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Biofuels Annual

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Report Highlights:
Argentine fuel ethanol production and consumption are forecast to increase to a record 1.15 billion liters in 2018 as the local industry expands in order to fulfill the official quota and a growing demand of gasoline. Biodiesel production in 2018 is forecast at 2.76 billion liters, a drop from the previous two years because of expected lower exports. The US government set in late 2017 anti-subsidy duties and in April 2018 anti-dumping duties on biodiesel coming from Argentina. In practice, this means that local biodiesel will not enter the United States. During the first seven months of the year, there were large volumes of biodiesel exported to the EU. However, following a complaint from the European industry, Argentine biodiesel imports could be affected by higher import duties in the near future. At the same time, the Argentine government has increased biodiesel export taxes from 8 to 15 percent, effective July 2018.

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I. Executive Summary

Argentina is an active participate in the Paris Climate Agreement and COP23, setting out targets to reduce greenhouse gas emissions (GHG) in the future. In its efforts to address climate change, the government has set a special focus on renewable energy through Law 27,191 of 2015, creating conditions to attract and encourage large investment. Investments cover different types of energy, but there is a special interest in wind and solar energy. In support of the above commitment, the country has a biofuels regulatory framework in place since 2007 which sets blend mandates for biodiesel and bioethanol that have been in place since early 2010. After several modifications throughout the years, the current mandate mixes are 12 percent for bioethanol in gasoline and 10 percent for biodiesel in diesel. The Secretariat of Energy sets monthly prices for biodiesel, grain ethanol, and sugarcane ethanol supplied to the oil companies under the mandate.

Argentina's relatively small fuel ethanol industry is expanding to fulfill the mandate (which has increased overtime) and a growing fuel pool. The industry does not export, and there have been no imports in past years because they are prohibited unless authorized (as in the recent past). On the other hand, the Argentine biodiesel industry is one of the largest in the world and its initial growth was mainly supported by exports. In the past ten years, it has had a strong presence in the European Union (EU) and United States. However, exports to the United States were curtailed last year due to high countervailing and anti-dumping duties. Shipments to the EU, which resumed in September 2017, after being prohibited since 2013 due to anti-dumping duties, are flowing normally for now, but the industry believes there is a strong possibility that the EU may enact new duty measures which would again impact sales.

Bioethanol for Fuel Use: Argentine bioethanol production and consumption for 2018 are forecast to rise to a record 1.15 billion liters. Consumption is reaching a national average blend rate of 11.8 percent, just shy of the 12 percent target effective in 2016. This record volume is mainly the result of growing gasoline demand while the blend level is only slightly increased. The Biofuels Law and its promotional regime were put in place in early 2010, with an initial mandate mix of 5 percent of bioethanol in gasoline. The mandate has increased incrementally since then and in 2016 reached the current 12 percent.

The existing law requires that half of the bioethanol mandate must be supplied by the corn ethanol sector, which is a relatively new sector. There are five plants located in rich, corn cropland and they are operating at virtually full capacity. These plants are investing in expanding their production and storage capacity. The other 50 percent of the bioethanol mandate must be supplied by the sugarcane industry, which is located in the northwestern part of the country. Ten sugar mills can produce bioethanol, but a few of them might not operate this year. In order to facilitate significant investment in increasing bioethanol output, the government would have to make important policy changes, such as transition to 15, 20 or 27 percent bioethanol mix and/or authorize the use of flex fuel cars to consume higher blends of pure ethanol. Most analysts have doubts this could happen in the short term. The promotional regime which is highly regulated expires in April 2021, and the government has indicated that it would like to allow market conditions to play a more active role in the expanding the use of alternative fuels.

In 2018 and for the first time, Argentina will import five million liters of bioethanol for fuel use. This is a

stopgap measure to address a temporary supply problem, and not the result of a change in management policy. During the first months of the year, the sugar industry had problems to supply their total assigned quota so the government 'authorized' oil companies to temporarily import bioethanol to avoid a drop in blending. The sugar harvest began in May and was at full swing in June. Most sector analysts believe it will not be necessary to import additional volumes. These shipments come from Brazil and do not pay duties, due to preferential access terms under Mercosur.

Biodiesel: Biodiesel production in 2018 is expected to fall to 2.76 billion liters, the lowest of the past three years. While consumption is forecast to continue to increase to a record 1.48 billion liters, exports are expected to be the lowest since 2015. The record consumption is due to projected larger diesel sales and a slightly higher blend rate. Blending has finally reached the 10 percent goal (4 years late) for on-road and agriculture in 2018, but there has been no progress meeting the same goal set for power generation. The official biodiesel mandate is expected to continue at 10 percent, although producers are pushing for an increase to 12 percent, the same level as bioethanol.

Exports are expected at 1.35 billion liters. Although shipments to the EU were very strong during the first 7 months of 2018, after the reduction of duties in late 2017, most contacts are afraid that shipments to that market will drop significantly after August-September. Earlier in the year, the EU, following a complaint from the European Biodiesel Board, initiated an anti-subsidy investigation against Argentine biodiesel. As such, most contacts expect an eventual increase in import duties. At the same time, the Argentine government increased the biodiesel export tax from 8 to 15 percent, effective late July 2018. Some analysts believe that the government wants to eliminate differential export taxes to aid negotiations with the United States and the EU to eliminate penalty duties. By December 2019, biodiesel and soybean oil export taxes will be 15 percent each. The combination of higher export taxes and higher EU import duties, are expected to reduce dramatically Argentine biodiesel exports to the EU. Consequently, production will also be negatively affected.

In April 2018, the US International Trade Commission published a ruling that imports from Argentina are subject to a 60.44-86.41 percent anti-dumping duty. On December 2017, the US Department of Commerce set final anti-subsidy duties of 71.45-72.28 percent on imports from Argentina. The impact of these duties combined, in practice, means that Argentine biodiesel will not enter the US market over the next five years while these measures are in force.

II. Policy and Programs

Renewable Energy, Greenhouse Gas (GHG) Emissions and Other Environmental Issues

Argentina, a member of the Paris Climate Agreement and participant in COP23 in Germany in November 2017, targets to reduce GHG emissions unconditionally by 18 percent and 37 percent conditionally by 2030 over the 2005 baseline. Moving in this direction, Argentina has in place several laws and programs which focus in reducing GHG emissions by diversifying the energy matrix to boost renewable energy use and improve energy efficiency. These laws include Law 27,191 of National Support for the Use of Renewable Sources of Energy passed in 2015. The Law established that beginning of 2018, 8 percent of Argentina's total consumption of electricity has to come from renewable sources, but this target had to be postponed somewhat until the new investments come online. The Secretariat of Energy mandates that by the end of 2019, at least 12 percent of the total demand of electricity will be supplied from renewable sources. The Law also establishes that the share of renewable energy in total energy use has to increase to at least 20 percent by 2025. The Renewable Energy Plan - RenovAR - is attracting large investments, primarily in wind and solar but also including biomass

energy (with more than 150 bids/contracts already approved). Based on Bloomberg New Energy Finance (BNEF), there was $1.8 billion invested in clean energies in Argentina in 2017, up 777 percent from the previous year. Argentina has very good wind resources in the southern Patagonian region and strong solar radiation in northwestern provinces. In addition, the government, through the Ministry of Agriculture, has in place a program called Probiomasa by which it encourages the production of energy with biogas and biomass through renewable energy tenders. The Biofuels Law 26,093 of 2006 is also part of the country's efforts to reduce GHG emissions through the biofuel mandate mix on fossil fuels. This law mandated the use of biofuels beginning in 2010, with an obligatory mix of five percent blend of ethanol in gasoline and five percent blend of biodiesel in diesel. This goal was largely met on schedule for biodiesel, but the goal was met three years late for ethanol. The main objectives of this framework are to diversify the supply of energy, to foster environmental conservation, and to promote the development of rural areas (primarily nontraditional production areas), especially for the benefit of small and medium sized agricultural producers.

In January 2008, Congress passed Law 26,334, which promoted the production of bioethanol from sugarcane. This law allowed sugar mills to participate under the biofuel promotional regime, maintaining the basic norms and regulations of the biofuel law.

There are no specific environmental or social/economic sustainability criteria for biofuels in Argentina. However, as the country is a major exporter of biodiesel, the government closely monitors other countries' criteria and regulations in order to avoid restrictions on its exports.

The EU established through its Renewable Energy Directive (RED) that biodiesel from soybean oil does not automatically meet the minimum GHG emissions savings level now raised to between 50-60 percent. Argentina challenged this decision. The government presented a study in which it takes into account the extensive adoption of no-till cropping, the short distance from the farms to crushing facilities, refining and port facilities, and its modern and efficient industries. CARBIO, the Argentine Chamber of Biodiesel, presented to the EU a voluntary certification scheme addressing all their requirements. After the resumption of exports to the EU in September 2017, certificates granted by the International Sustainability and Carbon Certification system (ISCC), or the French 2BS biomass biofuel sustainability voluntary scheme now, accompany Argentine exports.

In the case of the United States, EPA's rulemaking currently establishes that soybean-based biodiesel meets the 50 percent reduction in GHG emissions required to qualify for the biomass-based diesel category. However, Argentine suppliers must still prove that land used to supply biofuel feedstock was cultivated prior to 2007 using a robust monitoring and tracking system to ensure no direct land use change has occurred. In late January 2015, EPA approved a certification scheme presented by the Argentine biodiesel chamber (CARBIO) permitting Argentina to export biodiesel made of soybeans produced on land which was not cultivated or cleared after 2007, and hence eligible to generate RINs and meet obligations (mandates) under the RFS. However, there were seven large biodiesel export plants registered with EPA (well before CARBIO's approval) with approved pathways.

Mandates, Official Prices and Taxes Since 2007

A) Blend Mandates

In January 2010, the mandate mix was officially implemented, with 5 percent bioethanol in gasoline and 5 percent biodiesel in diesel. In December 2013, the government announced that the mandatory biodiesel blend would be increased to nine percent in January 2014 and to ten percent in February 2014. In this announcement, a ten percent biodiesel blend requirement for power generation plants was added for the first time, which could technically use biodiesel in the mix.

In April 2016, Resolution 37 of the Ministry of Energy established that gasoline had to be mixed at a minimum with 12 percent bioethanol and diesel mixed with a minimum 10 percent biodiesel. In the case of bioethanol, the additional increase of 2 percentage points had to be supplied by the sugar industry. From then on, the grain and the sugar industries split in halves the total supply of bioethanol to gasoline distributors.

The goals for both biofuels were almost met in 2017, with bioethanol at 11.6 percent and 9.7 percent for biodiesel. This blend statistic for biodiesel covers the diesel market which is mainly on-road transport, off-road agriculture, off-road construction, and rail (excluded are power generation, which varies every year and is very dependent on weather, and mining and shipping which together demand approximately 700 million liters). A biodiesel mandate for power generation was added in 2014 but never enforced. Adding diesel used in power generation drops the national average blend rate to 8.8 percent in 2017. Estimates for 2018 indicate blend rates for both fuels will rise slightly, with ethanol falling just shy of the target at 11.8 percent and biodiesel rising just above the target at 10.3 percent (when power generation is excluded). Adding power generation to the mix where no biodiesel is used, the blend remains under target at 9.1 percent.

B) Official Prices

In January 2010, the mix of bioethanol with gasoline was implemented and in March, the biodiesel mix was effectively put in place. The Secretary of Energy set the official price for both biofuels by which producers had to sell to fuel companies under the mandate. In August 2012, the official domestic price was lowered leaving aside the original formula (which took into account production costs) to calculate the price, and a monthly system of price setting was established.

In September 2014, through Resolution 44/14, the Secretariat of Energy created a differentiated price for bioethanol depending on the feedstock used (until then, there was only one price). Therefore, through the publication of new price formulas, grain ethanol was priced lower than that of sugarcane ethanol. In December 2014, the first differentiated price was published.

As of January 2018, there is only one price for biodiesel that the plants supplying to fulfill the mandate have to sell to oil companies. Until then, there were differentiated biodiesel prices based on the size and production volume of each plant, with the smaller plants receiving a higher official price. In early July 2018 the official price of biodiesel was US$720 per ton (AR$20,944 per ton), and for grain ethanol it was US$550 per 1,000 liters (AR$15,919) and US$660 per 1,000 liters (AR$19,143) for sugarcane ethanol.

C) Taxes

In mid-2014, Congress passed Law 23,966 suspending until the end of 2015 a 19 percent tax on biodiesel sold at the pump and a 22 percent tax on biodiesel to subsidize power generation. The idea was that this suspension would last until the countervailing duties applied by the EU to Argentine biodiesel were removed. These

exemptions were extended for the whole of 2016 and 2017.

In December 2017, the Argentine Congress passed Law 27,430 of Tax Reform, which among many changes, modified the tax structure of fuels. It also took into account, for the first time, the environmental impact of the use of fuels. As of March 2018, fuels are impacted by two taxes (before they were four): tax on liquid fuels and tax on carbon dioxide (with the objective of discouraging fossil fuels use and encouraging renewable energies). Diesel and gasoline now have a fixed tax that will be adjusted by inflation. Biofuels, either pure or in fuel mix, are exempted.

Financial Supports for Producers and Consumers

There are no direct incentives, such as credits, subsidies or grants to biofuels producers. However, other forms of support are provided through tax rebates and reductions. Biofuels Law 26,093 provides incentives (tax breaks) that encourage greater biodiesel and bioethanol production via the biofuels promotional regime for domestic use. However, this promotional regime has never been put in practice for investments and will expire in April 2021.

As indicated above, the new Tax Reform Law of December 2017 established that biofuels, in either mixes or pure are exempted from two taxes that are levied on fossil fuels.

A factor that contributed to the expansion of the biodiesel industry since its inception has been the differential export tax on biodiesel relative to soybean oil. The tax difference between the two commodities has fluctuated significantly as biodiesel taxes during a long time were adjusted every month. In December 2015, the soybean oil export tax was reduced by 5 percentage points and beginning January 2018 the tax will fall by 0.5 percentage points per month until December 2019. The biodiesel export tax is no longer “flexible” and it was increased to 15 percent as of July 2018.

In mid-2017, in order to encourage the sale of electric, hybrid and hydrogen cars, the Argentine government decreed that import duties for these type of cars sold by manufacturers would pay between 0-5 percent instead of the regular 35 percent duty.

Research Initiatives/Alternative Energy Policies

Biofuels research in Argentina is quite limited. The Ministry of Agriculture, through its research agency INTA, conducts and coordinates most of the research in biofuels. The latest research has focused on the carbon footprint of local gasoline, which has a 12 percent content of bioethanol (of which half of it is from corn). The results indicate that bioethanol from corn reduces GHG emissions up to 65 percent, primarily due to the widespread use of no-till cropping and to the limited need to dry the corn once harvested as it normally left on the stalk to dry. INTA has also made an agreement with the Buenos Aires Grain Exchange to estimate with greater accuracy the GHG emissions of soybean plantations. A group of state universities together with INTA is working in the development of corn hybrids to obtain higher ethanol production and maintain good grain yields.

Import Policy Including Duties/Export Taxes and Levies

Based on the Biofuels Law and its promotional regime, ethanol-supplying companies should be of Argentine origin specifically authorized to participate under the official mandate. This places an effective ban on fuel ethanol imports unless specifically authorized by the Secretariat of Energy.

The following table shows ethanol and biodiesel import, export and rebate rates (June 2018):

Product	Import Duty Extra Mercosur %	Import Duty Intra Mercosur %	Export Duty %	Export Rebate %
Ethanol (2207.10 & 2207.20)	20.0	0.0	0.0	4.05
Biodiesel, <B30-100 (3826.00)	14.0	0.0	8.0	0.0
Biodiesel, B1-B30 (2710.20)	0.0	0.0	0.0	0.0

Note: () HTS code

In August 2012, a "flexible export tax" for biodiesel to be modified on a monthly basis was put in place. In December 2015, the government removed export taxes on all crop commodities (corn went from 20 percent to zero), except for soybeans and their products, which were cut by 5 percentage points (soybeans dropped from 35 percent to 30 percent, and oil and meal from 32 percent to 27 percent). In June and July 2017, a flexible export tax on biodiesel was set at 0 percent (from 0.13 percent in May) which lasted through the end of the year. In July 2017, soybean oil exports were taxed 27 percent and biodiesel exports at 0 percent.

Under Decree 1343/17, the export tax on soybean oil, soybean meal and soybeans will drop by 0.5 percent per month from January 2018 until December 2019 (as shown in the table below). Therefore, in January 2020 the export tax on soybean oil and soybean meal will be 15 percent and soybeans at 18 percent.

In January 2018, the government eliminated the flexible export tax on biodiesel that used to be revised on a monthly basis, with a fixed, set amount at 8 percent (effective tax of 7.41 percent). In May 2018, the government announced that as from July 2018, the export tax on biodiesel would be 15 percent (effective tax of 13.04 percent).

The following table shows biodiesel, soybean oil and soybeans export taxes in the past 12 months:

MONTH	BIODIESEL % Export Tax*	SOY OIL % Export Tax	SOYBEANS % Export Tax
July '18	13.04 (15.0)	23.5	26.5
June	7.41 (8.0)	24.0	27.0
May	7.41 (8.0)	24.5	27.5
April	7.41 (8.0)	25.0	28.0
March	7.41 (8.0)	25.5	28.5
February	7.41 (8.0)	26.0	29.0
January '18	7.41 (8.0)	26.5	29.5
December '17	0.0	27.0	30.0
November	0.0	27.0	30.0
October	0.0	27.0	30.0

September	0.13 (0.13)	27.0	30.0
August	0.0	27.0	30.0
July ' 17	0.0	27.0	30.0

*effective tax; in (x.x) nominal terms
Source: Argentine Government

III. Gasoline and Diesel Pools

Fuel Use History (Million Liters)										
Calendar Year	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018f**
Gasoline Total	5,760	6,240	6,970	7,470	8,160	8,080	8,510	8,750	9,300	9,800
Diesel Total	13,735	15,451	16,232	15,308	16,340	15,214	15,950	16,041	15,100	16,300
On-road + off-road ag, construction, rail	na	na	na	na	na	na	na	na	13,000	na
Mining	na	na	na	na	na	na	na	na	200	na
Shipping	na	na	na	na	na	na	na	na	500	na
Power Generation	975	1,671	2,002	1,817	2,590	1,794	2,230	2,381	1,400	1,900

f: forecast; na: not available
Source: Private estimate based on official data (Secretariat of Energy) and other sources

There were approximately 13.3 million vehicles (cars, light and heavy trucks) running in Argentina in 2017, with an average age of almost 12 years. The report issued by AFAC (the Association of Manufacturers of Components) also indicated that the number of vehicles (85 percent cars, the balance trucks and buses) grew 6 percent from 2016 and 30 percent from 2011. Of the total, almost 50 percent run on gasoline, 35 percent on diesel, and the remaining on compressed natural gas (which most can also run on gasoline). There were only 400 hybrid cars circulating in Argentina. Electric vehicles (EVs) are being launched to the market in 2018, but availability of fueling stations will limit EV expansion unless large investments are forthcoming. Of the new cars sold in 2017, 78 percent run on gasoline and only 22 percent on diesel. This clearly shows the trend of a significant reduction in the use of diesel cars vis-à-vis cars running on gasoline. Although Argentina manufactures flex-fuel cars for the export market (primarily Brazil), these cannot be sold in the market, but there are rumors that they will be allowed over the next few years. Important investment in logistics and fuel distribution will have to be made to accommodate flex fuel cars and EVs.

The consumption of gasoline and diesel is closely tied to the country's economic dynamics. The consumption of fuel is primarily for on-road use (cars, buses and trucks). The agricultural sector is also an important consumer of fuel due to long farm-to-city distances. The country was energy self-sufficient until several years ago but the combination of declining oil and gas production together with growing demand forced the country to import natural gas, gasoline, and diesel. In 2017, Argentina imported 1.4 billion liters of diesel for power generation, especially in demand when hydropower is limited due to drought. Contacts indicate that this volume could grow in 2018. The Secretariat of Energy, through Resolution 660/15, excludes mining and shipping from using diesel mixed with biodiesel.

Total fuel sales reached a new record in 2017. There continues to be a clear trend by which gasoline is gaining market share vis-à-vis diesel. In 2017, gasoline accounted for approximately 53 percent of fuels sales against 47 percent of diesel. Premium gasoline and diesel are rapidly gaining market share.

The government wants Argentina to become a more energy efficient country. Improving the efficiency of transportation and vehicles is also a major challenge. Roughly 85-90 percent of the cargo in Argentina is moved

by truck which is significantly less efficient than train or barge. The government has a very ambitious project called Plan Belgrano, in which one of its main goals is to connect the northern regions of Argentina with the ports of Rosario and Buenos Aires with improved train services and modern highways.

The government is seriously considering implementing an ethanol fuel market similar to Brazil's in the next few years (with its duel market for E27 and pure hydrous ethanol), and the country is still working on becoming more fuel-efficient. Currently, engines have no limitations on minimum mileage efficiency, and the sale of flex fuel cars is prohibited. Hybrid and electric cars are just beginning. In May 2017, the government reduced the import tax on hybrid and electric cars from 35 percent to 0-5 percent (depending if they are finished cars or the grade of assembled parts they have) for the next three years to encourage sales. It also works with car manufacturers providing incentives to assemble such cars in the country. Argentina is one of the top world's lithium producers, a key element for electric batteries for cars.

IV. Ethanol

Ethanol Used as Fuel and Other Industrial Chemicals (Million Liters)										
Calendar Year	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018f**
Beginning Stocks	na	na	na	na	na	na	na	na	na	na
Fuel Begin Stocks	0	20	27	36	48	45	53	64	44	72
Production	na	na	na	na	na	na	na	na	na	na
Fuel Production	23	125	174	250	472	671	815	890	1,105	1,150
Imports	na	na	na	na	na	na	na	na	na	na
Fuel Imports	0	0	0	0	0	0	0	0	0	5
Exports	na	na	na	na	na	na	na	na	na	na
Fuel Exports	0	0	0	0	0	0	0	0	0	0
Consumption	na	na	na	na	na	na	na	na	na	na
Fuel Consumption	3	118	165	238	475	663	804	910	1,077	1,155
Ending Stocks	na	na	na	na	na	na	na	na	na	na
Fuel Ending Stocks	20	27	36	48	45	53	64	44	72	72
Production Capacity (Million Liters)										
Number of Refineries	3	9	9	11	12	14	14	14	14	14
Nameplate Capacity	120	215	355	600	680	880	950	950	1,200	1,270
Capacity Use (%)	19%	58%	49%	42%	69%	76%	86%	94%	92%	91%
Co-product Production (1,000 MT)										
DDGs	0	0	0	0	125	280	360	370	415	475
Feedstock Use for Fuel (1,000 MT)										
Corn*	0	0	0	49	400	890	1,150	1,175	1,325	1,515
Molasses**	93	510	705	935	1,240	1,220	1,365	1,625	2,250	2,100
Market Penetration (Million Liters)										
Fuel Ethanol	3	118	165	238	475	663	804	910	1,077	1,155
Gasoline	5,760	6,240	6,970	7,470	8,160	8,080	8,510	8,750	9,300	9,800
Blend Rate (%)	0.1%	1.9%	2.4%	3.2%	5.8%	8.2%	9.4%	10.4%	11.6%	11.8%

f: forecast; na: not available
Source: Private estimation based on data from the Secretariat of Energy
* 1 MT of corn yields 417 liters of ethanol
**Mills mostly use molasses but also can directly use sugarcane. Due to lack of data and to simplify, we assume only molasses is used with a conversion rate of 1 MT molasses yields 246 liters.
DDGs (Dry Distiller's Grain Soluble)
Source: Private estimate based on official data

Consumption

Argentina's fuel ethanol market has grown rapidly over the past decade with blend rate increases compounded

by a rapidly growing fuel market. Argentina is expected to consume a record 1.15 billion liters of bioethanol for fuel use in 2018. With little year-over year increase in the blend rate, this is primarily the result of increased gasoline demand, which in the first few months of the year increased over 5 percent. Gasoline consumption is expected to continue growing primarily because of large sales of new cars in the current and past few years, and to an increasing share of engines running on gasoline vis-à-vis diesel.

The bioethanol official mandate is currently at 12 percent. In 2017, the nationwide average mix achieved was 11.6 percent and a slightly higher mix of 11.8 percent is estimated in 2018. There is speculation about a potential increase of the mandate to 15 percent, or the implementation a flex fuel system with a higher overall blending. The current government has indicated that the biofuels promotional regime expires in early 2021 and that it would allow market conditions to play a more active role in the expanding use of alternative fuels.

In 2018, and for the first time, the government allowed oil companies to import bioethanol temporarily to avoid a drop in blending. Some contacts speculate that this exemption – 5 million liters of bioethanol which will soon arrive from Brazil – could end up being somewhat larger by year's end. The sugar industry initiated the new crop season in May/June. The corn ethanol sector has been operating nearly at full capacity.

Sector contacts indicate that the government will soon initiate a "Roundtable for the Competitiveness of Ethanol" where public and private sectors will discuss current issues and the future of the sector. The main participants will be ethanol processors, fuel distributors, car manufacturers, and government officials. Most car manufacturers are not supportive of any further increase of the mandate blend due to potential problems with existing engines and the extension of warrantees. Ethanol producers have completed studies which demonstrate that gasoline can be blended with 12, 15, and 20 percent ethanol without affecting newer engines. The case of neighboring countries Brazil and Paraguay are good examples that support blends of 27 percent of ethanol with no problem. Brazil and Argentina share the same car models as automotive companies have plants in both countries and complement each other through large in-company trade. Contacts indicate that the government would prefer to eventually make a big leap in the mix, for example, from 12 percent to 25 percent or even to flex fuel, rather than increasing blending further in small increments. Key factors to support a large increase is the need for large investments in marketing chain storage and distribution systems (especially at the retail level), and large investments in bio refinery production capacity. To achieve fuel ethanol penetration levels as high as currently exist in Brazil, Argentina would have to expand its production capacity and feedstock use four fold if the market remains insular and imports are prohibited.

Production

Production covers all domestic fuel ethanol use since there is no trade, rising in line with consumption as the market grows. In 2018, production is forecast to rise to a record 1.15 billion liters. This represents a small increase from last year, but significantly higher than the previous years. The main reason for the small expansion is that the mandate mix on gasoline has remained unchanged for over two years. Demand and supply of fuel ethanol are quite balanced, with total production capacity running over 90 percent.

Argentina also produces approximately 130 million liters of alcohol for industrial and potable use (not included in the ethanol table) for its domestic market. Most production is made by sugar mills, but there is a plant in Cordoba that utilizes grains and has a production capacity of 50 million liters a year. The main use of this alcohol is for beverages, pharmaceutical, cleaning, cosmetics, and paints.

The sugar industry had some supply problems during the first months of 2018 because the government

lowered the official mandate price and individual company quotas were not distributed in the latter part of 2017. In addition, extreme heavy rainfall in February affected production and logistics especially in Salta and Jujuy provinces. The mandate requires that both the corn and sugarcane sectors supply the official quota in halves. However, in 2018, the corn sector is expected to total 55 percent of the quota and the sugarcane sector the balance because of the supply problems that affected the sugar mills. Most contacts believe that sugar mills will not be able to recover throughout the year the volume they did not supply in the first months of the year.

Bioethanol production capacity has been growing in the past few years, driven by the official mandate. Despite lower official ethanol prices, both the corn and sugarcane ethanol producers remain profitable. However, the adding of new capacity has started to slow down due to uncertainty of what the policy will be over the next few years and after the promotion regime expires in April 2021. Also weighing on investment, the official price that was lowered significantly in late 2017.

The country's production capacity is expected to increase 150 million liters to 1.4 billion liters over the next 2-3 years, supported by the expansion of the existing grain ethanol plants and sugar mills. The five plants that use grain as feedstock are reportedly expanding their capacity to 600 million liters in 2018 and to 660 million liters for 2019. The grain ethanol plants, currently operating near full capacity, were all inaugurated during 2012-2014. Three sugar mills are expanding their ethanol production, primarily in distillation capacity, which could add some 40-50 million liters of production over the next 2-3 years. If gasoline consumption continues to increase at five percent a year and the mandate mix remains at 12 percent, the ethanol sector can meet demand without problems and without the need for imports during the next 3-4 years.

The Secretariat of Energy distributes quotas per company and sets every month an official price that oil companies have to pay to bioethanol suppliers. Regulations also establish that half of the bioethanol under the program must be supplied by the sugarcane industry and half by grain bioethanol producers. In July 2018, the average official price of bioethanol was roughly $0.55 per liter for corn-based and $0.66 per liter for sugarcane-based, higher than in Brazil and the United States.

In 2018, there are 10 sugar mills located in the northwestern provinces of Tucuman, Salta and Jujuy with an official quota to supply bioethanol to fuel distributors under the mandate. So far, regulations establish that bioethanol for the official quota has to be dehydrated. Mills use mostly molasses but also can use directly sugarcane, depending on the convenience and returns of their different businesses (typically vis-à-vis sugar exports). At current market conditions, mills prefer to sell sugar to the domestic market, followed by bioethanol and lastly, exporting sugar.

The other half of the bioethanol mandate must be supplied by the grain ethanol industry. There are five plants distributed in the main corn area in the center of the country. Although most plants can use different feedstock, they use almost exclusively corn, being the most efficient under current market conditions. Argentina produces, consumes and exports significant volumes of sorghum, but so far, its use for bioethanol production has been insignificant.

All five-grain ethanol plants have the capability to dry the distilled grains. Each company decides the volume they dry, based on market opportunity, and sometimes, the availability of natural gas especially in winter. In 2018 roughly 70 percent will be marketed as DDGS, while the balance will be wet which is sold to nearby feedlots and dairies. DDGS are currently sold domestically to feed mills, feed additive companies and feedlots, which are far from bioethanol plants but still, prefer to use them. Three of the plants currently export DDGS to

neighboring Uruguay, Chile and Ecuador. Sugar mills continue to make improvements in reducing the negative impact of vinasse, a byproduct of the distilleries, which is a significant environmental problem.

Trade

In past years, the government has not authorized the import of ethanol for fuel use. However, Argentina does import ethanol mostly for use as other industrial chemicals and some beverage ethanol as well. Most of the product is undenatured (hydrous) shipped under HTS 2207.10, but denatured ethanol is also imported (HTS 21207.20). Total ethanol imports rose from 4 million liters in 2016 to 16 million liters in 2017 with virtually all supplied by Bolivia. From 2010-12, annual imports were also higher ranging from 7 million liters to as high as 22 million liters; the main suppliers were Brazil and Bolivia. From 2013 thru 2015 and in the decade leading up to 2010, annual imports were typically well under one million liters.

However, despite the practice of not permitting the use of imports to fulfill the fuel blend mandate, the government has for the first time authorized a small volume of imports in 2018 to maintain the E12 target. Argentina is expected to import 5 million liters of anhydrous ethanol to fill a temporary shortage that the sugarcane industry was supposed to cover. The importers are two fuel distributors and an international commodity trader who sourced the ethanol from Brazil. While most players believe this was a one-time event because the sugar harvest (and thus the production of ethanol) has already begun, a few analysts believe that two or three more boatloads could be imported during the year.

From 2000 to 2010, Argentina's ethanol exports (nearly all undenatured) ranged from 50 to 100 million liters a year. Chile, the United States, Uruguay, the EU, Japan were all at times major buyers. Once the biofuel mandate was in place in early 2010, Argentine's exports dropped significantly (to the 6-22 million liter/year range), as most production surplus was redirected to supply the domestic fuel ethanol market, which was more profitable due to official price setting. In 2017, ethanol exports were 16.2 million liters. In the past several years, Chile has remained the main destination by far, but Uruguay, the United States, and the EU (mainly France), and Mexico are also buyers. Given the destinations it is clear that most all the product is used in non-fuel, other industrial chemical applications and perhaps some as beverage, although possibly some has been used as fuel in France.

Bioethanol imports (HTS 2207.10 and 2207.20) from member countries of Mercosur (the Southern Cone Common Market) are duty free, while imports from countries outside Mercosur pay 20 percent. Ethanol exports have no export tax and enjoy a 4.05 percent rebate. The European Union and Mercosur have been negotiating for many years now a free trade agreement (FTA). Ethanol exports to the EU are one of the key issues which is yet to be resolved. A quota of about 600 million liters of ethanol is in discussion. A few months ago, most contacts indicated that they were confident a final FTA agreement would be reached, but they are now more skeptical.

V. Biodiesel

Biodiesel (Million Liters)										
Calendar Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018f
Beginning Stocks	40	75	20	20	55	24	44	59	52	102
Production	1,360	2,070	2,760	2,800	2,270	2,935	2,060	3,020	3,260	2,760
Imports	0	0	0	0	0	0	0	0	0	0
Exports	1,305	1,545	1,910	1,770	1,296	1,815	895	1,847	1,875	1,350
Consumption	20	580	850	995	1,005	1,100	1,150	1,180	1,335	1,480
Ending Stocks	75	20	20	55	24	44	59	52	102	32

BalanceCheck	0	0	0	0	0	0	0	0	0	0
Production Capacity (Million Liters)										
Number of Biorefineries	22	24	27	33	36	38	38	38	37	37
Nameplate Capacity	2,300	2,800	3,300	4,000	4,550	5,200	5,200	5,400	5,000	5,000
Capacity Use (%)	59.1%	73.9%	83.6%	70.0%	49.9%	56.4%	39.6%	55.9%	65.2%	55.2%
Feedstock Use for Fuel (1,000 MT)										
Soybean oil	1,200	1,820	2,430	2,460	2,000	2,600	1,820	2,670	2,870	2,430
Market Penetration (Million Liters)										
Biodiesel	20	580	850	995	1,005	1,100	1,150	1,180	1,335	1,480
Diesel*	12,760	13,780	14,230	13,491	13,750	13,420	13,720	13,660	13,700	14,400
Blend Rate (%)	0.2%	4.2%	6.0%	7.4%	7.3%	8.2%	8.4%	8.6%	9.7%	10.3%

f = forecast

*Covers the biodiesel-diesel pool (on-road and off-road agriculture account for most use, but also includes other off-road uses in construction and rail) except for power generation, mining and shipping which are excluded. Use of biodiesel was added as a mandate to power generation (where practical) effective 2014, but was never enforced.

Source: Private estimate based on official data from Secretariat of Energy

Consumption

Biodiesel consumption is expected to rise to 1.48 billion liters in 2018. Since the implementation of the biodiesel mandate in 2010, consumption has broken records every year. The official mandate (unchanged since 2014) is expected to remain at 10 percent, and the actual achieved blend rate is expected to inch higher to 9.1 percent in 2018. Most of the expected increase in biodiesel use is driven by rising diesel sales. Post expects some small increase in demand outside the mandate as a few programs utilizing larger mixes of biodiesel have started. With the elimination or sales to the United States this year and the elevated threat of increased EU border protection, the biodiesel industry is looking for market alternatives to keep the plants running at the highest capacity possible. Some bus and truck companies (and rice producers operating water pumps) are starting to use more biodiesel.

The total diesel pool (including for power generation) is projected to increase eight percent year-over-year to 16.3 billion liters in 2018. However, total use minus power generation (mostly for on-road use and off-road agriculture use) is expected to grow at the slower pace of five percent to 14.4 billion liters in 2018. Diesel use in power generation is projected to reach 1.9 billion liters in 2018, a 36-percent increase from the previous year. Since early 2014, policy requires B10 use in power plants (if technically feasible), but so far none has been used. Therefore, if diesel for power generation is not considered, the nationwide average biodiesel blend rate (mostly driven by on-road transport and agriculture) was 9.7 percent in 2017, and is expected to reach 10.3 percent in 2018. Adding diesel used in power generation lowers national average rates to 8.8 percent and 9.1 percent, respectively.

With biodiesel exports on the decline due to disputes with the United States and the EU, the sector is advocating a blend mandate increase from 10 to 12 percent, the same mix implemented for fuel ethanol in 2016. Until a few months ago, oil companies and auto manufacturers resisted this strongly. However, contacts currently believe that oil companies are more open to the idea because under current market conditions it would be profitable for them. Car manufacturers continue to oppose any blend increase, as they are concerned about engine warrantees. The use of biodiesel for power generation is expected to remain practically at zero. However, some contacts believe that if exports drop dramatically, the government could put pressure on this sector to start using biodiesel. This is a potential market of 150-250,000 million liters of biodiesel per year using B10.

There are some independent projects to expand the use of biodiesel. As an example, the provincial

government of Santa Fe, where 80 percent of the country's biodiesel is produced, recently launched an initiative by which 400 buses will run on diesel mixed with 25 percent biodiesel. They already tested the use of a 20 percent biodiesel mix with success. If the new program is also successful, the provincial government together with biodiesel producers will present the findings to the federal government to encourage its adoption in the entire country. Two international truck and farm equipment manufacturers support the use of biodiesel in different mix levels. The government of the province of Buenos Aires is also actively working in expanding the use of biodiesel to reduce air pollution, make better use of resources, and add value to its agricultural production. Examples of these are the use of cooking oil in many counties around the province, and the use and testing in some of its own machinery and equipment. Other projects include higher blends for grain truck fleets servicing ports, and use in water pumps for rice fields.

Production

Biodiesel production for 2018 is forecast to decline to 2.76 billion liters, lower than the previous two years, but the fifth largest volume since the industry started eleven years ago. Production volume remains highly dependent on exports and therefore highly variable given the history of both trade opportunity and trade policy actions taken by the EU and United States. By comparison, domestic consumption has remained mostly smaller with a more even expansion record.

Only once, in 2015, has Argentina consumed more than it exported. This may repeat again in 2018, when a little less than half of the biodiesel produced is expected to be exported and slightly more than half is expected to be sold in the domestic market. Production in the first semester of 2018 will be significantly larger than that of the second semester, because exports to the EU were very active in the first 7 months but are now expected to diminish greatly after August-September. If Argentina does not solve its trade disputes by the end of this year with the United States and the EU to secure some significant level of access, there will be a significant negative impact on production in 2019 because the local market can only absorb one-third of current production in the immediate to medium term. Foreign demand for discretionary blending (which occurred most recently in 2014) could soften the landing, but crude oil prices would have to remain high or rise further if we are to see this market develop in a meaningful way.

Biodiesel production capacity is estimated at 5 billion liters, equal to last year and a small reduction from past years. Most small plants are operating at a high capacity to supply the mandate, while much larger, almost exclusively export-oriented plants are operating at lower use rates. There are 37 biodiesel plants in Argentina with the largest having a capacity of up to 700 million liters per year. The largest ten companies account for over 70 percent of the country´s capacity. The balance is distributed among 30 smaller companies, with plants with a capacity ranging between 12-110 million liters per year. This group supplies most of the mandate and they typically need to buy the feedstock from third parties. In general, small and medium biodiesel companies are in a good financial situation as the official biodiesel price recognizes their costs and a profit. The large exporting companies have also enjoyed positive returns in the first part of the year.

Practically all biodiesel produced in Argentina is made from soybean oil. There is an insignificant volume of biodiesel produced from used cooking oil encouraged by several municipalities and some private operations.

Trade

Argentina does not import biodiesel, but is one of the world's largest exporters. In 2018, biodiesel exports are estimated at 1.35 billion liters, roughly 500 million liters lower than in 2016-2017. During the first semester of

2018, exports to the EU were significant, accounting for over 90 percent of the total. Exports during July are also expected to be substantial. However, from then on, shipments are forecast to slow down significantly assuming EU will impose preliminary tariffs. Earlier in the year, the EU initiated an anti-subsidy investigation against Argentine biodiesel, following a complaint from the European Biodiesel Board. Most exporters believe that it is too risky and therefore plan to stop exports to this market until there are clear signals on how the dispute evolves.

In addition, the Argentine government has recently announced that as of July 2018, the export tax on biodiesel will increase from eight to 15 percent. Contacts indicate that the government is seeking to reduce or eliminate differential export taxes. Beginning January 2018, the export tax on soybean oil is dropping 0.5 percentage points per month until December 2019. By that date, soybean oil and biodiesel will have 15 percent export tax each. Some analysts perceive that by doing this, Argentina would be in a stronger position to negotiate with the United States and the EU the reduction or elimination of countervailing duties and begin to export again.

In April 2018, the US International Trade Commission published a ruling that found that Argentine biodiesel was sold at dumping prices. Therefore, imports of Argentine biodiesel into the US are subject to a 60.44-86.41 percent anti-dumping duty. On December 2017, the US Department of Commerce set final anti-subsidy duties of 71.45-72.28 percent on biodiesel imports from Argentina. In August that year, the Department had set preliminary countervailing duties, bringing imports from Argentina practically to a stop. In March 2017, the National Biodiesel Fair Trade Coalition had petitioned that an investigation be opened against alleged subsidized and dumped biodiesel shipments from Argentina and Indonesia. These anti-dumping and anti-subsidy duties will be applied over the next five years, and without some relief from these duties shipments to the United States are expected to remain zero.

With Argentina's two main export markets closed to nearly closed, Canada and Peru would remain the only markets that could buy biodiesel for their mandate programs but potential sales to these markets are extremely small compared to the United States and the EU. With higher crude oil prices, there is some potential global demand for discretionary sales, although the higher export tax applied as from July 2018 turns this business less profitable. The future dynamics between world crude oil prices, Argentine vegetable oil, and currency exchange rates will be key. During November 2017-February 2018, more than 400 million liters of biodiesel were exported to Malta. Contacts indicate that these shipments end up in markets for discretionary blending most likely located in northern Africa.

Argentina began to export biodiesel to Peru in 2009, with a growing demand until shipments reached a range of 180-280 million liters a year for several years up to 2016. That year Peru's domestic use of biodiesel was about 330 million liters blending at 5 percent. However, in late 2016 Peru placed anti-dumping duties on Argentine imports. Since then, biodiesel exports to that market have fallen significantly totaling only 49 million liters. There are just a few plants which supply small volumes to this market. For the first time, Canada purchased in May-June 2018 roughly 100 million liters of Argentine biodiesel. This market is expected to grow in the future. Exports in the short term will drop due to the higher export tax, and the expectation that Canada will not import biodiesel during winter.

VI. Advanced Biofuels

There is no production so far. However, there are a few government, private sector and university programs researching feedstocks and conversion technologies.