fuel based on limits required by the Euro 6/VI standard which was adopted by the European Union (EU) in 2007. The law also established the technical requirements for type approval of motor vehicles with respect to environmental protection regulations which came into force in 2015. As required under Article 3, it is required for diesel fuel to undergo two sulfur content reductions in the coming years; those are illustrated in the following table:

Current and Future Changes in Diesel Fuel Sulfur Limits and Emission Standards for Diesel Vehicles

Status	Diesel Sulfur Content (max range limit)	Minimum Emission Standard	Implementation Date
Current	50 ppm	-	Jan. 1, 2013
	-	Euro 4/IV	Jan. 1, 2015
Future	10-15 ppm	Euro 6/VI	Jan. 1, 2023
	10 ppm	-	Dec. 1, 2025
	-	Euro 6/VI technologies in use	Jan. 1, 2035

Source: *Stratas Advisors, Ley No. 1972, El Congreso de Colombia, July 18, 2019*

As part of the effort to address the reduction of vehicle emissions, the verification of compliance with the Euro 6/VI standard will incorporate the World Harmonized Transient Cycle (WHTC) global driving cycle as part of the engine exhaust emission test program. To further strengthen the use of the WHTC, Article 7 of Law 1972 indicates that the Ministry of Environment and Sustainable Development will have a minimum of two years upon enforcement of the law to regulate the mechanisms that will aid to verify compliance with the maximum permissible emission limits from mobile sources carried out throughout the national territory. To further strengthen the law, the ministries of Environment and Sustainable Development and Transportation will have a term not exceeding two years to mandate the use and inspection of on-board diagnostic systems for all diesel engine vehicles as indicated under Article 8 of the law.

Motorcycles

In addition, the law will extend to new motorcycles that are manufactured, assembled or imported for use in the national territory as indicated under Article 6; in which the motorcycles must comply with the maximum permissible emission limits for air pollutants corresponding to equivalent Euro 3 or higher as of Jan. 1, 2021 (see table below). In regards to

motorcycles already in circulation, Law 1972 requires the ministries of Transport and Environment and Sustainable Development to establish a timetable for the renewal of the motorcycle fleet to meet the Euro 3 standard or higher in the country by Jan. 1, 2030.

However, the law did not indicate any changes to the gasoline sulfur limit, which currently stands at 300 ppm max for the basic gasoline grades and 270 ppm max for the oxygenated grades.

Current and Future Changes in Gasoline Fuel Sulfur Limits and Emission Standards for Motorcycles

Status	Maximum Gasoline Sulfur Limit	Minimum Emission Standard	Implementation Date
Current	-	Euro 2 for all new and in-use motorcycles	June 5, 1995
	300 ppm (Basic Corriente and Basic Extra) 270 ppm (Corriente Oxigenada and Extra Oxigenada)	-	Jan. 1, 2011
Future	-	Euro 3 for all new motorcycles	Jan. 1, 2021
	-	Euro 3 for all new and in-use motorcycles	Jan. 1, 2030

Source: *Stratas Advisors, Ley No. 1972, El Congreso de Colombia, July 18, 2019*

In addition to improving diesel vehicle and motorcycle emission standards, the law will also require that a percentage of the Integrated System for Mass Transportation (SITM), Public Transport Strategic Systems (SETP), Integrated Public Transportation Systems (SITP) and Integrated Regional Transportation Systems (SITR) must correspond to zero emission technology.

Besides sulfur reduction in diesel fuel, the SITM, SETP, SITP and SITR will also contribute to reducing engine exhaust emissions from their respective vehicle fleets. The Colombian Congress took into consideration the vehicle emissions that these fleets contribute to towards the overall air quality; thus Law 1972 specifies that a minimum of 20% of the new vehicles within these fleets must be equipped with zero emissions technology by Jan. 1, 2030.

National B12 Mandate

In addition, on June 6, 2019, the MME issued a draft resolution to increase the biodiesel content for on-road diesel from B10 to B12 beginning Aug. 1, 2019. The work to augment the biodiesel content involved a feasibility study regarding the increase of the biodiesel component in the diesel mixture by the Intersectoral Commission for Biofuels Management. The commission is a joint venture comprised of the following ministries: Mines and Energy, Environment and Sustainable Development, Agriculture and Rural Development, and Transport.

Eventually, the ministers of the MME, Environment and Sustainable Development, and Agriculture and Rural Development signed into law the increase to a B12 diesel blend under [Resolucion 4-0666](#) on Aug. 20, 2019, thereby pushing the implementation date back to Sept. 1, 2019. The resolution takes into consideration the work done by the Intersectoral Commission to follow up on the national government's commitment to evaluate and authorize the increase in the percentage of biodiesel as a mandate that would apply across the country. In addition, the work also included the evaluation of the feasibility study on increasing the mandatory volume percentage from B10 to B12, which takes into account the studies generated from the different ministries that constitute the commission. The ministries presented their conclusions to the commission, whereby the supply capacity for production of biofuels, infrastructure and storage capacity of these products, benefits to the environment resulting from the move to B12 and the feasibility of implementing the measure in relation to the country's vehicle fleet were all taken into consideration. To advance the national B12 mandate, the MME indicated that it was feasible to implement the 2% volume increase in biodiesel based on their technical analysis which reviewed the current nominal storage capacity of B100 at the national level and historical diesel consumption in the country.

With the passing of the Resolucion 4-0666, Article 1 of the resolution addresses the technical specification change from 10 vol% to 12 vol% biodiesel that the diesel fuel must comply with as regulated by the MME and Environment and Sustainable Development as indicated under Resolucion 898 of 1995, as modified by Resolucion 90963 of 2014 and Resolucion 40724 of 2016; as well as any other regulations that modify or replace any of the previously listed legislation. Furthermore, under Article 2 of the resolution, cities with fuel mixing facilities as well as those that may mix the biodiesel and diesel into a final blend would be required to distribute the B12 diesel upon Sept. 1, 2019.

Additionally, paragraph 1 of Article 2 requires that any refining agents, wholesale distributors and fuel importers to carry out the biofuel mixing activities at the refinery level or import facility to a biofuel level equal to or less than what is established in the final resolution. Moreover, paragraph 2 of Article 2 mandates that service stations that supply diesel will have a term of 15 calendar days from Sept. 1, 2019 to distribute any remaining non-compliant diesel fuel stored in their underground storage tanks. Upon expiration of the 15-day period, all diesel fuel distributed by service stations must comply with the B12 mandate provided in the resolution. Lastly, Article 3 confirms that as of the Sept. 1, 2019 mandate, the technical specifications of the diesel fuel under Resolucion 898 of 1995 and modifications under Resolucion 90963 of 2014 would be enforced; as well as the revoking of Resolucion 181120 of 2010 and 40184 of 2018. This means that there are no changes to the diesel specifications except for the increase of FAME content to 12 vol%.

Stratas Advisors' View

With the passing of Law 1972, the Colombian government, automotive and motorcycle industry will be taking the necessary steps to help reduce mobile source pollutants and emissions within Colombia. When combining the efforts of all the parties involved, it should help accomplish the objective of the law, which is to protect the health and environment of Colombians via distinct measures to control emissions from all diesel motor vehicles and motorcycles in the country. Should the ministries

involved fulfill their obligation as required under the law, in particular the low sulfur diesel requirement, Colombia may be able to achieve the implementation of the Euro 6/VI emission standards. This goal may be more achievable since the current maximum sulfur limit for diesel fuel in Colombia is set at 50 ppm, with the national average sulfur content for diesel fuel supplied to the country in 2018 at 22 ppm.

Although the focus for reducing the sulfur content is aimed at diesel fuel in the law, the MME may also take into consideration reducing the sulfur content in gasoline should the country plan to move beyond Euro 3 emission standard for motorcycles. This is because there will be a gap between the sulfur limit and vehicle emission standard (i.e. 150 ppm sulfur max required to meet Euro 3), although it is worthwhile to note that the national average sulfur content for gasoline in 2018 was 149 ppm; with a low of 108 ppm sulfur in December.

With the creation of the Intersectorial Commission of Air Quality, the Ministry of Environment and Sustainable Development will aid to direct the commission to set the plans to regulate and implement the pollution reduction programs with the respective municipalities and districts. By taking this approach, the other ministries involved in the commission will be able to provide their input as to the additional steps to be addressed to meet the requirements of Law 1972 from 2021 through 2030. Furthermore, to achieve the requirements of the proposed emission standards, the Ministry of Environment will also have the ability to issue ministerial decrees which may include more stringent emission limits for diesel fueled vehicles and motorcycles than those established in Law 1972. Colombia appears to be addressing the segments of their vehicle emissions policy which have been in need of revision with the signing of this law; with the combined efforts of all the ministries involved, the country may be in a better position presently to accomplish the set plans.

Lastly, with the signing of Resolucion 4-0666, Colombia is advancing the need to reduce diesel engine vehicle emissions through the increase of biodiesel content in the fuel needed to power this vehicle segment. The work conducted by the Intersectorial Commission to increase the biodiesel content took into consideration the input by the contributing ministries, in which they examined the potential benefits that Colombia could experience under a B12 mandate. Should the country continue to increase beyond a B12 mandate, the benefits to the country could continue should they be able to reach their set goal of a diesel fuel with less than 15 ppm sulfur coupled with increased biodiesel content. Ultimately, Colombia expects to achieve a significant reduction in diesel engine vehicle emissions through combined efforts addressing fuel quality, use of biofuels and stricter emission limits.