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Argentina

Biofuels Annual

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Report Highlights:
Argentine bioethanol production in 2018 is forecast at 1.12 billion liters. This record is the result of expected higher demand of gasoline and a real blend rate almost reaching the official cap of 12 percent. There is practically no trade of bioethanol. 2018 biodiesel production is projected at 3.05 billion liters, the highest ever. This production takes into account a modest growth in the local mandate and exports at 1.7 billion liters, unchanged from 2017. Post's forecast is based on policies in place in Argentina's main biodiesel export market through mid-July 2017. There is much speculation over the outcomes of commercial cases in the United States and the EU that could impact Argentine biodiesel exports.

I. Executive Summary

Argentina has publically committed itself to the fight against climate change. It is an active participate in the Paris Climate Agreement and COP22, setting out targets to reduce greenhouse gas emissions (GHG) in the future. The current government has set a special focus on renewable energy, creating conditions to attract and encourage large investment. Several tenders have already been allocated to companies differentiated by different types of energy. There is a special interest in wind and solar energy. In support of this commitment, the country has a very active biofuels law from 2006 which sets mandate mixes for biodiesel and bioethanol. After several modifications throughout the years, the current mandated mixes are 12 percent for bioethanol in gasoline and 10 percent for biodiesel in diesel. The Ministry of Energy sets monthly prices for the biodiesel, the grain ethanol, and the sugarcane bioethanol industries.

Bioethanol: Production for 2018 is forecast at a record 1.12 billion liters. This is the result of expected economic growth which normally impacts fuel consumption, the shift of some users which used to run their cars on natural compressed gas and its current price differential (vis-a-vis gasoline) is not so attractive, and the growth in production capacity which would accompany an increase in demand. In 2016, the Ministry of Energy established that the local sugarcane industry and grain ethanol producers had to split in halves the supply of the official mandate. Bioethanol consumption in 2018 is forecast at 1.1 billion liters, reaching an average mix of 11.7 percent in gasoline, just short of the official mandate. Argentina has practically no trade in bioethanol. While the local industry is requesting an increase of the mandate from 12 to 15 percent, the government has indicated it wants to implement in 2-4 years a similar bioethanol market as in Brazil, with mandate mixes and flex fuel cars.

Biodiesel: Production for 2018 is projected at 3.05 billion liters, similar to 2016 and 2017. The Argentine biodiesel sector is divided between small/medium plants which supply the official mandate, and the large plants which focus almost exclusively on exports. The domestic demand is growing slowly, as the mandate continues unchanged from the past few years. In 2018, the mix is expected to reach 9.7 percent, the highest ever and very close to its cap. The export business is more volatile as it depends on the conditions exporters have for accessing markets. Post projects exports for 2018 at 1.7 billion liters, unchanged from 2017. This forecast takes into account policies in place through mid-2017 in the main biodiesel markets of Argentina. Exports to the United States in 2018 are projected to range between 1.5-1.6 billion liters, similar to 2017. These volumes consider that the tax credit in the United States is not reinstated and that there are no countervailing and/or anti-dumping duties placed on imports of Argentine biodiesel (the US biodiesel industry filed a petition earlier this year and the Department of Commerce will announce in late August 2017 its preliminary determinations). The United States has been Argentina's primary market since 2015. The other major market for Argentine biodiesel is the EU, which in practice has been closed since late 2013 after the placement of high anti-dumping duties. After Argentina appealed such measure, in March 2016 the WTO ruled mostly in favor of Argentina's position. The European Commission has recently indicated that it will bring its anti-dumping measures into line with rulings and recommendations from the WTO panel by August 10, 2017. Most local traders speculate that these duties will be lowered significantly and that roughly 100-200 million liters of biodiesel could be shipped by the end of 2017 and 600-700 million liters in 2018.

II. Argentine Policy and Programs

Argentina as a member of the Paris Climate Agreement, and participant in COP22 in Marrakesh, targets to reduce GHG emissions unconditionally by 18 percent and 37 percent conditionally by 2030. Moving in this direction, Argentina has in place several Laws and programs which focus in reducing GHG contamination. Examples of these are Law 27,191 of National Support for the Use of Renewable Sources of Energy. The Law establishes that by 2018, 8 percent of Argentina's total consumption of electricity has to be of renewable sources and has to increase to 20 percent by 2025. The Renewable Energy Plan - RenovAR - is attracting large investment primarily in wind, solar and biomass energy (more than 60 plants are under construction). 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 put in place. The government is looking into different ways of expanding the use of biofuels in the future.

Since 2007, Argentina has in place a regulatory framework to promote the production and use of biofuels. 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. The framework focuses on conventional biofuels, and Argentina has a large biodiesel industry based on soybean oil and a growing ethanol industry based on sugarcane and more recently grains. Current policy does not directly support second generation or advanced biofuels and only limited efforts are being devoted to research.

In April 2006, the Argentine Congress passed Law 26,093, which regulates and promotes the production and sustainable use of biofuels. 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 for biodiesel and ethanol. Under this law, companies that produce biofuels have three options: 1) to produce for the domestic market, taking advantage of various tax incentives; 2) to produce for self-consumption, with similar advantages as option 1; and 3) to produce for the export market, in which case the companies are ineligible for the tax incentives.

In February 2007, the Executive Branch, through Decree 109, published the regulations for implementing Law 26,093. Salient points of the Argentine biofuel law (and regulations) are:

Chapter I - Creates incentives for production and use of biofuels in the domestic market with a duration of 15 years (beginning on the date of the enactment of the law). It establishes that the Secretariat of Energy will be the controlling authority. The oversight of tax breaks will be under the control of the Ministry of Economy. Some of the responsibilities of the controlling authority, in general, are to establish quality levels, security conditions, registration of participating companies, approval of projects that benefit from incentives, and the percentage blend of biodiesel with diesel and ethanol with gasoline for the domestic market. Every year the Secretariat of Energy will establish the volumes of biofuels needed to comply with the law, determine and modify the percentage blends, set prices of biofuels for the domestic market, establish volumes, terms and conditions for those producing for their own consumption, and approve exports.

Chapter II - provides details concerning the incentives of the biofuels promotional regime for domestic use. To be eligible for incentives, companies have to operate in Argentina and be dedicated exclusively to biofuel production, with the majority of the company's equity in the hands of the government (i.e. government at either the national, provincial, or municipal levels) or agricultural producers (and producers' cooperatives). Companies have to operate under the above regulations and specifications, and will be assigned a percentage of the total tax break granted by the Government of Argentina (GOA) --the law gives priority to small and medium enterprises, farmers, and entities that operate in nontraditional production areas. Biofuels governed by this promotional regime will be exempt from three specific taxes applied to fossil fuels. In addition, biofuel

producers for the domestic market will enjoy tax breaks and other advantages (e.g. anticipated reimbursement of the value added tax or accelerated depreciation on capital investment). Eventually, Chapter II leaves open the possibility for producers to receive direct subsidies.

Policy/Regulatory Developments Since 2007

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. It also promoted exports of surplus ethanol.

In January 2010 the mandate mix was officially implemented, with 5 percent bioethanol in gasoline and 5 percent biodiesel in diesel.

In August 2012, the GOA made important changes to the biodiesel policy by reducing the official domestic price leaving aside the original formula (which took into account production costs) to calculate the price, which is established every month.

In December 2012 the GOA announced a new price scheme for biodiesel for the local mandate, based on the size of the plants. It set a higher price for biodiesel processors of up to 20,000 tons/year, a lower price for processors of up to 100,000 tons a year and an even lower price for large companies (most big exporters) with production over 100,000 tons/year. In September 2013 the government created a new category of large plants called "nonintegrated" (which need to purchase the feedstock from third parties). The prices have fluctuated since the implementation of the program, while prices through July 2017 were US$852 per ton (AR$14,480 per ton) for small plants, US$840 per ton (AR$14,290 per ton) for medium plants, US$756 per ton (AR$12,860 per ton) for large "nonintegrated" plants, and US$656 per ton (AR$11,152 per ton) for large companies.

In December 2013 the GOA 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 it also included, for the first time, a ten percent blend to use in heating power plants (but through mid-2017 there has been no blend used).

The Secretariat of Energy, through Resolution 44/2014 increased the blend mandate for ethanol to a minimum of 12 percent by December 2014.

In mid-2014, Congress passed Law 23996 suspending until the end of 2015 a 19 percent tax on local biodiesel sold at the pump and a 22 percent tax on biodiesel to subsidize power generation. The idea was that this suspension will last until the countervailing duties applied by the EU to Argentine biodiesel are removed. These exemptions were extended for the whole of 2016 and 2017.

In September 2014, through Resolution 44/14, the Secretariat of Energy created a differentiated price for ethanol 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. In July 2017 the official price for grain ethanol was US$761 per 1,000 liters (AR$12,939) and US$970 per 1,000 liters (AR$16,488) for sugarcane ethanol.

In December 2015 the government eliminated capital controls with an immediate devaluation of the peso of about 40-45 percent against the US dollar. It also removed export taxes on all crop commodities (corn went

from 20 percent to zero), except for the soybean complex which were reduced by 5 percentage points (beans dropped from 35 percent to 30 percent, and oil and meal from 32 percent to 27 percent).

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 now on the grain industry and the sugar industry will split in halves the total supply of bioethanol to local gasoline distributors. None of the goals for both biofuels were met. In 2016, the effective average bioethanol blending mix was 10.4 percent and 8.6 for biodiesel (on-road and agriculture).

In June and July 2017 the GOA set the export tax on biodiesel at 0 percent (from 0.13 percent in May). A factor which contributed to the expansion of the local biodiesel industry since its beginnings has been the differential export tax on biodiesel vis-à-vis soybean oil. In July 2017 soybean oil exports were taxed 27 percent and biodiesel exports 0 percent. Since 2012, the GOA has in place a "flexible export tax system" for biodiesel which is modified on a monthly basis.

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 '17	0.00	27.0	30.0
June	0.00	27.0	30.0
May	0.13	27.0	30.0
April	6.58	27.0	30.0
March	6.02	27.0	30.0
February	5.05	27.0	30.0
January '17	3.31	27.0	30.0
December '16	4.98	27.0	30.0
November	5.51	27.0	30.0
October	5.27	27.0	30.0
September	5.55	27.0	30.0
August	4.99	27.0	30.0
July '16	7.15	27.0	30.0

In January 2017, under Decree 1343/17, the government established that the export tax on soybeans and its byproducts would drop by 0.5 percent per month beginning in January 2018 through December 2019. Therefore, the export tax on soybean oil which is currently 27 percent will drop to 21 percent in December 2018 and to 15 percent in December 2019.

There have been very few policy/regulations changes governing local biofuels since mid-2016. However, there are several issues which are currently in discussion and some could eventually become policy in the next few months or years. Some of these are: establish export taxes on biodiesel tied to export taxes on soybean oil; establish a B20 for buses; determine quality specifications for biodiesel for cold regions (Southern Argentina); allow farmers to deliver soybeans to small and medium biodiesel plants and in exchange receive biodiesel for

their own use in farm equipment; and in the medium term put in place a similar system to the one in Brazil where gasoline is mixed with 27 percent bioethanol and flex fuel engines (which can run with a maximum 100 percent hydrated ethanol) are very popular.

Environmental Considerations

Argentina participated in UN's meeting COP-21 in Paris and in COP-22 in Marrakesh in late 2016. There it announced its compromise to increase its unconditional emissions reduction commitment from 15 percent to 18 percent through a plan to achieve zero deforestation, the recovery of degraded land and the change of its energy matrix. Argentina has set a goal of increasing the share of renewable energy in the country's total energy matrix from the current 2 percent to 8 percent by the end of 2018. The government is promoting and supporting the sector through several programs such as RenovAr as it is one of the most dynamic sectors for investment; it helps reduce the country's energy deficit, allows complying with climate change commitments and generates employment opportunities. The government claims that in 2016, the investment in the country's electric system totaled $6.5 billion, of which $4.0 billion was of "clean energy" (primarily wind and solar), and $2.5 billion of small, costly thermoelectric plants. Argentina has very good wind in the Patagonian region and strong solar radiation in the Northern provinces. Also, 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. This Ministry is also analyzing the promotion of biodiesel production in small/medium plants where farmers take their soybeans and "get paid" with biodiesel for their self-consumption. They are also studying the feasibility of an expansion of small bioethanol plants using grain as feedstock.

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

The EU established through its Climate and Energy Package that biodiesel from soybean oil does not meet the minimum GHG emissions savings level. Argentina challenged this decision. The GOA 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, has presented to the EU a voluntary certification scheme addressing all their requirements. However, while markets were open, Argentine exports were accompanied by International Sustainability and Carbon Certification system (ISCC) certificates or the French 2BS biomass biofuel, sustainability voluntary scheme certificates. Local biodiesel exporters believe that when trade to the EU resumes (most are hoping this will happen in the later part of 2017) shipments will use the same certificates as prior to the closing of the market in late 2013.

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, but foreign supplies must still prove that land used to supply biofuel feedstock was cultivated prior to 2007 and that a robust monitoring and tracking system is in place to insure no direct land use change. In late January 2015, EPA approved a certification scheme presented by the Argentine biodiesel chamber (CARBIO) demonstrating that Argentina can export biodiesel made of soybeans produced in land which was not cultivated or cleared after 2007 and hence be eligible to generate RINs and meet obligations (mandates) under the RFS. However, there were seven local large biodiesel export plants registered with EPA well before CARBIO's approval. So far none

has exported under CARBIO's umbrella and they all use individual recordkeeping. Already in 2013 one of these plants exported a small volume which generated RINs.

Research Initiatives/Alternative Energy Policies

The Ministry of Agriculture, through the research agency INTA, conducts and coordinates most of the research in biofuels in Argentina. The National Bioenergy Program goals are to ensure the supply of sources of bioenergy in support of sustainable development, national energy security, the reduction of poverty, the attenuation of climate change and environmental equilibrium. There are three specific objectives: 1) identification and characterization of the potential of different crops, waste and byproducts to produce energy, 2) the study and development of non-traditional crops with energy potential, and 3) the development of second generation biofuels, through the identification of new enzymes to degrade cellulose. INTA is currently working on several projects which involve the production of different feedstocks and also the industrialization and processes to obtain biofuels. Recent examples of these are: "Biodiesel for Self-consumption"; "Anaerobic Digestion in the Agro Industrial Sector"; "Second Generation Bioethanol"; "Evaluations of Sorghum for the Use in Bioethanol"; and "The use of Agro Industrial and Urban Waste".

There are also provincial entities, public and private universities, and the private sector working on different projects. A few programs are working on cellulosic biofuels, based on sugar cane, sugar beets, harvest residues, sweet sorghum, and switch grass. Some industries and municipalities are developing biogas facilities using waste. Also there are several private investments in cogeneration plants using biomass from forest or crop residues and corn or sorghum silage. There are also many municipalities throughout the country which have in place programs to collect used cooking oil which is then recycled into biodiesel.

Since 2009 Argentina is a member of the Global Bioenergy Partnership (GBEP) which promotes bioenergy for sustainable development. The government received financial support from the IDB and coordinated public/private studies of 24 sustainability indicators for bioenergy. The results were published in November 2015.

III. Gasoline and Diesel Pools

Fuel Use History (Million Liters)										
Calendar Year	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
Gasoline Total	5,520	5,760	6,240	6,970	7,470	8,160	8,080	8,510	8,750	9,000
Diesel Total	14,568	13,735	15,451	16,232	15,308	16,340	15,214	15,954	16,041	16,160
On-road									7,226	
Agriculture									3,128	
Construction &										

Mining										
Shipping & Rail										
Industry*	718	975	1,671	2,022	1,817	2,590	1,794	2,238	2,381	2,500
Heating										
Jet Fuel Total										
Total Fuel Markets	20,088	19,495	21,691	23,202	22,778	24,500	23,294	24,464	24,791	25,160

Fuel Use Projections (Million Liters)										
Calendar Year	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Gasoline Total	9,400	9,700	9,900	10,200	10,400	10,700	11,000	11,200	11,500	11,700
Diesel Total	16,500	16,650	16,800	17,000	17,150	17,300	17,400	17,550	17,650	17,700
On-road										
Agriculture										
Construction & Mining										
Shipping & Rail										
Industry*	2,600									
Heating										
Jet Fuel Total										
Total Fuel Markets	25,900	26,350	26,700	27,200	27,550	28,000	28,400	28,750	29,150	29,400

* for power generation

Source: Produced by FAS Post, based on private and official data

There are some discrepancies between the different sources of what Argentina's future demand of fuel will be. The Ministry of Energy and Mining of Argentina reported in its "Energy Scenarios through 2025" (latest revision April 2017) that consumption between 2015 and 2025 of gasoline would increase by 40 percent and of diesel (not including diesel for power generation) by 23.3 percent. In the same period, an international energy agency projects a growth in consumption of 14.9 percent in gasoline and 10.0 percent in diesel (transport only). At the same time an international energy consulting firm forecasts a 3.3 percent drop in diesel consumption (not including for power generation) during the same period.

There is very little information available of the breakdown of diesel consumption by sector in Argentina. As a rough estimate, we have included in the above table for 2016 an approximation per a few sectors based on private estimations.

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) as Argentina has a vast extension, with long distances to move from cities and production areas. The agricultural sector, being Argentina one of the world's agricultural powerhouses, is also an important consumer of fuel. 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 gas, gasoline, and diesel. In 2017, Argentina is projected to import approximately 2.5 billion liters of diesel for power generation.

Through 2016, there were 12.5 million vehicles "on the road" in Argentina. Based on a report issued by AFAC (the Association of Manufacturers of Components), 55 percent of the total were less than 10 years old. Roughly 86 percent of the total was cars, 11 percent pickups and light trucks and 3 percent trucks and buses. Vehicles running on gasoline account for 49 percent of the total, those running on diesel account for 36 percent and the balance run on compressed natural gas. There were only 300 hybrid cars circulating in the whole of Argentina.

The government is working to make Argentina a more energy efficient country. As mentioned previously, there are several programs supporting investment in renewable energy, primarily through wind, sun and biomass. It is also working in improving the efficiency of electric engines, public and private lighting, and electric household appliances. Improving the efficiency of domestic 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 the main goals is to connect more efficiently the northern regions of Argentina with the ports of Rosario and Buenos Aires with improved train services and modern highways.

Regarding cars, the government is seriously analyzing to implement in a few more years a fuel market similar to Brazil's which has a strong penetration of ethanol use. In May 2017, the government, in order to encourage the sales of hybrid and electric cars, reduced the import tax for the next three years from 35 percent to 5 and 0 percent respectively. It is also working with car manufacturers to provide incentives to assemble these types of cars in the country. Argentina is one of the top world's lithium producers, a key element for electric batteries for cars.

In 2010, Argentina discovered a huge shale oil and shale gas field, named Vaca Muerta. This non-conventional energy source in the province of Neuquen is the third largest of its kind in the world. However, to get it into full production it will take time and huge investment. Meanwhile, most analysts project Argentina expanding its energy imports.

IV. Ethanol

Ethanol Used as Fuel and Other Industrial Chemicals (Million Liters)										
Calendar Year	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**
Beginning Stocks		0	0	0	0	0	0	0	0	0
Fuel Begin Stocks	0	20	27	36	48	45	53	64	44	64

Production										
Fuel Production	23	125	174	250	472	671	815	890	1,060	1,120
Imports										
Fuel Imports	0	0	0	0	0	0	0	0	0	0
Exports										
Fuel Exports	0	0	0	0	0	0	0	0	0	0
Consumption										
Fuel Consumption	3	118	165	238	475	663	804	910	1,040	1,100
Ending Stocks										
Fuel Ending Stocks	20	27	36	48	45	53	64	44	64	84
Total BalanceCheck	0	0	0	0	0	0	0	0	0	0
Fuel BalanceCheck	0	0	0	0	0	0	0	0	0	0
Production Capacity (Million Liters)										
Number of Refineries	3	9	9	11	12	14	14	14	16	17
Nameplate Capacity	120	215	355	600	680	880	950	950	1,200	1,250
Capacity Use (%)	19	58	49	42	69	76	86	94	88	90
Co-product Production (1,000 MT)										
Distill Grain Sol Dry Eq	0	0	0	0	130	290	375	380	440	440
Feedstock Use for Fuel (1,000 MT)										
Grains (corn)	0	0	0	58	420	920	1,200	1,220	1,400	1,400
Molasses/Juices	90	470	650	880	1,170	1,150	1,300	1,540	1,920	2,150
Market Penetration (Million Liters)										
Fuel Ethanol	3	118	165	238	475	663	804	910	1,040	1,100
Gasoline	5,760	6,240	6,970	7,470	8,160	8,080	8,510	8,750	9,000	9,400
Blend Rate (%)	0.1	1.9	2.4	3.2	5.8	8.2	9.4	10.4	11.6	11.7

Production

Bioethanol production for 2018 is forecast at 1.12 billion liters, the highest ever. This is as a result of expected higher gasoline consumption, a larger production capacity and a blending mix which is projected to be close to its current ceiling.

Argentina has a biofuels law which establishes that gasoline has to be mixed with a minimum of 12 percent bioethanol. The Ministry of Energy distributes quotas per company and sets every month an official price which fuel distributors have to pay to bioethanol suppliers. Regulations also establish that half of the bioethanol under the program has to be supplied by the sugarcane industry and the other half by grain bioethanol producers.

There were no significant modifications to the policy governing bioethanol in the past 12 months. However, there are a lot of rumors and talks about possible changes in the short and medium term. Local bioethanol producers (both from sugarcane and grains) have recently requested the government to increase the mix from 12 to 15 percent. The Ministry of Agriculture has indicated that it wants to implement a greater mix of bioethanol but in less regulated conditions (the promotional regime finalizes in 2021), implementing a system of greater competition through tenders which could eventually take the blend mix to 85 percent. To do this, they need to change gas emission regulations, allow flex fuel engines and install bioethanol tanks in gas stations. All this process could take at least 3-4 years. Nowadays, the average official price of bioethanol is about $0.85-0.90 per liter, significantly higher than in Brazil or the US.

By 2018 there will be 12 local sugar mills located in the north western provinces with quota to supply bioethanol 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 versus exports of sugar). Secure quotas and high official prices on bioethanol make this business very profitable (this explains the significant investment in dehydrators in 2017/2018 - one company has doubled its capacity, while three mills in Tucuman province are inaugurating new plants).

The other half of the domestic bioethanol mandate has to 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 feedstocks, they use almost exclusively corn, being the most efficient under current market conditions. Argentina produces and exports significant volumes of sorghum, but so far its use for bioethanol production has been insignificant. There are a few projects of small plants based on corn to produce ethanol for self-consumption (integrated to feedlots) and small plants to generate electricity for self-consumption and/or connect to the grid. In fact, contacts indicate that there are currently four small autonomous ethanol plants running in the country. These are sold by a local equipment supplier who is very involved in the local bioethanol business. Each of these small plants can produce approximately 5 million liters of ethanol a year. As in the sugarcane ethanol sector, the corn ethanol industry continues to be profitable.

Local bioethanol companies indicate that they are ready to invest in expanding capacity, but they are waiting for the right signals from the government. Regarding feedstock availability, Argentina normally has surpluses of sugar and corn. In the case of the sugar industry, bioethanol gives them the flexibility of producing either ethanol or sugar for export. In the case of corn, Argentina is one of the world's top three exporters with roughly 27.5 million tons of exports in the current crop year. Placing ethanol plants in corn producing areas which are far from the ports provides significant advantages to the processors and to close-by farmers.

The country's production capacity of bioethanol is expected to increase to 1.25 billion liters in 2018, once the three sugar mills in Tucuman begin to supply ethanol from their new dehydrators (with capacities of approximately 150-200,000 liters a day each). The original nine sugar mills have a production capacity of

bioethanol of approximately 500-550 million liters a year. The five plants which utilize grain as feedstock have a production capacity of approximately 550 million liters a year, and in 2016 they supplied 54 percent of the country's bioethanol. The first grain ethanol plant was inaugurated in 2012, and the most recently in late 2014. 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 which 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.

Of the 5 grain ethanol plants, only 4 of them can dry the distilled grains. However, in the short term there will be almost 100 percent drying capacity in the country. Each company decides the volume they dry, based on market possibilities (and sometimes, the availability of gas especially in winter time). Contacts indicate that in 2017 roughly 70 percent will be marketed as DDGS, while the balance will be wet which is sold to nearby dairies and feedlots. DDGS are currently sold domestically to feed mills, feed additive companies and large dairies or feedlots which are far from bioethanol plants but still prefer to use them. Three of the plants are currently exporting DDGS to neighboring Uruguay, Chile and Vietnam. Sugar mills continue to make improvements in reducing the negative impact of the vinasse, a byproduct of the distilleries, which is a significant environmental problem which sugar mills are resolving as the GOA continues to exert significant pressure.

Consumption

Domestic consumption of bioethanol for 2018 is forecast to reach a new record high at 1.1 billion liters. The main reasons are an expected higher demand of gasoline, a growing economy and an expansion of bioethanol supplies which could accompany such growth demand.

Gasoline use in 2018 is expected to total 9.4 billion liters, the highest ever. This is the conjunction of an expected growth in the economy, a continued high level of sales of new cars, and higher demand from consumers switching from compressed natural gas (the government lately narrowed the price differential between natural gas and gasoline, making its use less attractive). Based on IMF database, in 2018 the Argentine economy is expected to grow 2.3 percent, almost the same as in 2017 but significantly higher than in 2016 which finished with a negative 2.3 percent. A key factor also is that the local bioethanol industry has been expanding capacity slowly in the past 2-3 years, primarily plants in the sugarcane industry adding new dehydrators. The total use in capacity in 2018 is forecast at 90 percent.

Car manufacturers are not very supportive of an increase of the mandate blend due to potential problems with engines and the extension of warrantees. The local association of grain ethanol indicates that they have done studies which show that gasoline can be blended with 20 percent ethanol without affecting engines. The case of neighboring countries Brazil and Paraguay are good cases that support blends of 25-27 percent of ethanol. Contacts indicate that the government prefers to eventually do a big jump, for example, from 12 percent to 25 percent or even to flex fuel, rather than increasing in small percentages. A key factor for a large increase is the lack of logistics and infrastructure in the fuel distribution system.

The country is still working on becoming more fuel efficient. Engines have no limitations on minimum mileage efficiency, there are no flex fuel cars sold in the country and hybrid and electric cars are practically nonexistent. However, in May 2017 the government reduced temporarily the duties to import electric and hybrid cars to 0 percent and 5 percent respectively.

Argentina has a huge trucking system which has replaced a decaying railway system. The country is extensive and boasting a large agricultural sector demands large volumes of diesel to produce and move cargo and passengers. The GOA is continuing to revamp some metropolitan railway tracks and more recently, key cargo tracks in agricultural areas in the interior of the country to make freight more efficient and less costly.

Trade

Argentine bioethanol trade is very marginal and it is forecast to remain that way over the next few years. Apart from having an official bioethanol price, the local market is limited by an official mandate and quotas. Bioethanol imports from countries outside Mercosur pay 20 percent, while exports have a 4.05 percent rebate.

Contacts indicate that some corn bioethanol plants in Argentina are exporting 2-3 truckloads per month to Chile. This is a very small volume. Argentina still has a significant potential to expand its domestic market which enjoys official support that guarantees a profitable business. Bioethanol domestic prices under the mandate are generally higher than world prices. Also greater investment in expanding capacity would be needed to support exports.

Once the biofuel mandate was in place in early 2010, Argentine ethyl alcohol exports dropped significantly as most production surplus was redirected to supply the local bioethanol mandate which was more profitable. Before the mandate, Argentina exported 60-80 million liters of ethyl alcohol (not for fuel use) a year. Exports in 2016 totaled 17 million liters, with Chile being the main destination by far, followed by France and the U.S.

Industry contacts indicate that in the last part of 2016 and the beginning of 2017 there were monthly imports of 1.0-2.5 million liters of bioethanol from Bolivia.

Ending Stocks

Bioethanol ending stocks for 2018 are projected at 84 million liters. As production increases every year, stocks follow somewhat the same trend. Corn ethanol plants usually have high consumption in December and thus low stocks. However, the sugarcane bioethanol plants have large stocks as the ethanol they produced during the harvest (primarily in the June-November period) needs to be used in summer months when there is no sugarcane and ethanol production decreases. Contacts indicate that ending stocks should range between 70-100 million liters.

V. Biodiesel

Biodiesel (Million Liters)										
Calendar Year	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**
Beginning Stocks	40	75	20	20	55	15	30	45	35	35
Production	1,360	2,070	2,760	2,800	2,270	2,935	2,060	3,020	2,940	3,050
Imports	0	0	0	0	0	0	0	0	0	0

Exports	1,305	1,545	1,910	1,770	1,305	1,820	895	1,850	1,700	1,700
Consumption	20	580	850	995	1,005	1,100	1,150	1,180	1,240	1,350
Ending Stocks	75	20	20	55	15	30	45	35	35	35
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	41	41
Nameplate Capacity	2,300	2,800	3,300	4,000	4,550	5,200	5,200	5,400	5,550	5,550
Capacity Use (%)	59.1 %	73.9 %	83.6 %	70.0 %	49.9 %	56.4 %	39.6 %	55.9 %	53.0 %	55.0 %
Feedstock Use for Fuel (1,000 MT)										
Soybean oil	1,230	1,870	2,500	2,530	2,050	2,660	1,860	2,700	2,640	2,740
Market Penetration (Million Liters)										
Biodiesel, on-road + agri	20	580	850	995	1,005	1,100	1,150	1,180	1,240	1,350
Diesel, on-road + agri	12,760	13,780	14,210	13,491	13,750	13,420	13,716	13,660	13,660	13,900
Blend Rate (%)	0.2 %	4.2 %	6.0 %	7.4 %	7.3 %	8.2 %	8.4 %	8.6 %	9.1 %	9.7 %
Diesel, total use										

Production

Argentine biodiesel production for 2018 is projected at 3.05 billion liters, a record high but close to 2016 and 2017 output levels. This forecast takes into account current policies in place in the biodiesel market in Argentina (with current mandate mixes and uses), in the United States (based on the tax credit on biodiesel not being reinstated and no countervailing and/or anti-dumping duties applied on Argentine biodiesel imports), and in the EU (still considering high countervailing duties to biodiesel imported from Argentina). Although local and foreign traders are speculating on different outcomes, Post's analysis is based on given and known regulations through mid-July 2017.

Argentina's total biodiesel production is generally impacted significantly by the volume of exports as domestic use normally changes marginally. Therefore, the dynamics in Argentina's two main biodiesel export markets, the US and the EU, are essential to determine final production volumes. Post projects biodiesel exports in 2017 and 2018 at 1.7 billion liters each, in both cases significantly higher than domestic use.

However, local traders are speculating that the US market will be affected either through countervailing and/or antidumping duties or limitations through quotas and negotiated prices. The US Department of Commerce is likely expected to announce its preliminary determination on rates of subsidization in late August and in late October the rates of dumping. Local exporters also believe that there is a significant chance that the biodiesel tax credit will not be reinstated. Regarding the EU, exporters are optimistic that the current high antidumping duties established since 2013 will be recalculated and set at a significantly lower value, allowing shipments to

that market resume in August-September 2017. Exports to Peru, which also pay a countervailing duty per company, are expected to remain flat with no policy change in neither 2017 nor 2018.

Biodiesel production for the domestic market is projected to increase to 1.35 billion liters, the highest ever. This is a result of an expected increase in diesel consumption as most economists forecast economic growth and to the fact that the blend of biodiesel with diesel could get closer to fulfilling the 10 percent mandate mix.

Practically all biodiesel produced in Argentina is made from soybean oil. The biodiesel business began in 2007 when large local vegetable oil crushing plants saw the opportunity to add value to the oil and export it as biodiesel to the EU. Argentina is one of the world's three largest soybean producers and the top exporter of soybean meal and oil. There is an insignificant volume of biodiesel produced from used cooking oil encouraged by several municipalities and some private operations.

The production capacity of biodiesel in Argentina is estimated at approximately 5.55 billion liters, with little change in the past few years. Only three small new plants focused on the domestic market were recently opened. There are several plants in the country which are not operating. The use of capacity in 2018 is forecast at 55 percent. Most small plants are operating at a high capacity to supply the local mandate, while large plants are operating at a lower use as their capacity is very large and they are almost exclusively focused on the export market which occasionally is impacted by trade issues.

There are 41 biodiesel plants in Argentina with capacity of up to 700 million liters per year. The largest ten companies account for over 70 percent of the country´s capacity. Most of these companies are international and local traders which already have large vegetable oilseed crushing facilities in the country. They account for practically all exports. 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 local mandate. These plants typically need to buy the feedstock from third parties and have higher production costs than the large plants, most of which are fully integrated.

Contacts indicate that the small and medium biodiesel companies are in a good financial shape as the official price has been profitable. The large exporting companies area also enjoying positive returns. However, the used capacity continues to be low. Most of the big plants are owned by large corporations which have been operating in the local grain sector for many years and biodiesel is not their core business. Several of these plants were built during the first days of the local biodiesel industry and the investment has already been recovered.

Consumption

Biodiesel consumption in 2018 is forecast at a record 1.35 billion liters. The domestic economy is expected to grow for the second year in a row, impacting directly on fuel consumption. Diesel used for on-road and agriculture is forecast to grow almost 2 percent. Another key factor expected to impact on biodiesel use is the fact that the mix of biodiesel in diesel could reach, for the first time, almost the 10 percent mandated blend. Based on official data, biodiesel sales to the domestic market in the first trimester of 2017 were 36 percent higher than in the same period of 2016 (which started very slow due to economic changes at that time).

Many in the local biodiesel sector are claiming that the government should implement policies to increase the use of biodiesel, especially at a time in which they think biodiesel exports could be limited by commercial

disputes. The government is working on several different lines to increase biodiesel consumption, but the eventual implementation of most of these measures will take some time. The main issues presently in discussion are: 1) small and medium producers are requesting the government to increase the mandate from 10 to 12 percent. Most contacts believe there are very few chances that this will happen. Oil companies claim there are logistic and quality issues which need to be addressed, while local car manufacturers are against the increase due to engine warrantees; 2) biodiesel for colder regions will need to comply with special quality specifications (similar to the cold soak test in the US); 3) the implementation of B20 for short and long-distance buses. If placed and made compulsory, it could represent an additional 100 million liters of biodiesel; 4) the government is seriously analyzing to allow farmers deliver soybeans to local biodiesel plants and in return get paid with biodiesel for their own use at the farm (some local farm equipment manufacturers already allow the use of B100). Most contacts believe this has good chances of being implemented in the near future, with a potential additional consumption of approximately 400-600,000 million liters of biodiesel. If implemented, this will demand a lot of work in logistics, tax revenues changes and quality controls; and 5) the use of biodiesel for power generation is expected to remain practically at zero, as biodiesel prices are significantly higher than imported diesel. However, some contacts believe that if exports drop dramatically, the government could make this sector use biodiesel. A resolution of 2014 states that those power generators which can use biodiesel have to use a diesel blended with 10 percent biodiesel. Contacts indicate that this is not occurring and that the potential market is between 150-250,000 million liters of biodiesel per year.

Trade

Argentine biodiesel exports for 2018 are projected at 1.7 billion liters, practically unchanged from 2017 but lower than 2016 exports. This forecast takes into account current policies in place in Argentina's main biodiesel markets: the US, the EU and Peru. However, most local and foreign traders are speculating on the outcomes of the disputes in the US and the EU which will be defined over the next few months.

The US has been the main market for Argentine biodiesel in 2015, 2016 and 2017 (through July). In 2014 Argentina exported large volumes of biodiesel to the discretionary blending diesel market, which primarily landed in Northern Africa mixed with diesel from other origins. In 2013, the EU was the main market (late that year they installed high anti-dumping duties to Argentina's biodiesel) but shared the top of the ranking with the US, which purchased Argentine biodiesel for heating oil for consumption in the Eastern coast. From 2009 to 2012 the EU was almost the exclusive destination, importing large volumes. Argentina began to export biodiesel to Peru in 2009, with a growing demand until it reached a stable volume of 170-270 million liters a year for its biofuel mandate. However, in late 2016 Peru placed anti-dumping duties on Argentine imports. Since then, biodiesel exports to that market have fallen significantly.

Post estimates Argentine biodiesel exports to the US in 2018 at 1.5-1.6 billion liters, similar to the levels of 2016 and 2017. Post's forecast takes into account policies in place through mid-July 2017 in the biodiesel market in the US (considering the tax credit on biodiesel is not reinstated and there are no countervailing and/or anti-dumping duties placed on Argentine biodiesel imports). However, in April 2017 the Department of Commerce (DOC) initiated an investigation due to a petition filed by the National Biodiesel Fair Trade Coalition (an association composed of the National Biodiesel Board and 15 US producers of biodiesel) alleging that Argentine and Indonesian companies are violating trade laws by flooding the US market with dumped and subsidized biodiesel. DOC's preliminary determinations regarding estimated rates of subsidization and dumping will be announced on or about August 21, 2017. Most local and foreign biodiesel traders believe that the US government will enforce duties on Argentine biodiesel imports with a direct negative impact on the traded volume. At this stage, it is very difficult to forecast future exports. Local traders believe export volumes would

eventually depend on duties imposed, the price parity of biodiesel against soybean oil, RINs prices, and the price and volume that could be eventually exported to the EU if antidumping duties on Argentine biodiesel are recalculated downwards.

On July 10, 2017, the National Biodiesel Fair Trade Coalition requested the DOC to impose retroactive duties on Argentine biodiesel imports before the preliminary determinations are made as the Board alleges "critical circumstances" indicating that since the petition was filled; biodiesel imports from Argentina increased about 145 percent. This is to deter further imports as the government could impose duties retroactively (90 days before the preliminary determinations are announced).

Argentine biodiesel exports to the US in 2017 are estimated at 1.6 billion liters. Exports through the end of July are expected to total roughly 1.1 billion liters. Shipments are expected to come to a halt by July 25, leaving time to enter the US prior to DOC's preliminary determinations around August 20. If there are no changes of policies or duties, local traders believe they could ship approximately 500 million liters in the September-December window.

Post's total biodiesel export forecasts for 2017 and 2018 assumes no change in policies in the EU; therefore, our analysis maintains high antidumping duties in both years which results in zero exports of Argentine biodiesel to that market. In November 2013 the EU implemented an average countervailing duty of 24.6 percent on Argentine biodiesel due to alleged dumping. In practice, this meant the closing of that market. Argentina appealed such measure before the WTO. In March 2016 the WTO ruled mostly in favor of Argentina's position, indicating that the EU had wrongly calculated the tariffs. In December 2016, the EC published a notice in the Official Journal indicating it wanted to bring its anti-dumping measures into line with rulings and recommendations from the WTO panel. The European Community notified the WTO that it plans to implement the WTO recommendations and rulings for both Argentina and Indonesia by August 10, 2017. Although the outcome is unknown, as in the case of the AD and CVD preliminary determinations in the US, local traders speculate with different possible outcomes. There is a kind of consensus that the anti-dumping duties should come down from Euros 240 per ton to around Euros 60-100 per ton. If this is the case, local brokers speculate that 100-200 million liters could be exported in the August-December 2017 window and exports in 2018 could range between 600-700 million liters.

In May 2016, Spain eliminated a blockage to imported biodiesel which had come into effect three years ago and affected directly Argentina's exports. This is very important as Spain was the number one market for Argentine biodiesel exports in the EU and will be able to resume exports to this market if the antidumping issue is resolved. Local traders believe that Spain, Italy and the Netherlands will be the main destinations if exports resume.

Biodiesel exports to Peru in 2017 and 2018 are forecast at 80-120 million liters per year. There are just 1-2 Argentine companies shipping to this market. Peru has been a steady importer of biodiesel from Argentina between 2009 and 2016. Exports ranged between 180-280 million liters to fulfill its mandate. However, shipments have slowed down because the Peruvian government placed countervailing duties on Argentine biodiesel imports due to alleged dumping. In August 2014, the Peruvian Institute of Defense of Competition and Intellectual Property Protection (INDECOPI) opened an investigation on imports of alleged Argentine subsidized biodiesel.

Stocks

Argentine biodiesel ending stocks for 2018 are forecast at 35 million liters. Local plants do not produce biodiesel for stocks, due to the instability of the product. Normally stocks are volumes waiting to be shipped right away.

VI. Advanced Biofuels

There is no production so far. However, there are a few government, private sector and university programs researching these types of feedstocks and technology.

VII. Biomass for Heat and Power

Sugar mills in Argentina generate part of their energy needs from bagasse. A handful of sugar mills have new and high efficiency generation boilers which allow them to cogenerate energy for their own needs and to sell to the local energy grid. Other mills have similar plans, but investment is coming very slow. There are several projects to produce electricity from woody mass in Corrientes and Misiones provinces. There are also some projects to produce energy from residential waste and livestock and oil crushing facilities. Cordoba province recently inaugurated a biogas plant using the fermentation of corn silage with cattle and hog manure.