Required Report: Required - Public Distribution **Date:** August 26, 2023

Report Number: AR2023-0008

Report Name: Biofuels Annual

Country: Argentina

Post: Buenos Aires

Report Category: Biofuels

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Report Highlights:

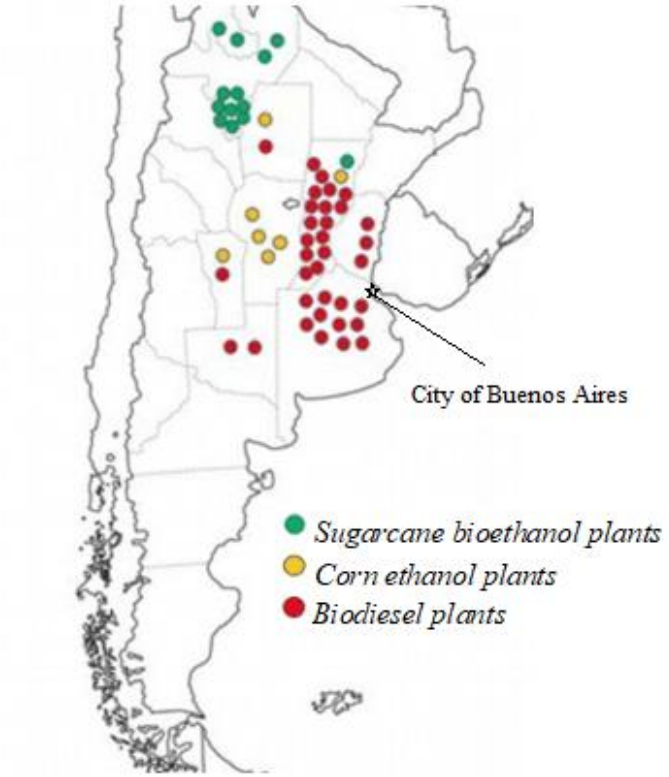
Bioethanol consumption in 2023 is forecast at 1.17 billion liters, the highest on record, because of strong gasoline demand and a high blend rate. Bioethanol made from corn is expected to account for 62 percent and from sugarcane 38 percent. A severe drought in 2022 and 2023 affected most crops and regions in the country but had a significant impact on the sugarcane industry which will have a smaller output to produce ethanol. Biodiesel production is expected at 1.0 billion liters, near record lows. Biodiesel exports in the first half of 2023 have been slower than normal, due to the uncompetitive price of Argentine biodiesel entering the EU. Domestic biodiesel demand is also expected to be restrained because of lower overall diesel demand and lower mandated blend rates. The only significant investment taking place in the local biofuels sector is the expansion of two of the large corn bioethanol plants which are schedule to be operation in late 2024 or early 2025.

I. Executive Summary

In late 2023, Argentina will hold Presidential elections. The incumbent President, Alberto Fernandez is not running for reelection and so a new President will take office on December 10, 2023. The Argentine economy continues to suffer significant macroeconomic problems with inflation running at over 100 percent annually and the Central Bank has a persistent lack of reserves. In response the government has sought to limit imports and encourages exports as much as possible. Argentina is very dependent on its agricultural exports, namely from its oilseeds and grains sectors, but the worst drought in the past 60 years will cut agricultural exports significantly in 2023, with some estimates putting losses in export revenue at around $20 billion. Going forward, Argentina aims to reduce its imports of fossil fuels thanks to the recent completion of a gas pipeline running from the Vaca Muerta shale formation in Province of Neuquen to interconnections with other gas pipelines in Buenos Aires Province. The first phase of the pipeline is projected to reduce energy imports by $1.5 billion and further expansions could double those savings annually.

In mid-2021 Argentina passed a new Biofuels Law 27640, to replace the expiring Biofuels Law 26093 of 2006. The new law reduced rather than expanded biofuel consumption. It maintained the mandated blend rate for bioethanol at 12 percent and reduced that of biodiesel from 10 to 5 percent. In June 2022, due to a shortage of diesel supply, the government through Resolution 438/2022 permanently increased the biodiesel mandate from B5 to B7.5. At the same time, it passed Decree 330/2022 temporarily increasing the biodiesel blending an additional 5 percentage points, to B12.5 percent, allowing local large biodiesel plants design for export to participate in the additional 5 percent under free market conditions. This measure was applied for 60 days and then renewed for another round, but it is no longer in place.

Figure 1: Approximate Location and Type of Argentine Biofuel Facilities



Source: FAS Buenos Aires and Clarin Rural

The average blend rate for biodiesel in 2022 was 5.9 percent and it is projected at 5.6 percent in 2023. The bioethanol mix in 2022 was 11.7 percent and it is projected to remain unchanged in 2023.

The motivation for the Biofuels Laws (2006 and 2021) was a mix of environmental concerns and a desire to support rural economic development. The partial offsetting of finished fuel imports (especially diesel) is also an important goal to support balance of payments, and help stabilize and strengthen the currency which in turn lowers dollar denominated debt servicing costs. Biofuel policy is strongly contested on one side by the farm sector and biofuels producers and on the other by oil companies and most local car manufacturers. Policymakers are in between the two, shifting from one side to the other depending on their beliefs, political obligations, and changing economic conditions. An example of this is the reduction of the official mandate rates passed in the Biofuels Law of 2021 to provide more flexible responses to increased price instability in energy markets since the pandemic began. More flexibility has been recently added on the permitted feedstock mix between corn and sugarcane, and the large vertically integrated biodiesel plants that have historically not been permitted to supply the domestic market have been permitted to do so briefly. But the essential nature of a command and control system for biofuels with price setting that is often slow to respond to market conditions and has financially stressed the biofuels industry at times remains in place.

While Argentina actively uses blending (and occasional allocation adjustments between the ethanol feedstock for political reasons) as a supply and price management tool responding to changes in feedstock supply and oil prices (often belatedly), biofuels continue to play only a small role supporting Argentina's commitment to reduce greenhouse gas emissions by 2030. The program in essence has stagnated and not advanced in meaningful ways to more effectively achieve program goals. Biofuel's potential as a climate change mitigation tool can and should more effectively supported through policy change, and that change goes beyond the limitations that have been placed on blending and the prohibition placed on imports to participate in the program. As yet, there is no greenhouse gas (GHG) full life-cycle emission criteria applied to biofuels. This omission and lack of policy incentives to drive down the carbon intensity (CI) of marketed biofuels (as well as fossil fuels) is significant and noteworthy. Equally concerning, there are no policies advancing new biofuel commercialization, fuels like renewable diesel than can further advance the decarbonization of the diesel pool with no blending limits, or Sustainable Aviation Fuel (SAF) which significantly decarbonizes air transportation. Another and important missed opportunity is the absence of improved light and heavy-duty engine fuel efficiency standards that many other countries have had in place for years. Advancing all such policies would effectively achieve all goals mentioned and reduces harm to human health caused by toxic fossil fuel emissions.

The current 2021 Biofuels Law set that the bioethanol mandated blend rate at 12 percent, with half supplied by the sugarcane industry and the other half by the corn industry. However, if the government deems necessary, the portion of the latter can be lowered to 3 percent. To date this has not happened.

In the case of biodiesel, the new Law lowered the biodiesel blend rate to 5 percent, lower than the 10 percent mandated by the prior law. The Argentine biodiesel industry is divided in two sections. This first is composed of companies operating small and medium sized plants which supply the domestic market under the biodiesel mandate. The second are companies are operating large plants, generally associated with large soybean crushing facilities, which export

their production since it is not allowed to be used to meet the domestic biodiesel mandate (with the sole exception of 2022). Biodiesel plants of all sizes use almost exclusively soybean oil.

Imports of feedstocks to produce biofuels to market under the official mandate or direct imports of biofuels for the mandate are prohibited except if authorized by the Secretariat of Energy. The law explicitly mentions that "only bioethanol and biodiesel produced in plants in Argentina using locally produced feedstock of agricultural origin or organic waste may be used under the official mandate."

Biodiesel exports are a main pilar of the local industry but vary significantly year to year based on policies and conditions in place in the different export destinations and the price of biodiesel and its relationship with the price of soybean oil. The EU is currently the main market for Argentine biodiesel, and it is expected to import smaller-than-usual volumes in 2023 due to the price scheme in place. Argentine fuel ethanol market is expected to continue to be isolated from world markets with only marginal volumes being traded.

Summary on Bioethanol Market 2023: Production and consumption of bioethanol for fuel is projected at a record 1.2 and 1.17 billion liters respectively thanks to a strong gasoline demand combined with a blend of 11.7 percent, which is close to meeting the official mandate. Bioethanol from corn is expected to account for 62 percent of the total with 38 percent supplied by the sugar industry, a significantly lower percentage than mandated due to a shortage of sugarcane due to drought. There are 22 refineries in the country and their capacity usage is estimated at 71 percent. Exports of bioethanol are forecast at 20 million liters.

Summary on Biodiesel Market 2023: Production is forecast at 1.0 billion liters, the lowest in 15 years because of a weak demand for diesel, a low blend ratio and very small exports. A severe drought in during the 2022/2023 Marketing Year (MY) has negatively affected Argentina's total grain harvested acreage and production. In a country that transports most crops to port by truck, the reduced demand for trucking have led to lowered demand for diesel. At the same time, some local fuel distributors try to blend biodiesel as lower as possible as they indicate that imported diesel is less costly than blending biodiesel under the mandate. Post estimates that the blending in 2023 could be close to 5.6 percent, almost 2 percentage points lower than the official mandate. Biodiesel exports are forecast at 280 million liters, the second lowest volume on record.

II. Policy and Programs

Argentine biofuel policies are set at the national level by the Biofuels Law 27640 and by Law 10721 in the Province of Cordoba, which has been a leader in biofuels. There are 2 to 3 other provinces currently analyzing the success of Cordoba's policies and are considering adopting similar programs in the future. Policies at a National and provincial levels to incentivize the use of biofuels have stagnated as noted in some detail in the previous section. They have the environmental goal of lowering the CI of transport fuels in the aggregate, but biofuels lack specific targets to limit and reduce their CI score (typically measured as gCO2e/MJ). From an economic perspective, policymakers believe that biofuels can be beneficial by encouraging

further rural development and adding value to local agricultural production, such as soybeans, corn and sugarcane. But again, without new policy to support higher blending and introduce new more advanced biofuels, opportunity to realize those benefits more fully will not be realized. Provincial interest is highest in provinces like Cordoba, Santa Fe, Tucuman and Salta that produce these commodities and/or are further from ports.

** *Biofuels Law 27640 (National Level) - July 2021*

On July 16, 2021, the Argentine Congress passed Law 27640, entitled "Regulation and Promotion Regime for the Production and Sustainable Use of Biofuels" replacing the original Biofuels Law 26093 of 2006, which expired in May 2021. Law 27640 will expire on December 31, 2030, and may be extended 5 more years. To date, not all provisions of the law have fully passed through the rule-making process. Key points of the law and latest regulations include:

- The mandated bioethanol blend rate with gasoline is a minimum of 12 percent, with a potential reduction to 9 percent. The bioethanol market is intended to be split evenly between sugarcane and corn feedstocks, but in the case where high commodity prices are deemed to negatively affect fuel prices, all reductions in blending will come from bioethanol produced from corn.
- The Law mandated a biodiesel blend rate with diesel at a minimum of 5 percent, but which could be reduced to 3 percent when prices of feedstock increase in such a way that is deemed to distort fuel prices. However, in June 2022, Resolution 438/22 established that diesel be permanently mixed at 7.5 percent supplied exclusively by small and medium plants under the mandate. At the same time the Secretariat of Energy, to palliate a shortage of diesel in the market, increased the mandate by an additional 5 percent, for a temporary period of 60 days (renewed by another 60 days) that could be supplied by any local biodiesel plant including the large companies which until then were only eligible for export. As a result, the biodiesel mix during these 120 days could reach 12.5 percent. This authorization is no longer in place.
- Only bioethanol and biodiesel produced in plants in Argentina using locally produced feedstock of agricultural origin or organic waste may be used to meet mandates.
- Biofuels are exempted of the tax on liquid fuels and the tax on carbon dioxide which are applied to fossil fuels.
- The Secretariat of Energy will be the authority with the power to regulate and control biofuels (it will determine official prices, quality, blend rates and sanctions for non-compliance).
- Companies producing fossil fuels cannot own nor participate in companies producing biofuels under the mandate. If petroleum companies would in the future convert old refineries to produce Renewable Diesel and participate of the official mandate, they would have a limit of production capacity as only small and medium companies are eligible and the biofuels policy should be amended to consider RD a biofuel.
- The Secretariat of Energy could allow, if market conditions permit, the substitution of imported fossil fuels with local biofuels.
- The Secretariat of Energy will set and establish conditions for entities to consume internally produced biofuels, such as those used by bus companies, truck transportation and companies operating farm machinery and equipment.

** *Biofuels Law 10721 (Cordoba Province) - November 2020*

In late 2020 the Congress of Cordoba province passed the Law of Promotion, Development and Consumption of Biofuels and Bioenergy. Its goal is to promote of sustainable development expanding consumption of biofuels produced in the province through the use of biofuels in cargo and public transportation, official fleets, and farm equipment. Cordoba is one of Argentina's leading producers of corn and soybeans, and the number one producer of corn bioethanol. The main points of the biofuels law/program are:

- Create a B100 program for the provincial fleet. The government is supporting the financing of the construction of 20 small biodiesel plants.
- Implement E85 and E100 for own fleet. Adjust the technology to incorporate flex fuel vehicles (Cordoba has several car manufacturers which produce flex fuel cars to export to Brazil).
- In mid-2023 the province inaugurated a gas station to provide E70 in government vehicles adapted to such bioethanol blend and another supplying B20 and E17. In late 2022 the first gas station with biofuels was inaugurated. By 2024 the province expects to have the whole governmental fleet running on these higher biofuels blends or in some cases pure biofuels.
- The first provincial laboratory was recently inaugurated to certify biofuel quality.

** *Biofuels Law 14010 (Santa Fe Province) - October 2020*

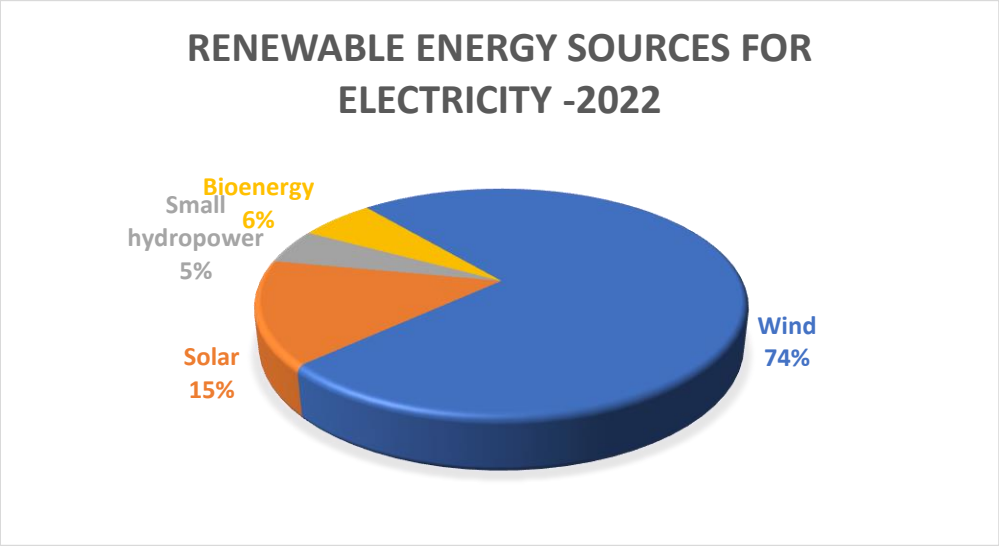
The Province of Santa Fe is where 80 percent of the nation's biodiesel is produced because it is home to large soybean crushing facilities, biodiesel facilities, and export terminals. Santa Fe is the other province that currently has a biofuels law, but it has been slow to issue implementing regulations and has had little success raising usage rates above national averages. Santa Fe's law encourages biofuel usage in the farm sector, transportation, logistics, governmental fleets, heat and power, and bunker use. In 2018, the largest city in Santa Fe Province, Rosario, ran a three-year long program to evaluate more than 1,000 city buses on B25 and B100 with encouraging results, but this has not yet led the city to add more vehicles running on biodiesel.

Renewable Energy, Greenhouse Gas (GHG) Emissions

Based on the Emissions Gap Report (UNEP, 2016), Argentina accounted for 0.7 percent of global GHG emissions in 2014. In late 2021, at the UN Climate Change Conference, Argentina announced an additional reduction from its Nationally Determined Contribution (NDC) presented in 2016, lowering it from 483 to 349 MtCO2e by 2030. The main tools to reach this goal are the expansion of renewable energies (by 2030 at least 30 percent of the total energy matrix will have to be from renewable sources), financing, lower subsidies to fossil fuels, expansion of protected areas, and improved efficiency in industry, transportation and construction. Additionally, an important project on production and exports of renewable hydrogen is under analysis and President Fernandez mentioned the need to create a system to swap debt for climate action.

In 2015 Argentina passed Law 27191/2015, the National Support for the Use of Renewable Sources of Energy, which requires that by 2025 at least 20 percent of Argentina's total electricity consumption should originate from renewable sources. In 2022 it accounted on average for 13.9 percent. On February 19, 2023, renewable energy accounted for 32 percent of the demand of electricity. The lack of financing, low rates of new investment and the country's weak economic situation have slowed down investment in the sector.

Figure 2: Renewable Energy Electricity Sources in Argentina



Source: FAS Buenos Aires with Cammesa data – excludes large hydropower

Argentina continues to develop wind and solar power in many different regions with a focus mainly on wind in the south of the country and solar in the northwest and west of the country.

The Biofuels Law 26093/2006, which mandated the initial obligatory mix of a five percent blend of ethanol in gasoline and five percent blend of biodiesel in diesel in 2010, was an important part of the country's early efforts to reduce GHG emissions. This goal was largely met on schedule for biodiesel but lagged for three years for ethanol. The first biofuels law expired in May 2021 and was replaced by Biofuels Law 27640. Biofuels are part of Argentina's latest NDC presented in November 2021, encouraging the use of biofuels. The goals described in the National Plan of Adaptation and Mitigation to Climate Change (2022) report indicate that by 2026 bioethanol should be mixed with 15 percent with gasoline and that by 2030 both bioethanol and biodiesel should be mixed at a 20 percent rate with fossil fuels for transport and that tools for the production and use of SAF should be in place. There is criticism pointing out the lack of details in the lines of actions, timeframe and quantitative targets by 2030. The country is not taking steps needed to meet these aspirational goals.

Biofuel Mandates

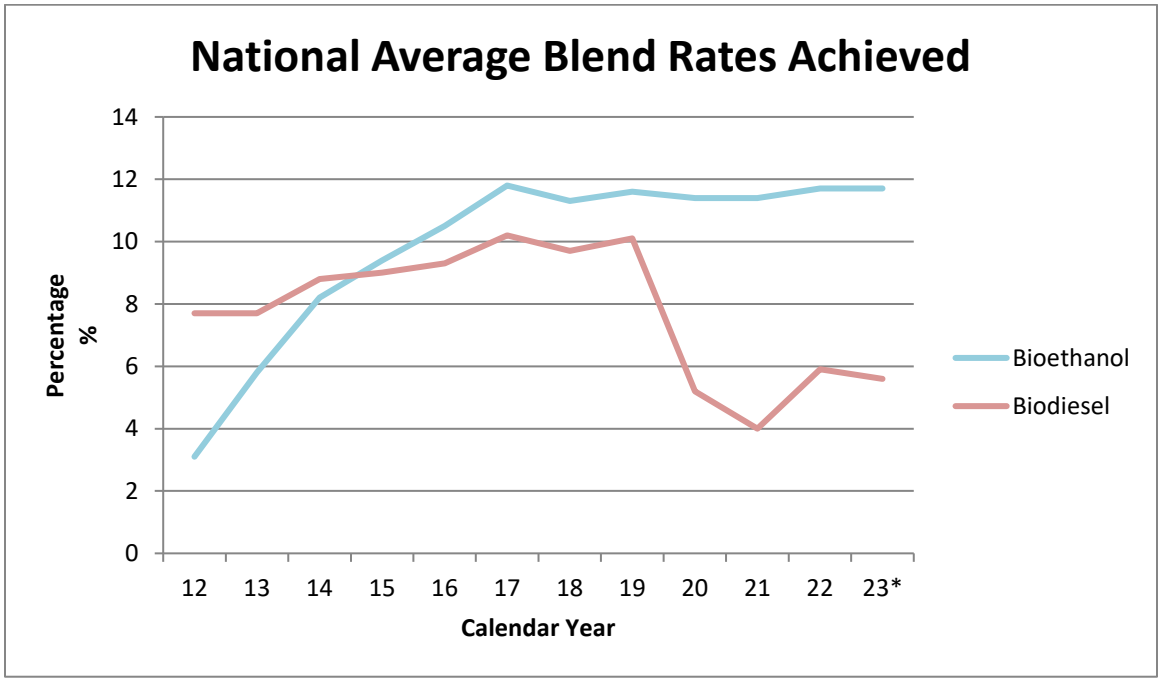
The Biofuels Law of 2021 mandated biodiesel blend rate with diesel at a minimum of 5 percent but can be reduced to 3 percent when prices of feedstock increase in such a way that is deemed

to distort fuel prices. However, in June 2022, Resolution 438/22 of the Secretariat of Energy established that the mandate mix of biodiesel in diesel be increased to 7.5 percent and could only be supplied by small and medium plants. At the same time, Decree 330/22 established an additional 5 percent mix for a temporary period of 60 days (then renewed for a couple of more months) that could be supplied by any local biodiesel plant, including the large companies which until then were only eligible for export. This was an exemption due to the shortage of diesel in the market and it is no longer in place.

Biofuels Law 27640 passed in July 2021 maintains a 12 percent rate for bioethanol and the even split between corn and sugarcane but gives the Energy Secretariat the power to reduce the blend rate to 9% if economically necessary, and all reductions are to be taken from the share provided by corn ethanol. In early July 2022, congressmen from Cordoba Province presented a bill to authorize flex fuel cars to run in the country. This province also has a specific provincial biofuels Law by which it is developing a network of producers and distributors. To date, several hundred official vehicles are running at B20 and E17. The program is expected to continue to expand and have more consumers use higher-content biofuels fuel.

In January 2010, with the first biofuels law in place, Argentina mandated a blend rate of 5 percent bioethanol in gasoline and 5 percent biodiesel in diesel. This ethanol mandate was increased to 9 percent in January 2014 and 10 percent in February 2014. At the same time, a 10 percent biodiesel blend requirement was added for power generation plants technically able to use a biodiesel blend, but it was never enforced and so far, very little has been used in this sector.

Figure 3: Bioethanol & Biodiesel Blend Rates



*Source: FAS Buenos Aires *Projection*
Covers all Diesel Pool for On/Off-road Use and excludes stationary power.

Financial Support

There are no national direct subsidies supporting the construction of biofuel plants or the production of biofuels. The province of Cordoba, with its biofuel law, provides economic and financial assistance to install small biodiesel plants in the province. However, at a national level, and through the Biofuels Law, there are three pillars which support the local biofuels sector which only participates in the official mandated program:

1) Official blends

   Gasoline and diesel must be mixed with a given percent of bioethanol and biodiesel respectively. These blends are then converted into quotas per company and assigned monthly by the Secretariat of Energy. For more details, see above in the Biofuels Mandates section.

2) Official Prices

   Monthly official prices are set by the Secretariat of Energy for biodiesel and bioethanol that fuel blenders must pay to producers. In theory these prices should cover production costs and provide producers a small return. However, due to high inflation and delays in updating official prices, biofuels producers lose money when official prices don't rise quickly enough to cover production costs. Some have temporarily or permanently closed their plants.

With the recent biofuels law, the Secretariat of Energy sets prices for the three biofuels under the mandate. These prices are periodically updated. The following table shows the official prices for sugarcane bioethanol, corn bioethanol and biodiesel since July 2022:

Table 1

Month/Year	Sugarcane Pesos/Lt	Sugarcane USD/Lt	Corn Pesos/Lt	Corn USD/Lt	Biodiesel Pesos/Lt	Biodiesel USD/Lt
Aug 2023					303.2	
Jul 2023	165.4	0.60*	165.4	0.60*	291.5	1.06*
Jun 2023	165.4	0.62	165.4	0.62	280.3	1.06
May 2023	155.2	0.64	155.2	0.64	270.4	1.11
Apr 2023	148.5	0.65	148.5	0.65	259.1	1.14
Mar 2023	141.4	0.67	141.4	0.67	249.2	1.18
Feb 2023	135.3	0.68	135.3	0.68	240.0	1.20
Jan 2023	129.3	0.68	129.3	0.68	230.5	1.21
Dec 2022	123.4	0.69	123.4	0.69	221.6	1.23
Nov 2022	118.5	0.70	118.5	0.79	213.0	1.25
Oct 2022	92.7	0.58	112.8	0.71	193.7	1.22
Sep 2022	88.2	0.59	107.4	0.72	193.7	1.29
Aug 2022	88.2	0.62	103.8	0.73	174.3	1.22
Jul 2022	80.6	0.60	100.7	0.75	171.0	1.27

Source: Argentine Under Secretariat for Fuels
** Post Estimate*

For information on earlier pricing history, see past reports.

3) Exemption for Biofuels of Taxes on Liquid Fuels and Fossil Fuel Carbon Emissions

In December 2017, the Argentine Congress passed the Tax Reform Law 27430/2017, which among many changes, modified the tax structure of fuels and, for the first time, imposed a carbon tax on fossil fuels. Since March 2018, fuels have been subject to two taxes: on liquid fuels and on carbon dioxide (with the objective of discouraging fossil fuels use and encouraging renewable energies). Biofuels, either pure or in fuel mix, were exempted.

Impacting Fuel Pool Size through Other Incentives/Disincentives Targeting Demand

The Argentine Congress has for many years deliberated adopting a flex fuel program as exists in Brazil to boost ethanol use, but has not taken that would impact the national level..

The introduction of hybrid gas/electric and electric cars is growing, but at a very slow pace, though there are some minor tax incentives in place. The penetration rate of these drive trains is exceeding small due to lack of any meaningful consumer purchasing incentives. Initiatives to incorporate energy efficiency standards in new vehicles and machinery (which in themselves lower demand for biofuels) are moving slowly, which means the engine efficiency of light and heavy-duty vehicles will remain low in comparison with many other countries with initiatives. Diesel demand will grow at higher rates when Argentina's economy stabilizes, with limited alternative modes of transport to trucking in the commercial sector and little to no improvement in engine efficiency. Freight railroad capacity is slowly expanding, primarily in tracks going north and west from Buenos Aires and the ports near Rosario, where more than 80 percent of agricultural exports are shipped.

Environmental Sustainability and Certification

Argentina does not have specific environmental or social/economic sustainability criteria for biofuels used in the domestic market; none specific to the cultivation of feedstock, nor minimum Lifecycle Analysis (LCA) derived CI values for biofuels. However, as the country is a major exporter of biodiesel, and in a much smaller scale of bioethanol, the criteria and regulations of other markets are closely monitored for export compliance. This is the case for the EU's second Renewable Energy Directive (REDII) and US Environmental Protection Agency (EPA) rulemaking. CARBIO, the Argentine Chamber of Biodiesel, together with INTA, the National Institute of Agricultural Technology, produced a voluntary certification scheme which was approved by the EU which has also recently accepted the value of emissions of Argentine soybean-based biodiesel certification by province. To achieve tax cuts, biodiesel needs to show a reduction of GHG emissions of at least 60 percent as from 2018. Argentine plants on average show 70 percent of reduction. In the case of Argentine bioethanol from corn, the average reduction of GHG emissions of those plants analyzed is between 70-75 percent. Biofuel exports are accompanied by certificates granted by the International Sustainability and Carbon Certification system (ISCC) and/or the French 2BSvs biomass biofuel voluntary sustainability scheme.

Import Policy Including Duties/Export Taxes and Levies

Pursuant to the current Biofuels Law, only biofuels manufactured by Argentine producers using domestically-produced feedstock may be used in filling the official mandate – which effectively prohibits use of biofuel imports – unless authorized by the Secretariat of Energy.

Since the passage of the original biofuels law, the export tax differential between biodiesel and soybean oil has fluctuated widely. Currently there is a nominal 2 percent differential export tax on biodiesel relative to soybean oil. However, the effective differential is now 8.52 percent. The effective rate for biodiesel is lower because it enjoys an export tax reduction granted to most manufactured products, but it is not provided to soybean oil and raw agricultural commodities.

Table 2: Recent Export Tax Changes on Biodiesel, Soybean Oil, and Soybean

MONTH	BIODIESEL % Export Tax*	SOY OIL % Export Tax	SOYBEANS % Export Tax
January 2023	29.0 (22.5)*	31.0	33.0
March 2022 (Decree 131/22)	30.0 (23.07)*	33.0	33.0
January 2021 (Decree 790/20)	29.0 (22.5)*	31.0	33.0

**Biodiesel export tax nominal terms, effective rate in parenthesis*
Source: Government of Argentina

Table 3: Import/Export Taxes and Rebate Rates for Ethanol and Biodiesel (July 2022)

Product	Import Duty Extra Mercosur %	Import Duty Intra Mercosur %	Export Tax %	Export Rebate %
Ethanol (2207.10 & 2207.20)	20.0	0.0	4.5	1.25
Biodiesel, <B30-100 (3826.00)	14.0	0.0	29	0.0
Petroleum Oil containing 1-30% biodiese, B1-B30 (2710.20)	0.0	0.0	12	0.0

Note: Applicable HTS codes in parenthesis
Source: Government of Argentina

See previous report for earlier export tax rates.

III. Fuel Ethanol

Table 4: Ethanol Used as Fuel

Ethanol Used as Fuel (Million Liters)										
Calendar Year	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023f**
Beginning Stocks	0	0	0	0	0	0	0	0	0	0
Fuel Begin Stocks	45	53	64	44	72	126	128	151	144	144
Production										
Fuel Production	671	815	890	1,105	1,113	1,073	809	1,008	1,159	1,200
Imports										
Fuel Imports	0	0	0	0	5	0	0	0	0	0
Exports										
Fuel Exports	0	0	0	0	0	8	22	16	33	20
Consumption										
Fuel Consumption	663	804	910	1,077	1,064	1,063	764	999	1,126	1,170
Ending Stocks										
Fuel Ending Stocks	53	64	44	72	126	128	151	144	144	154
Refineries Producing Fuel Ethanol (Million Liters)										
Number of Refineries	12	14	14	14	17	22	22	22	22	22
Nameplate Capacity	880	950	950	1,200	1,300	1,440	1,555	1,560	1,680	1,680
Capacity Use (%)	76.3%	85.8%	93.7%	92.1%	85.6%	74.5%	52.0%	64.6%	69.0%	71.4%
Co-product Production (1,000 MT)										
DDGS*	280	360	370	415	470	450	330	400	530	560
Feedstock Use for Fuel Ethanol (1,000 MT)										
Corn**	890	1,150	1,175	1,325	1,400	1,330	1,020	1,280	1,685	1,800
Molasses***	1,220	1,365	1,708	2,250	2,150	2,110	1,565	1,910	1,855	1,850
Market Penetration (Million Liters)										
Fuel Ethanol Use	663	804	910	1,077	1,064	1,063	764	999	1,126	1,170
Gasoline/Ethanol Pool 1/	8,066	8,520	8,629	9,137	9,453	9,176	6,698	8,733	9,643	10,000
Blend Rate (%)	8.2%	9.4%	10.5%	11.8%	11.3%	11.6%	11.4%	11.4%	11.7%	11.7%
Note: 1/ Covers gasoline and all biocomponents (biofuels) like ethanol and ETBE as well as MTBE if used.										f = forecast

Note: 1/ Includes all biocomponents (biofuels) like ethanol and ETBE as well as MTBE if used.
f = forecast
Source: Private and Secretariat of Energy data, Gasoline Pool: International Energy Agency, local private sources
** Calculated on a dry basis (1 mt of corn = 0.313 mt of DDGs (assumes no oil extraction), although some plants sell in different proportions wet distiller's grains*
*** 1 MT of corn yields 417 liters of ethanol*
**** Sugar mills mostly use molasses but also can use sugarcane or convert sugar. To simplify, we assume only molasses is used with a conversion rate of 1 MT of molasses yields 246 liters.*

Consumption

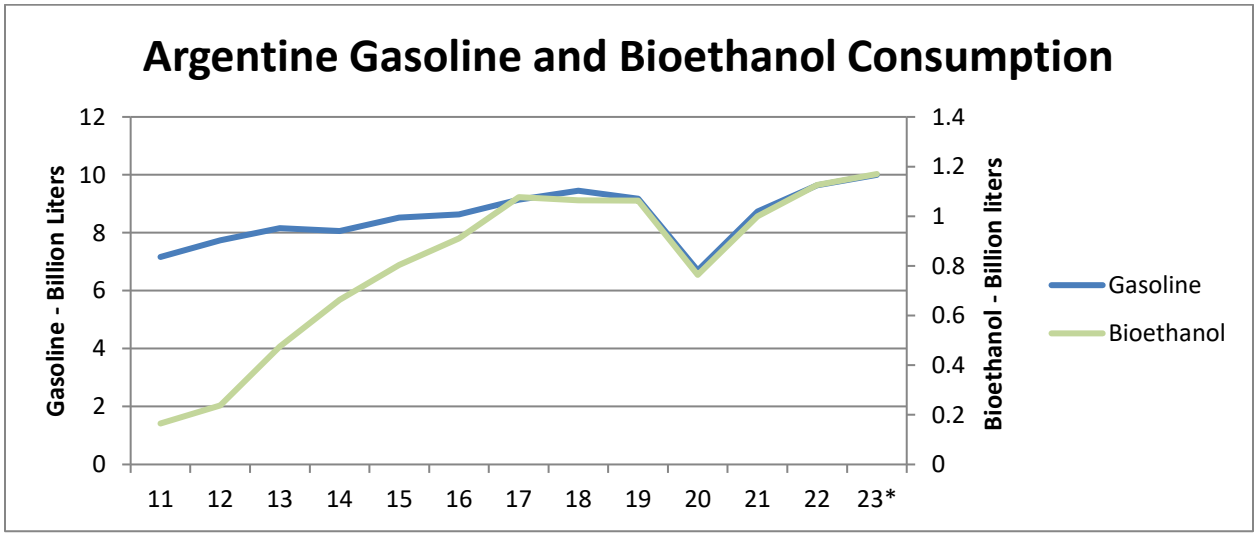
Consumption in 2023 is projected at a record 1.17 billion liters, as a result of a robust gasoline demand and the near fulfillment of the official blend in gasoline. Despite that most economic analysts predict Argentina's GDP to drop 3 percent; the sales of gasoline are forecast at a record 10 billion liters, an increase of 4 percent from 2022. The main drivers are: 1) fuel sales in Argentine border provinces have increased 20-40 percent in the past few years as foreign drivers and truckers, especially in the north and northeast regions, cross the border to refuel in Argentina

at less than half the cost (due to currency arbitrage and price controls) than they would have in their own countries; 2) after the COVID-19 pandemic, people are going out more, enjoying recreational activities; 3) distortive government economic polices mean that fuel prices are often inexpensive vis-à-vis relative to other products, incentivizing more people on the road; and 4) cars running on gasoline continue to increase their share at the expense of those running on natural compressed gas and/or diesel engines.

The blend of bioethanol in gasoline in 2023 is expected to remain practically unchanged at 11.7 percent, very close to the mandate ceiling of 12 percent. Different than in biodiesel, fuel distributors do not dislike bioethanol as it generally has a convenient price, it improves the quality of gasoline, and the engines' efficiency due to its greater number of octanes.

For years, local ethanol producers have pressed the government to increase the official mandate from the current 12 percent to 15 percent, with the idea of reaching 27 percent over the next few years, matching similar blending as in Brazil (with its duel E27 and E100 fuel pools) and Paraguay. This would help the country to replace even more gasoline imports which in 2022 accounted for 1.1 billion liters. Several sources indicate that E15 is quite close to be in place. However, an even higher blend will probably face fierce opposition from local car manufacturers as they are concerned about engine warrantees. There is currently no discretionary use of bioethanol as it is a highly controlled market by official policy and in addition, the current supply and demand is quite balanced. Based on official data, bioethanol sales in 2022 totaled 1.126 billion liters of which the corn industry supplied 59.6 percent and the sugar industry 40.4 percent.

Figure 4: Argentine Gasoline and Bioethanol Consumption



Source: FAS with Secretariat of Energy and International Energy Agency, local sources
** Post forecast*
Bioethanol is all ethanol used as fuel. Gasoline pool includes all blended ethanol.

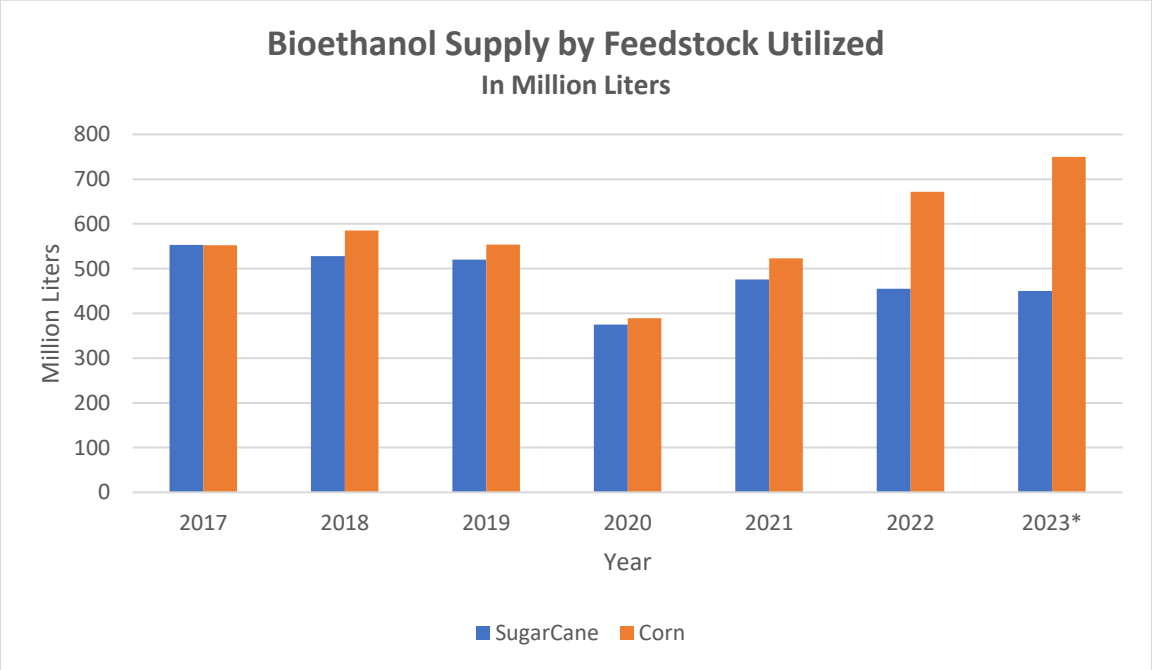
In 2023, Cordoba Province has already a few gas stations supplying official vehicles with E17 and E85, as part of the provincial Biofuel Program. By 2024, the province is projecting to have

more pumps available to supply not only official fleet vehicles, but private cars. Cordoba is the second province to have more light-duty vehicles in the country.

Production

Production of bioethanol in 2023 is projected at a record 1.2 billion liters, triggered by a record demand of gasoline and a blend which is expected to be close to the ceiling of the official mandate. By law, the bioethanol blend under the official program is 12 percent, having to be supplied 6 percentage points by the sugarcane industry and 6 percent by the corn ethanol industry, but in the case of the latter, it can drop to 3 percentage points if the government deems it necessary. In the past three years Argentina has suffered the effects of La Nina, which it normally reflects in a dry environment. The production of both the sugarcane and corn crops was negatively affected by drought, especially in the current marketing year which was more severe. Sugarcane production is a relatively small crop and generally has lesser export surpluses than corn, which 2/3 of the total production is normally shipped abroad. Therefore, in 2021-2023, bioethanol from corn accounted for a significantly higher share than that of sugarcane. The following chart shows the percentage of each feedstock in the past 6 years and the projection for 2023.

Figure 5: Argentine Bioethanol Supply by Feedstock Utilized



Source: Secretariat of Agriculture, Livestock, and Fisheries
** Post's projection*

The sugarcane crop in marketing year 2023-2024 is forecast to drop 5-6 percent from last year, which already was 5 percent lower than the previous marketing year, because a very dry environment. The harvest began in late May-early June, but it is running slow because of weekly

rains especially in Tucuman Province. To date, the sugarcane processed has disappointing sucrose content levels and mills hope that rains do not disturb the harvest in the next 2-3 months because they could affect further the harvest and the production of sugar. Mills expect to fulfill the domestic sugar demand plus a small volume of sugar exported to neighboring Chile and to comply with the US Tariff Rate Quota. The balance is expected to be turned into bioethanol to sell under the official mandate. Currently, it is far more profitable for mills to sell sugar in the domestic market and secondly to export it. The least profitable option by far is to sell bioethanol at the official price. All sugar mills produce a small part of ethanol from molasses as part of their production of sugar but there are three large production groups which also have a strong focus on producing bioethanol and renewable energy. These are expected to still direct part of their cane harvest to produce bioethanol, wishing to remain permanent players in the market. In total there are 12 sugar companies distributed between Tucuman, Salta, and Jujuy provinces in the northwestern region. Mills typically produce ethanol during the sugarcane harvest (May-October) and continue to produce a few more months and carry stocks to supply ethanol during the first months of the year until the new sugarcane harvest begins.

The corn crop in marketing 2022-2023, with the harvest coming to an end in a few more weeks, was also severely affected by weather. USDA estimates Argentina's production at 34 million tons, a 34 percent cut from the average production of the previous 4 crop seasons. Corn domestic consumption (including bioethanol) fluctuates between 13.5-14.5 million tons annually, freeing up large volumes of corn for export. All corn ethanol plants are in the main crop production area, sourcing corn from close by farms. The corn bioethanol industry is currently operating at high capacity with a profitable business as the price of corn remained quite stable, primarily thanks to a large Brazilian crop. There are 5 big companies with production capacity ranging between 100-290 million liters. The largest plant is owned by a local agricultural cooperative. Two other plants are expanding their capacity by 50 percent each which will be in operation in about 18 months. There is one company, a dehydrator which processes the ethanol produced by 5 very small plants owned by large farmers which, under this scheme, can access to part of the mandate. The corn ethanol industry is expected to process 1.8 million tons of corn in CY 2023 and produce as byproduct 560,000 tons of DDGs used in animal feed.

Corn ethanol plants produce wet distiller's grains and depending on market conditions, they dry part of it as most large plants have drying capacity. Industry contacts estimate that currently 60-70 percent of the total is dried. Usually, companies have contracts to deliver distiller's grains, CO2 and corn oil which in some cases are exported. Wet distiller's grains are normally distributed in an area no larger than 150 kilometers from the plants, while dry product is sold more widely, with small volumes exported to neighboring countries. The main consumers are local feedlots, dairies, and poultry producers, and balanced feed plants.

Trade

Argentine bioethanol exports (fuel use only) for 2023 are forecast at 20 million liters, lower than the 33 million liters of 2022. Argentine official trade data does not identify fuel-grade ethanol exports as such. Post utilizes information from different contacts involved in this trade, all producers of bioethanol from corn plants. Practically all exports go to Europe with a 72 percent of GHG emissions reduction. Exports are accompanied by certification of 2BSvs (Biomass

Biofuel Sustainability voluntary scheme) and ISCC (International Sustainability and Carbon Certification). The main markets are the United Kingdom and the Netherlands (although, in the case of the Netherlands the final destination is unknown).

Argentina normally imports small volumes of ethanol for industrial use and some beverage ethanol. Most of the product is generally un-denatured (hydrous) shipped under HTS 2207.10 and comes primarily from Bolivia and Brazil. Denatured ethanol is also imported (HTS 2207.20) primarily from Brazil. None is used as fuel except a small exception which occurred in 2018.

IV. Biodiesel

Table 5: Biodiesel

Biodiesel (Million Liters)										
Calendar Year	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023f
Beginning Stocks	24	44	59	52	102	27	28	98	118	71
Production	2,935	2,060	3,020	3,260	2,760	2,440	1,315	1,960	2,170	1,000
Imports	0	0	0	0	0	0	0	0	0	0
Exports	1,815	895	1,847	1,875	1,585	1,147	675	1,440	1,405	280
Consumption	1,100	1,150	1,180	1,335	1,250	1,292	570	500	812	740
Ending Stocks	44	59	52	102	27	28	98	118	71	51
Production Capacity (Million Liters)										
Number of Biorefineries	38	38	38	37	36	36	33	33	33	33
Nameplate Capacity	5,200	5,200	5,400	5,000	5,000	5,000	4,430	4,430	4,430	4,430
Capacity Use (%)	56.4%	39.6%	55.9%	65.2%	55.2%	48.8%	29.7%	44.2%	49.0%	22.6%
Feedstock Use (1,000 MT)										
Soybean oil*	2,600	1,820	2,670	2,870	2,430	2,200	1,180	1,750	1,950	900
Market Penetration (Million Liters)										
Biodiesel, On/off-road use	1,100	1,150	1,180	1,335	1,250	1,292	570	500	812	740
Diesel Pool, On/off road 1/	12,433	12,801	12,623	13,147	12,926	12,848	10,973	12,540	13,700	13,100
Blend Rate (%)	8.8%	9.0%	9.3%	10.2%	9.7%	10.1%	5.2%	4.0%	5.9%	5.6%
Diesel Pool, Total 1/	14,233	15,001	15,023	14,547	13,826	13,248	11,773	13,560	14,778	14,000
Note 1/ Fuel pools are defined as fossil fuels plus all "bio-components" (biofuels) blended with fossil diesel.										f = forecast

Note 1/ Fuel pools are defined as fossil fuels plus all "bio-components" (biofuels); on/off road series excludes stationary power (Cammesa).
**1 MT of soybean oil (1x refined) yields 1,128 liters of biodiesel*
Source: Private estimate based on official data from Secretariat of Energy of Argentina, the International Energy Agency, and local private sources

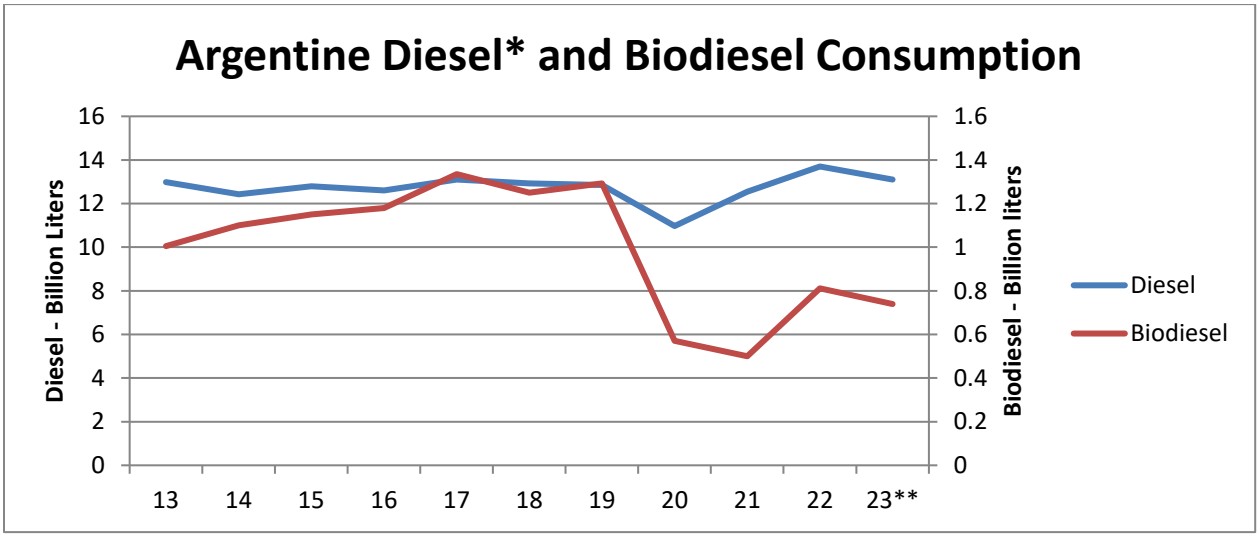
Consumption

Argentine biodiesel consumption in 2023 is projected to decline to 740 million liters, 9 percent lower than in 2022 and a startling 43 percent below the pre-pandemic year of 2019. Following even lower volumes of 500-570 million liters consumed during the peak of the pandemic (2020-21), biodiesel consumption recovered somewhat in 2022 supported by a growing diesel pool and higher blending. In summary, recovery of the diesel pool began one year earlier in 2021 with sales volumes exceeding the pre-pandemic level of 2019 by 2022, but much lower blend rates for biodiesel after 2019 sidelined recovery in biodiesel use resulted in the lowest use volumes since the first Biofuels Law was in place in 2010.

Post projects diesel consumption in 2023 at 14.0 million liters, almost 0.8 million liters lower than in the previous year but remaining above 2019 levels just prior to the pandemic. Most local economic analysts expect Argentina's GDP to drop 3 percent in 2023 because of significant macroeconomic distortions impacting the economy. In addition, a severe drought in marketing year 2022-2023 affected the production of wheat, corn and especially soybeans. USDA's current data indicates a 38 percent drop from the previous season for the three crops together. This had and will have in the months to come a direct impact on diesel consumption due to a smaller planted and harvested area (2.3 million hectares less) and thousands of fewer truck trips from the farm to town elevators and/or ports.

The national average biodiesel blend rate in 2023 is forecast slightly down at 5.6 percent compared to last year. The blend in the first five months of 2023 was slightly above 5 percent. Local fuel distributors prefer to avoid the use of biodiesel under the mandate as much as possible as the current official price is significantly more costly than the price of imported diesel. Distributors are trying to bring down the blend to 3 percent, the minimum allowed by the 2021 Biofuels Law, with strong resistance of the small and medium biodiesel processors which want to increase it from the current 7.5 percent to 10 percent. Contacts indicate that there is little official control on having fuel distributors comply with the current mandate, with the addition of having the state-owned fuel company be the main player with more than 50 percent of the local fuels market.

Figure 6: Argentine Diesel and Biodiesel Consumption



** All On and Off-Road Surface Transportation, includes biodiesel*
*** Post forecast*
Source: FAS with Energy Secretariat, International Energy Agency, and private sources

The average national blend in 2022 was 5.9 percent, higher than the 5 percent established in the Biofuels Law 27640 of mid-2021. In mid-2022 there was a temporary shortage of diesel in the country which affected mainly cargo transportation and farm machinery. Diesel demand was strong because of an economic recovery and larger-than-normal sales in provinces bordering neighboring countries, where fuel prices were at least double the local price. In addition, diesel

imports were smaller than needed. The government reacted by importing more diesel, by increasing permanently the blend of biodiesel from 5 percent to 7.5 percent, and by increasing for 60-120 days an additional 5 percentage points the blend for a total mandate of 12.5 percent where large biodiesel exporters could participate at free market prices. This additional 5 percentage points of mandate are no longer in place.

Production

Biodiesel production in 2023 is forecast at 1.0 billion liters, the lowest since 2009, one year before the first official mandate was put in place. This is the result of a drop in diesel consumption and thus weak demand under the official mandate and the lowest exports since 2008, a time when just a few local large export plants started production to export biodiesel to the EU. Production in 2023 is forecast well below the volume during the first year of the Covid Pandemic in 2020 when exports were higher.

The domestic demand under the official mandate is estimated at 740 million liters in 2023, smaller than last year. Contacts indicate that local fuels distributors prefer to reduce use as much as possible because they say it is more expensive than diesel, there are more logistics requirements, and it also takes share of the business they manage as it is an imposed fuel they need to mix and distribute. They also claim that the control authority generally does not punish those who do not comply with either the supply or demand of the official 7.5 percent mandate. The blend for 2023 is expected at 5.6 percent, slightly lower than the blend rate in 2022 which was set higher to partially offset a temporary shortage of diesel in the market.

Extremely low biodiesel exports expected in 2023 will also have a direct impact on total production. The EU is by far the main destination for Argentine biodiesel and its negotiated terms and price scheme are unfavorable to trade. The minimum import price that Argentine product is traded under was and remains currently too high compared to biodiesel prices in Europe. In the first half of the year, Argentina exported only 145 million liters and exporters hope that the price equation in the latter part of the year allows some additional exports.

Production capacity in 2023 has remained unchanged for the past 4 years, with no new investment in the foreseeable future. In fact, there is growing concentration in the small-medium size plants which serve the local mandate as some few groups own more than one plant but currently concentrate the production in just one or two plants to be more efficient. At the current official price, most small and medium plants are operating below breakeven and face high prices for feedstock and most other inputs. The current high inflation (running at 6-8 percent monthly) erodes a significant part of their sales as they usually collect payments 30-40 days after delivery. The use of capacity this year is estimated at 23 percent, nearly the lowest on record.

There are currently 33 plants which could operate if the local and export demand recovered. About 10 plants of different sizes have not operated during the first half of the year. The government divides the total biodiesel plants into three different categories based on production capacity to determine if they are eligible to participate of the official mandate:

Table 6: Biodiesel Plants by Production Capacity

Size/Capacity	9-23 Million Lts	54-110 Million Lts	136-690 Million Lts
Small	8		
Medium		16	
Large			9

Source: Argentine Secretariat of Energy

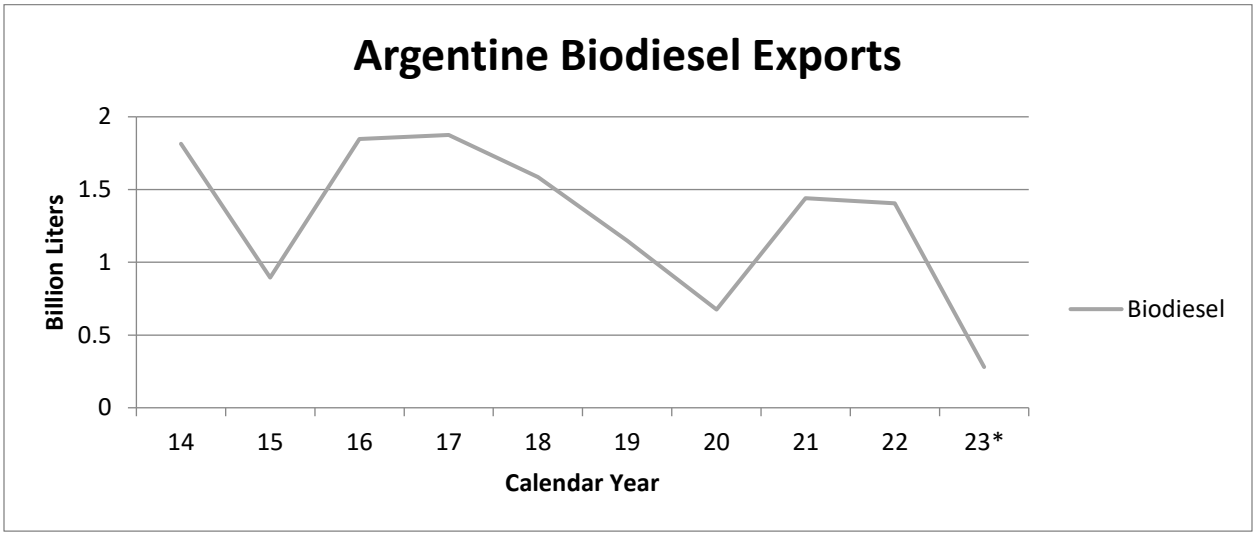
The main (practically only) feedstock used by the local industry is soybean oil, mostly supplied by large exporting companies that have crushing plants to export meal and oil when not used for biodiesel. Medium and small companies normally buy vegetable oil from the large crushers. Feedstock availability is normally plentiful as Argentina is one of the world's top soybean producers and exporter of meal and oil. The soybean crop season 2022-2023 was severely affected by drought, with a drop of about 50 percent in production, which is expected to reduce soybean oil output by 1 million tons. This level is not expected to affect the availability of oil to produce biodiesel as its output is significantly higher than the oil demanded to produce biodiesel (estimated at 900,000 tons this year) for the local and export markets. Soybean oil exports are also expected to drop 17 percent.

Trade

Argentine biodiesel exports in 2023 are forecast at 280 million liters, the second lowest volume since exports began in 2007. Shipments in the first 7 months of the year have totaled 152 million liters. Local exporters hope that the price of biodiesel in the EU increases in the next few months to make some additional shipments. Argentina's export markets are basically limited to the EU, UK, and Canada and to discretionary markets during brief periods when soyoil biodiesel is cheaper than fossil diesel. The EU remains the major market due to is size and the quota agreed with Argentina which sets minimum price. Sales in the first half of the year were very weak as exports of Argentina had to enter at a minimum price which was too high compared to local biodiesel in the EU. The other market which has been active in the first half of the year was Canada, importing roughly 40 million liters of biodiesel.

There are no exports projected to the United States, Peru, or other discretionary markets. The United States and Peru both retain high retaliatory anti-dumping and anti-subsidy duties applied to Argentine biodiesel. Discretionary blending markets in North Africa have on occasion imported soybean oil biodiesel, but are not expected to in the short term as the current world price of soybean oil is currently 20-25 percent higher than ICE Gasoil.

Figure 7: Argentine Biodiesel Exports



Source: FAS Buenos Aires with Secretariat of Energy database
** Post's forecast*

All biodiesel exports continue to be shipped from ports close to Rosario city where most of the large crushing and biodiesel plants are located. Most of the export plants are multinational companies.

The European Union continues to be the main and practically exclusive market for Argentine biodiesel. In February 2019, the European Commission and Argentina agreed to an annual duty-free quota for biodiesel of 1.36 billion liters at a minimum import price based on Argentina's official FOB soybean oil price plus production costs and freight. Eight local biodiesel producers are authorized for export. Contacts indicate that Carbio, the Argentine Biofuels Chamber, distributes the annual quota among its members based on capacity and past export performance. There are recent concerns in the local biodiesel sector as the EU Parliament's industry committee voted recently to restrict soybean oil as a feedstock for biodiesel production due to environmental concerns related to deforestation in countries outside the EU. The EU's Deforestation-free Supply Chain Initiative groups the soybeans with palm oil as main drivers of agricultural expansion leading to deforestation.

Since early 2018, the United States (Argentina's main biodiesel export market in 2016-17 following retaliatory import tariffs placed by the European Union to protect its market) continues to apply high anti-dumping and countervailing duties which, when combined, average over 140 percent. This makes it impossible for Argentine product to reach the U.S. market. In May 2023 the U.S. International Trade Commission announced the extension of duties at similarly high rates.

Peru began importing Argentine biodiesel in 2012 to help meet its blend mandate by backfilling its exports to Europe. However, in 2016 and after Argentina product had directly undermined Peruvian production, Peru set anti-dumping and anti-subsidy duties on Argentine biodiesel imports that effectively curtailed trade. These expired in early 2021 and were renewed for five more years until 2026.

As in past years, biodiesel imports are not expected since the biofuels law requires all biodiesel placed on the market be produced in domestic plants with locally produced feedstock.

V. Advanced Biofuels

Argentina does not commercially produce renewable diesel or sustainable aviation fuel (SAF). A few local oil companies have some projects and there are a few old oil refineries which could be adapted to produce renewable diesel and SAF, but there is are no actions to commercialize these fuels because critical changes to biofuels policy have not been forthcoming to advance the biofuels industry including the introduction of new biofuels. Vegetable oil crushers are closely monitoring this business and waiting for market opportunities. Argentina would naturally use soybean oil as the main feedstock if a renewable diesel/SAF industry were to emerge. Currently, the conditions to attract investment do not exist.

A medium biodiesel plant in Rosario developed a technology to produce waste stream biodiesel derived from sewage. This is the only pre-pilot level, commercial development known to date of advanced biofuels in Argentina. Regarding SAF, most local fuel distributors are slowly testing different blends and technology to eventually have certified its production, use and commercialization.

One of the large multinational grain traders has recently invested in a local company specialized in the production of camelina. The idea is that together with canola, they want to produce a lower GHG emissions biofuel. The company has a plant in southern Buenos Aires Province for the extraction of oil.

There is no commercial production or use of cellulosic biofuels due to program stagnation and lack of any forward-thinking policy support, and the production or research of such fuels is practically non-existent.

Attachments:

No Attachments

Attachments:

No Attachments