

FULL ENERGY

International

"RENOVABIO IS A WINDOW OF OPPORTUNITIES"

For Elizabeth Farina,
president of Unica, the
program will allow the industry
to make up for lost time



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100

Most Influential
of Energy

**"THE OSCAR OF
THE SECTOR"**



RED CARPET FOR THE MASTERS OF ENERGY



100 MOST INFLUENTIAL
PEOPLE IN
ENERGY SECTOR



**NOVEMBER/2018
IN SAO PAULO**

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Brazil, a giant by nature itself

Like few countries in the world, Brazil is prodigal in natural resources. Rivers, winds, sun, fertile land, biodiversity, mineral sources. Riches that are great assets for the country for sustainable development.

It is not by chance that Brazil is one of the places in the world where wind energy is most advanced. At the beginning of 2018, the country reached the 13 GWs of installed wind energy capacity, with 518 wind farms and more than 6,600 wind turbines operating. A baseline that does not stop growing. The amount generated by wind farms is already equivalent to the average consumption of about 24 million homes per month. In the World Ranking of Installed Capacity of Wind Energy, Brazil increased one more position reaching 8th place. In 2012, the country ranked 15th in the ranking.

In the oil and gas sector, the exploration of the Pre-salt has been performing an increasingly important role, which has allowed the robust growth for national production of natural gas. In fact, the Pre-salt is already responsible for more than half of the national production of oil and gas. It is worth mentioning that Petrobras intends to increase its oil production by 38% in the country between 2018 and 2022 - from 2.1 million barrels per day of oil equivalent to 2.88 million barrels per day.

Brazil is also a specialist in transforming water, sun and fertile soil into biofuels, from different raw materials. The main one is sugarcane, which results in a clean and renewable fuel admired throughout the world, the ethanol. Another biofuel that gains relevance in the country is biodiesel, produced from sources such as soybean oil, cotton, palm oil, and animal fat.

However, one of the sources that fell in the grace of Brazilians is the solar energy that recently reached the mark of 1 GW in operational projects of the photovoltaic source connected to the electrical matrix - sufficient amount to serve the consumption of 2 million people. In the country, last year's investment in the area was US \$ 6.2 billion, up 10% over 2016.

It is also imperative to highlight the potential of Brazil in the hydropower sector. This type of generation currently corresponds to 61% of total energy generated in the country. Specifically, the SHP segment (Small Hydroelectric Power Plants) is responsible for about 3.5% of the total installed capacity of the national interconnected system.

Added to these sources there are many other energy routes. With all the inherent potential of the country, the future has everything to be vigorous, with diversity of sources and energy autonomy. Right? The answer is not so simple and faces the political and economic stability and the adoption of well-structured programs that are built on dialogue with society and the productive sectors. This model has been successfully adopted in recent years, improving the level of competitiveness and the environment for investments in the country. The expectation is that the unfolding of the electoral year in Brazil does not lead the Brazilian energy sector to retreat.

Edmilson Jr. Caparelli
CEO of Grupo Mídia



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Solar energy advances in Brazil

In Brazil, the investment in 2017 was US \$ 6.2 billion, up 10% from 2016. The data are from Bloomberg New Energy Finance (BNEF). According to the Brazilian Association of Solar Photovoltaic Energy (ABSOLAR), the country recently reached 1 gigawatt (GW) in operational projects of the photovoltaic solar source connected in the electric matrix. This power is sufficient to supply 500 thousand homes in the country, producing renewable, clean, sustainable and competitive energy capable of serving the consumption of two million Brazilians.

According to the National Electric Energy Agency (Aneel), by 2024, about 1.2 million solar generators or even more will be installed in homes and companies throughout Brazil, representing 15% of the Brazilian energy matrix. By the year 2030, the market for photovoltaic energy should run around R\$ 100 billion.

Brazil reaches 13 GW of installed wind capacity

At the end of February, Brazil reached 13 GWs of installed wind energy capacity, with 518 wind farms and more than 6,600 wind turbines operating. The data comes from the Brazilian Association of Wind Energy (ABEEólica), which also reports that the amount generated by wind power is already equivalent to the average consumption of about 24 million homes per month. The 13 GWs of installed wind power capacity still means that the sector has already generated more than 195 thousand jobs since its inception, with great concentration in the last eight years.

"Under construction or already contracted there are more 4.8 GWs, divided into 213 wind farms that will be delivered over the next few years, until 2023, bringing the sector to near 19 GW mark. This means that, soon, all the installed wind capacity will be greater than Itaipu. And with new auctions this value will still grow and we will exceed 20 GWs", explains Elbia Gannoum, chief executive of ABEEólica.





ANP reaches 20 years old

In Brazil, ANP (National Agency for Petroleum, Natural Gas and Biofuels) celebrates 20 years of existence in a moment of profound changes in its regulated market. The Agency creation was given by the Decree No. 2.455, dated of January 14, 1998, and was already foreseen in the Law 9,478 of August 6, 1997. Known as the Petroleum Law, it established the end of Petrobras' monopoly and, consequently, the opening of the market, in activities of exploration, research, production and refining of oil / natural gas. These activities continued to be a monopoly of the Union, but could be exercised by other companies, through concession, authorization or, later, hiring under the production sharing regime, and with ANP regulation and supervision, which focuses on defense of the interests of Brazilian society.

Today, the sector is undergoing a new opening, due to the regulatory improvement promoted by the ANP, changes in legislation for the sector and the creation of programs at federal level to stimulate investments and the entry of new agents in all stages of the production chain. From this window of opportunity that the country lives, the ANP has intensified actions in order to encourage and unlock investments in this sector in the country.



► Paulo Arbex, CEO of ABRAPCH

Hydropower Generating Plants

In the last week of March, in Curitiba, the 2nd National Workshop of CGHs took place. Promoted by ABRAPCH (Brazilian Association of Small Hydropower Plants and Hydropower Generating Centers), this year's edition has gained greater proportions, with a greater number of lectures, and intense promotion of networking and business opportunities. The event fostered the technical and commercial debate in the CGHs sector, since it went through several changes such as the approval of MP 735, Law nº13 / 360 increasing the maximum installation capacity from 3 MW to 5 MW, the auctions A-4 and A-6 and the restructuring of the sector. Changes that are extremely significant for entrepreneurs, because they increase the representation of the CGHs in the energy matrix. In 2019, the event will not only be focused on CGHs, but also on PCHs.



Grupo Midia honored the greatest personalities of the year in the “Energy Oscar”

The personalities that stood out the most in 2017 in different links of the Brazilian energy chain were honored in the 100 Most Influential in Energy

Anight to celebrate the greatest personalities of different segments of the Energy in Brazil. This is how the event promoted in December 2017 by Grupo Midia and Full Energy magazine at Maksoud Plaza Hotel in São Paulo can be defined.

At the awards ceremony of the “100 Most Influential in Energy 2017”, an event already known as the “Energy Oscar”, the honorees in the twenty different categories took to the stage.

The award concluded in a grand style a long process of choosing the most influential personalities in the Brazilian energy sector. The award-winners selection began in July, when the public could vote through Full Energy magazine’s website. The election lasted until September, when a market survey was conducted, and finally the editorial board of Full Energy met to close the list of the winners 2017. The goal of the 100 Most Influential in Energy is to show the importance and provide a tribute to the people who stood out in the various areas of the industry during the last year.

The Event

In the opening cocktail party to the ceremony, all the honorees and guests were networking, fraternizing and many of them gave an interview to the journalism team of Grupo Midia.

In a crowded auditorium, attended by more than 400 people, the awards ceremony of the “100 Most Influential in Energy” was held, which was opened by Edmilson Jr. Caparelli, Grupo Midia CEO. In his speech, he stressed that for a country, just as valuable as accounting for the potential of different energy sources is to value the skills and brains that operate in many areas. “And it is in recognition of the professionals who stand out in the different links of the sector, that Grupo Midia and Full Energy magazine promote the 100 More Influential in Energy Award. An event that reaches the second edition and is already consolidating as one of the great celebrations of Brazilian energy sector”.

Edmilson also recalled that the professionals and



the authorities chosen to receive the award were elected by the vote of the Full Energy magazine readers throughout the country, without any previous indication. “And this is very gratifying to us: to know that only those who stand out and who are the greatest and best in the areas in which they act are honored”.

The Secretary of Energy and Mining of São Paulo State, João Carlos Meirelles, representing the governor of São Paulo State, Geraldo Alckmin, also took the floor at the opening of the event; and José Mauro Coelho, director of studies on Oil, Gas and Biofuels of the Energy Research Company (EPE), which on the solemnity represented the Minister of Mines and Energy, Fernando Coelho Filho.

In his speech, José Mauro Coelho highlighted the new way of managing the energy sector in the country. “It is important to emphasize that all the initiatives that have been adopted have had a great technical discussion, and the North adopted by the Minister was to widely discuss with the society and the market. A work in which dialogue is always present, with transparency and coherence, so that we can build a better energy sector for Brazil in the market”.

On the other side, Meirelles highlighted the work of Full Energy magazine in the dissemination of information and news in Energy. “The work that the magazine does is extremely important. We are proud to have a magazine dedicated to all energies. And in this award, we have representatives of the most important sectors of the country’s economy”. The Secretary of Energy also highlighted the work done in the State of São Paulo in the energy sector. “Last year, 60.8% of all state energy was renewable, probably the highest renewable energy index in the world”.



Edmilson Jr.
Caparelli,
CEO of
Grupo Midia



João Carlos
Meirelles,
secretary of
Energy of
São Paulo
State



José Mauro Coelho, Director of Petroleum, Gas and Biofuel Studies at EPE



Silas Barroso, president of 3C Services



Andrew Frank Storfer, CEO of America Energy

The Responsibility Increases

“The honor puts on our shoulders the weight of an example, the model, of leaving a legacy for both the people there and those who want to enter the market. The differential of recognition is not what you have done, but what you can still do, so that it continues to enchant the people who have in you a referential of life and business”, said the businessman Silas Barroso, president of 3C Services during the ceremony.

Also for Andrew Frank Storfer, it was a great honor to receive the award. “It is a great responsibility, because those who receive a prize like this have to continue work already done. And it’s not just a prize for me individually, but for my entire team. We have a very dedicated and capable team in America Energy, which makes my job in the industry easier”.

His opinion is similar to Stephane Champagne, CEO of the Energy and Resources segment of Sodexo On-site Brazil. “With this award, my responsibility becomes even greater. Now that I and my team have been recognized, our responsibility grows in delivering the best possible service to our customers,” said the executive.

“After receiving this honor, the challenge continues to build a fairer country, in which there is a stimulus to private investment and where we have greater efficiency in the relations of private agents. And this is the responsibility that each one of us, Brazilians in the Energy area, should pursue”, said Plínio Nastari, president of Datagro Consultoria. For him, after four years of stagnation or retrocession, the expectation is that Brazil will grow again and demand for energy will recover. “But to do this, we must create the conditions for private investment to be resumed in a balanced and competitive way. And this is what we expect to be created in the form of conditions, regulation, without fiscal distortions”, said the president of Datagro Consulting.

Tribute to the Proalcool pioneer

At the closing of the solemnity, a moment of great emotion took place. Grupo Mídia paid a posthumous homage to Cicero Junqueira Franco, entrepreneur of the sugar-energy sector and one of the pioneers of Proálcool (National Alcohol Program).

Facing many members of Junqueira Franco family, Plínio Nastari, president of Datagro, and Elizabeth Farina, president of Unica (Union of Sugar Cane Industry) took to the stage to deliver the honorary plaque. The one who received the homage, was one of sons of Junqueira Franco, the businessman and president of Udop (Union of Bioenergy Producers), Celso Torquato Junqueira Franco.

Honoring the most outstanding personalities in a year so important for the Brazilian energy sector, as 2017 was, the second edition of the 100 Most Influential in Energy has proved that it is already one of the main events of the segment's calendar.



Plínio Nastari
paid tribute
to Cícero
Junqueira
Franco



Celso T.
Junqueira
during the
ceremony



Family of
Cícero
Torquato
Junqueira
Franco
participated
in the event

Awarded "100 Most Influential in Energy 2017" in the 20 categories



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Supplies and Logistics



Infrastructure and Engineering



Public Authorities



Supplies and Logistics



Innovation



Businessmen



More than 400 people attended the ceremony



Awarded and invited to join the opening cocktail party



► More than 300 people crowded the auditorium of the FGV Cultural Center to discuss the implementation of the program

RenovaBio: a way to recover the lost time

Promoted by FGV, in Rio de Janeiro, the meeting
discussed the next steps on RenovaBio



The auditorium of FGV Cultural Center in Rio de Janeiro was packed at the “RenovaBio – Next Steps” event, organized by FGV Energia on February 1st. With the presence of over 300 guests, including public authorities, representatives of representative entities and researchers from different segments of the Brazilian energy matrix, the event was the stage for the presentation of the main initiatives to be adopted by the Ministry of Mines and Energy (MME), for the National Agency of Petroleum, Natural Gas and Biofuels (ANP) and by the Energy Research Company (EPE) to enable the implementation of the RenovaBio program.

The host of the event, Felipe Gonçalves, research superintendent of FGV Energia, said that hosting a meeting to discuss the RenovaBio was very pleased due to the importance of the biofuels sector for the country. “It was also a positive signal that our energy center is on the right track, developing researches that answer important issues for the industry,” Gonçalves said.

During the event, Márcio Félix, MME’s secretary of Petroleum, Natural Gas and Biofuels, talked about the regulation of the program and the next decisions to be taken in order to implement it in practice, including the deadlines to take effect, the process certification of production and the rules for the commercialization of



Márcio Félix, MME's secretary of Petroleum, Natural Gas and Biofuels



José Mauro Coelho, Director of Petroleum, Natural Gas and Biofuel Studies at the Energy Research Company (EPE)



Aurélio Amaral detailed the role of ANP and its performance in RenovaBio operation

Carbon Credits (so-called CBIOS). Aurélio Amaral, director of the ANP, detailed the role of the agency and its performance in order to guarantee the operation of the program.

“Amazing”. This was Félix’s final evaluation of the event held at FGV. Both by the quantity and quality of the public, and by the subjects approached. “It shows that the interest and motivation to make the RenovaBio happen in practice is very great.”

The secretary of the MME points out that the law establishing the program points to several demands by June (the first six months after the law is enacted) and then to the next one and a half year (end of 2019). “This semester we have to concentrate to make the decree that regulates the operation of the program, establishing the decennial goals and the necessary tools, such as the calculator and the regulation - forwarded by the ANP.” The goal is to arrive in mid-2018 with Brazil already having the decennial goals defined and, from there, “we have the better detail of the program so that it begins to work effectively - as the law requires - in January of 2020”.

José Mauro Coelho, Director of Petroleum, Natural Gas and Biofuel Studies at the Energy Research Company (EPE), reported at the meeting the integrated economic model being developed for RenovaBio, considering the scenario of supply and demand of fuels and biofuels until 2050, besides taking into account several economic, productive, energetic and environmental aspects.

According to José Mauro Coelho, RenovaBio was the result of a great mobilization by the public and private sectors, who mobilized themselves to approve this national policy. “And the holding of this event, early in the year, shows that we will not let this mobilization stop,” he points out. According to him, now the sector will work on the great challenges that come from now on, which are the regulation and design of mathematical models that will subsidize the decisions of decarbonization targets.

RenovaBio is a program that was created with the objective of drawing up a joint strategy to recognize the strategic role of all types of biofuels in the Brazilian energy matrix, both for energy security and for the reduction of greenhouse gas emissions. The initiative was launched in 2016 by MME, approved by Congress and sanctioned by the presidency of the republic at the end of 2017.



Ethanol, Biodiesel and Biogas

One of the sectors of Brazilian energy matrix that honored the event was the sugar and ethanol industry, which was represented by leaders of several companies and entities in the segment, such as Plínio Nastari - Datagro Consulting, Pedro Mizutani - Raízen, André Rocha, Mário Campos, from SIAMIG (MG) and Roberto Holanda from Biosul (MS).

One of the speakers at the event was Elizabeth Farina, president of the Sugar Cane Industry Union (Unica), who positively evaluated the meeting that discussed the next steps of the program. Throughout the RenovaBio process, what strikes the most attention, according to Elizabeth, is the agility with which the initiative was built, discussed and approved. "And just one month after the law was sanctioned [at the end of 2017], we had this meeting to discuss the next steps of the program."

For the president of Unica, RenovaBio is a greenhouse gas reduction program, basically. "As biofuels are renewable energy, reducing greenhouse gases emissions, and other benefits, this program is giving economic value to this production that today is unpaid. When you walk with a flex car and put hydrated in the tank, it reduces emissions by 90% when compared to gasoline, considering the entire fuel life cycle - from the moment you plant the sugar cane, until the time you fill the car".

She points out that biofuel has a number of comparative advantages and externalities, with several environmental and social benefits, but have not yet been remunerated. "RenovaBio already allows this



Donizete Tokarski, superintendent director of Ubrabio (Brazilian Biodiesel and Bioquerosene Union)



Felipe Gonçalves, research superintendent at FGV Energia

"THE PROGRAM WILL BRING INVESTMENTS AT A SOCIALLY DESIRABLE LEVEL, WHICH OPENS UP A HUGE WINDOW OF OPPORTUNITY FOR ETHANOL IN PARTICULAR."

Elizabeth Farina,
president of the Sugar Cane
Industry Union (Unica)

remuneration and therefore will bring investments to a socially desirable level, which opens up a huge window of opportunity for ethanol in particular." According to Elizabeth, it will be an opportunity for the industry to make up for the lost time.

In the opinion of Pedro Mizutani, president of the Unica Deliberative Council and vice president of Raízen's External Relations and Strategy, RenovaBio is a way of introducing ethanol and biodiesel into the energy matrix. A state policy that will give greater predictability to production and investment, as well as energy security, greater job creation and contribution to the mitigation of greenhouse gases emissions. "A problem that affects the whole world, in which Brazil will set an example".

For Mizutani, when it is said that the program will contribute to the area planning, it will prevent that there is disorderly growth, but planned. "We will have predictability of demand and companies with greater energy and environmental efficiency will be rewarded with the CBIOS, which may be worth more or less depending on the energy and environmental efficiency of each organization. Today companies that produce ethanol sell for the same price, without prizes, regardless if they pollute more or emit more or less greenhouse gases," he points out.

José Mauro Coelho reinforces what Elizabeth Farina and Mizutani affirm. According to the director of EPE, RenovaBio contemplates the positive externalities of biofuels, noting that not only will ethanol benefit from the program, but also biodiesel, biogas, bio-kerosene, cellulosic ethanol, bioelectricity, among others. "The RenovaBio comes to be an inductor of all biofuels."

For Donizete Tokarski, superintendent director of Ubrabio (Brazilian Biodiesel and Bioquerosene Union), the RenovaBio is not only a policy of biofuels, but of public health, internalization of



jobs and national development. “It brings again the possibility of discussing opportunities that the country has facing other countries. While the matrix decarbonisation in other countries is forced, Brazil is a business opportunity. “Today, biodiesel represents 8% of national diesel, increasing to 10% in March this year. “With the RenovaBio program, the biodiesel investor will have more predictability by 2030.”

Another sector that was present at the event was the biogas. For the president of Abiogás (Brazilian Association of Biogas and Biomethane), Alessandro Gadermann, RenovaBio, for its characteristic of inducing efficiency gain in production and reducing CO2 emissions, totally changes the dynamics of biofuel production in the country. “Those with the highest capacity to reduce emissions will be awarded. We will have meritocracy in the biofuels sector,” says Gadermann, who believes that RenovaBio is a perfect mechanism to encourage biogas production in Brazil.



Alessandro Gadermann, president of Abiogás



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Corn Ethanol Potential in Brazil



Plinio Nastari,

Datagro President and e
Representative of Civil Society
at CNPE (National Council for
Energy Policy)

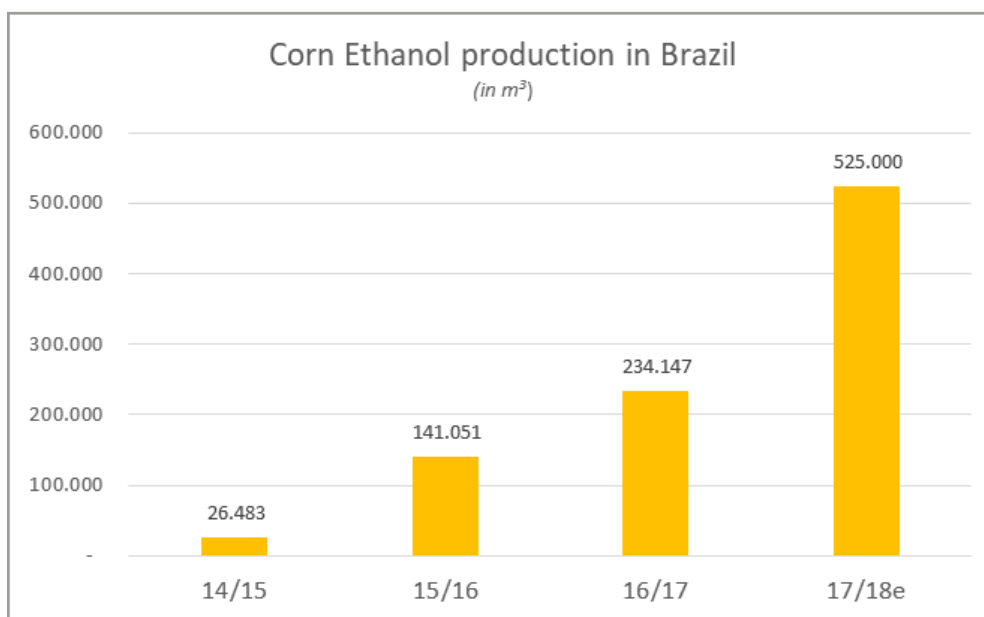
Corn ethanol must expand in Brazil, bringing even more progress and energy independence

Within the last four years, the expansion of corn ethanol production in Brazil has been vertiginous, and the

The expansion is related to the corn production growth, which has already reached 98 tons in the 16/17 cycle and according to CONAB's second grain harvest survey, in 2017/18 harvest it must reach 88 million tons, with 24,74 million tons of corn in the first harvest and 63,26 million tons of corn in the second harvest. The corn production growth rhythm is what determines its price in the internal market, and so its attractiveness to

be transformed in ethanol. It also must be considered that corn exportations have been floated between 20 and 30 million tons, and the logistic limitations have resulted in very attractive prices for grains in the regions close to the poles of cultivation.

Between 2014/15 and 2016/17 harvests, corn ethanol production jumped from 26,483 to 234,147m³. In this year harvest 2017/18, corn ethanol production is estimated by DATAGRO in 525,000m³, with 440,000m³ of hydrated ethanol and 85,000m³ of anhydrous ethanol.



Source: Única / DATAGRO

According DATAGRO¹ survey, at the end of 2017/18 harvest, the installed capacity of the six plants operating today, four of them in Mato Grosso and two in Goiás, is of 819,000m³ per year. However, the plants in operation and the ones still in design phase, totaling eleven in Mato Grosso and three in Goiás, add up to the capacity of 2,966 million of cubic meters up to 2020, and they will be capable of processing 7,394 million tons of corn per year.

This corn processing, when materialized, will represent 8.4% of current production. In a national level, this percentage is still inferior to the United States, which reached 37.9% of total production in 2017, from a total of 362.1million tons produced, or 137.2 million tons processed for ethanol. However, the isolated case of Mato Grosso, where most of the plant projects are located, the projected production for 2020 represents a significant portion of the current production of 26.5million tons of corn.

Corn ethanol competitiveness is related to the grain price. Around 85% to 90% of the corn ethanol cost comes from the price of the grain. The question is then, if this price will be competitive with the sugar ethanol and the gasoline itself. According to the projections from the entity that represents the corn producers in Brazil, the answer is yes. ABRAMILHO estimates that Brazil has conditions to expand the corn production in Brazil to 200 million tons per year, in the period of about one decade. If the production keeps growing in this rhythm the challenge to the storage systems and integrated logistics will remain and so, the prices must also be competitive in its origins.

There are two production models for corn ethanol in Brazil today. The production in “stand-alone” plants that just process the corn, and plants integrated with sugar cane plants. The first one uses an external energy source, usually wood chips. The second one uses the energy generated with sugar cane waste, bagasse and straw, with the synergy in the use of energy and several industrial equipments already installed in the sugar cane plants.

The potential is significant in both industrial models. The integration of corn ethanol production with that of sugarcane ethanol may result in an interesting equation for current cane ethanol producers, with the use of industrial facilities in the off-season.

The corn-to-ethanol processing adds value to the grain, and generates high protein co-product (DDGS-distillers dried grains and soluble) used in feed composition for cattle, pigs and poultry, reducing the logistics pressure on grain transport. It is an activity that means development for the regions where it is installed, capitalizing on agriculture, thus increasing the capacity of food production.

In the case of corn ethanol, it is enough just buying the raw material - the product does not have to worry about producing it, or create a network of suppliers around the plant. Corn ethanol still has the advantage of allowing the raw material to be hedged. As there is an active futures market for corn with liquidity, it is possible to guarantee the raw material pre-pricing, which is not yet possible with sugarcane.

And what is the relevance of an industrial capacity of 2,966m³ of corn ethanol projected until 2020?

Goiás is the second biggest producer of sugar cane ethanol in the country with an annual production of around 4,500m³ per year which far exceeds the consumption of the State. In 2017, Goiás consumed 1,022m³ of hydrated ethanol, and 1,558m³ of gasoline C, containing 27% of anhydrous ethanol. In the same year, Mato Grosso produced about 1,220m³ of cane ethanol, for a consumption of 674.4m³ of hydrated ethanol and 623.8m³ of gasoline C. Therefore, the production of corn ethanol must be transferred to other states and regions, which will change the scenario of supply and net load movement. It is possible to foresee that the transport of diesel to the Midwest will use the return freight to transport ethanol.

Corn ethanol must expand in Brazil, bringing more progress and energy independence.

IN THIS YEAR HARVEST 2017/18,
CORN ETHANOL PRODUCTION
IS ESTIMATED BY DATAGRO IN
525,000M³, WITH 440,000M³
OF HYDRATED ETHANOL AND
85,000M³ OF ANHYDROUS
ETHANOL

¹ Datagro President and e Representative of Civil Society at CNPE (National Council for Energy Policy)



▶ Oleoplan industrial plant

The advance of biodiesel

In March, the mandatory blend of biodiesel and diesel in Brazil rose to 10%

Brazil started using biodiesel in 2005, when it was still optional to mix 2% of the biofuel with diesel. In 2008, this mix became mandatory and reached 5% already in 2010. However, the industry went through a long period of stagnation, with paralyzed industries and idle capacity. “Only in 2014, with the increase to B6, did the industry get some spirits, but due to the economic recession that the country went through in the following years, fuel consumption fell, and the production and consumption of biodiesel between 2014 and 2017 went from 4.5 billion liters”, reports the agronomist engineer Donizete Tokarski, director-superintendent of the Brazilian Union of Biodiesel and Biokerosene (Ubrabio).

However, the industry has gone through a long period of stagnation, with paralyzed industries and idle capacity. “Only in 2014, with the increase to B6, the industry got some spirits, but due to the economic recession that the country went through in the following years, fuel consumption fell down, and the production and consumption of biodiesel between 2014 and 2017 was no more than 4.5 billion liters”, reports the agronomist engineer Donizete Tokarski, director-superintendent of the Brazilian Union of Biodiesel and Biokerosene (Ubrabio).

In March 2018, the sector took an important step. The B10 blend (10% of biodiesel added to fossil diesel) became



valid. “The country is expected to produce 5.5 billion liters of biodiesel in 2018 to meet the demand for the mandatory blend. As a result, the country consolidates as the second largest producer and consumer of biodiesel in the world, behind only the United States”, says Tokarski. In 2017, Brazil consumed 4.3 billion liters of biodiesel.

According to Felipe Camargo, commercial manager of Aboissa’s Oleochemical Products Unit, in 2016 there was a 2.6% decrease, the first annual drop in biodiesel production in Brazil. After a series of government initiatives aimed at accelerating development, in 2017 there was a resumption and the sector finished the year with an approximate growth of 20%. “The reason for the decline in 2016 was the economic crisis, when, with low consumption, many producers became idle and went to other markets. With the gradual increase of biofuel percentage authorized by the government in 2017 and 2018, we must witness advances,” says Camargo. “The industry carries a 40% idle, and there are already institutions defending the addition increase to 11% from March 2019. In fact, the B10 was a repair, because this increase should have occurred before”, he adds.

“THE COUNTRY IS EXPECTED TO PRODUCE 5.5 BILLION LITERS OF BIODIESEL IN 2018 TO MEET THE DEMAND FOR THE MANDATORY BLEND. WITH THIS, THE COUNTRY CONSOLIDATES ITSELF AS THE SECOND LARGEST PRODUCER AND CONSUMER OF BIODIESEL IN THE WORLD, BEHIND ONLY THE UNITED STATES”,

Donizete Tokarski



► Granol biodiesel production plant in Anápolis

Increasing the biodiesel blend to diesel has several positive consequences for the country. “The addition of 2 percentage points of biodiesel means 3.7 million tons of oils / fats that will be consumed in the course of 2018 for the biofuels production. With this measure, I have the prospect that the sector will be warmer and a larger volume of soybeans will be processed in the domestic market, generating more investments, jobs and the commercialization of higher value-added products”, says Camargo.

For him, the increase in biodiesel production will give the country a US \$ 2.2 billion economy by replacing imported diesel, generating jobs and reducing greenhouse gas emissions, which is an important step towards the diversification of the country’s energy matrix.

A policy that promotes the expansion and predictability of the biodiesel sector is pleaded by the different players in this segment. For Aboissa, this is a sector of great relevance. Of its 10 business units, 5 are involved with biodiesel, trading oils / fats,



Felipe Camargo, Oleochemical Products

glycerin, lees, fatty acids, methyl ester and catalysts. The company is a reference in this market for both buyers and suppliers. Aboissa does not produce biodiesel, but it is in contact with the mills and the sources of raw materials in the intermediation of buying and selling businesses.

According to him, the main raw material in the country is soybean oil, which corresponds to about 71% of what is used in biodiesel. Then there is bovine fat, with about 12%, fatty materials, with approximately 11% participation, and other types of oils / fats, such as cotton, recovered frying oil, palm oil etc.

"Even without clear goals for the sector's growth, I believe the market will continue to advance, as Brazil, being the largest exporter of soybeans in the world, will of course have a moment when it will inevitably reduce the volume of grain exported to process and supply the local demand," says Camargo.

In Brazilian biodiesel market, Aboissa's executive sees a promising future for industries that are

verticalized, that is, those that stop the process from the grain crushing to the biofuel production. "That's because the margins of business are minuscule and the gain occurs in the volume. Whoever is outside this scenario, will not be able to compete."

He points out that the big players in the soybean market are investing in biodiesel production. By the end of 2018, two more large plants will be inaugurated. "This is the opportunity that Brazilian market can see to add value to the large volume of soybean oil and remain competitive in the acquisition of soybeans with the farmer."

And the consumer can play a decisive role in the development of this segment in a world where the population is increasingly aware of the environment and industry, aware of the importance of their role. "There are prospects for increased consumption. There is an urgent need to use energy sources and the biodiesel plays a fundamental role in this", concludes Camargo.

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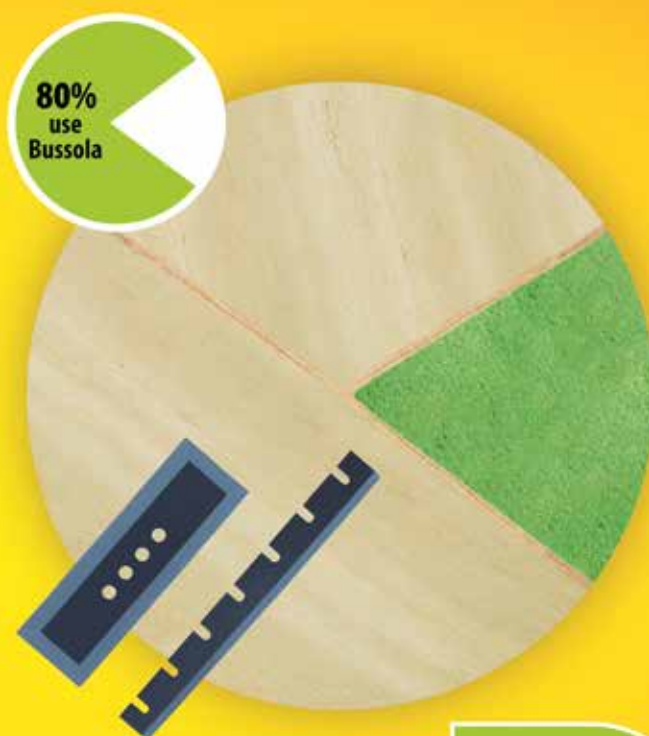
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Full Energy Forum 2018: Brazilian energy sector on the agenda

The event takes place in August, in São Paulo city

Grupo Midia and Full Energy Magazine launch the second edition of Full Energy Forum, an event that will occur in São Paulo city, next August. The forum, which will have an audience of approximately 300 people, aims to disseminate information, studies, and present cases for the different links in the Brazilian energy chain as well as discuss the future of the Brazilian energy sector. “A way to bring quality and deep content to the public, address issues of great importance to the country and open space for networking among different agents of Brazilian energy market”.

The event will be attended by CEOs and decision makers from different energy sector links, as well

as public authorities, managers of energy generating companies, sector entities, researchers; service providers and equipment manufacturers; professionals in technical areas, tradings and insurance companies, among other segments.

One of the high points of the forum will be the debate with the participation of the candidates for the Presidency of Republic in 2018, who will have the opportunity to present their proposals for the Energy area and show to the public - highly qualified - how much they know of the sector.

Soon the programming of lectures and panels of Full Energy Forum will be announced on the magazine's website and in social media.

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Natural gas: solution for the country

Perspectives point to a progressive increase on natural gas offering by 2030



Photo: Helcio Nogueira Fiepp

Augusto Salomon,
Executive president of Abegás
(Brazilian Association of Gas
Distributors Companies)

A study by Strategy / PwC consultancy for Abegás points out that stimulating the competitiveness of natural gas could unlock a potential consumption of more than 200 million cubic meters / day - just as a parameter, the average consumption in the country between January and November 2017, was 65 million cubic meters / day.

In fact, the perspectives point out to a progressive increase on natural gas offering by 2030 – in part, by the prospection of associated gas in the post and pre-salt, in the next few years. The national production may reach between 94.8 and 108.8 million cubic meters / day, according to the same study by Strategy & PwC.

In parallel, Bolivia's gas imports can add around 20 to 30 million cubic meters / day and the importation of Liquefied Natural Gas (LNG) can provide an additional 41 to 55 million cubic meters / day. In other words, domestic production and imports, under competitive conditions, have the potential to increase the supply by 2030 from 171 to 214 million cubic meters / day - equivalent to approximately two and a half times the current demand.

This entire scenario shows that natural gas may be a strategic source of energy in the Country economic growth route. Given these perspectives, it is necessary to make it possible the creation of a demand capable of absorbing the input. In order to create conditions that attract investments

and increase natural gas competitiveness, the sector needs regulatory adjustments and infralegal instruments that stimulate new natural gas suppliers in a context in a transition from a monopolist market – still with a large participation of Petrobrás in the whole chain of the sector (production, imports and marketing), which limits the offer competition

and restricts investments on gas offer – to the new setting that the market must assume with the sale of Petrobras' notably monopolistic assets.

Abegás defends the setting of a business environment capable of increasing the competition, favoring the investments and integrating all the links in the chain – from exploration and production to the disposal and treatment of the production, including transportation and distribution. The distributors, regardless the scenario, continue

to make investments in distribution networks expansion. Even in a scenario of strong retraction in the Country economy, the concessionaires added in the last two years, more than 400 thousand new clients to their basis.

Today, the benefits of natural gas reach more than 3.2 million customers. The universalization of the service is possible. For that, it is enough that the new regulatory boundary of the sector adopts appropriated actions, in a positive signal to attract new investments that will bring the advantages of natural gas to an increasing number of people and enterprises, generating employments and income.

ABEGÁS DEFENDS THE SETTING OF
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THE MAIN MEETING
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PERSPECTIVES OF
BRAZILIAN ENERGY
SECTOR



Augusty/2018

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An intelligent LOOK
over the SECTOR



Photo: Renato Lopes

▶ Plinio Nastari, Datagro Consulting president, presented data for the 2018/19 harvest

Sugarcane processing in the Center-South of Brazil should decline 5.2%

Event for launching the 2018/19 harvest, promoted by Datagro and Santander, also marked the signing of the RenovaBio regulation decree

Sugarcane milling in the Center-South region of Brazil is expected to total 577 million tons in the 2018/19 harvest. The number indicates a fall of 5.2% over last year's result. The data was disclosed by Datagro Consulting president, Plinio Nastari, during the Sugarcane, Sugar and Ethanol 2018/19 opening event, held in Ribeirão Preto, São Paulo, by Datagro and Santander.

The projection on the sugar mix in the region was also revised from 43.5% to 42.9%. According to the consulting, this scenario was influenced by the high consumption of hydrous ethanol in the domestic market, coupled with the surplus in the world balance, which is expected to continue for another season.

In view of this, the forecast for sugar production in the

"RENOVABIO IS, I WOULD SAY, JUST ANOTHER CHAPTER IN A BROAD MODERNIZATION AGENDA. BUT AMONG ALL THE AGENDAS, FISCAL RESPONSIBILITY, SOCIAL RESPONSIBILITY, I WOULD SAY THAT, BECAUSE OF THE ENTHUSIASM I SEE (...) I THINK THAT RENOVABIO, OF ALL ACTS, WILL BE ONE OF THE MOST IMPORTANT THAT THIS GOVERNMENT HAS PRACTICED"

Michel Temer

Center-South in 2018/19 fell from 32.20 to 31.60 million tons, a decrease of 4.46 million tons in relation to the 2017/18 crop production (36.06 million tons).

Also for the 2018/19 season, the consulting projects a reduction of 5.2% in the total offer of Total Recoverable Sugar (ATR).

Ethanol

During the event, the forecast for ethanol production in the Mid-South was slightly revised upwards, from 26.34 to 26.48 billion liters. Of this amount 10.84 billion liters are of anhydrous ethanol (86 million from corn) and 15.64 billion liters of hydrated (520 million from corn).

In short, the 2018/19 sugarcane harvest in the country will be more alcoholic, due to the global picture of prices pressured for sugar. This was estimated by the director of the RCMA Group in Brazil, Felipe Ferraz, during the event. According to the executive, the destination of cane harvested in the Center-South region in the new season will be 59% for ethanol. According to him, the price of ethanol will continue to be advantageous over sugar in the next cycle.



Photos: Renato Lopes

► During the event, the President Michel Temer signed a decree regulating the RenovaBio Program



► Michel Temer: "RenovaBio will be one of the most important acts that this government practiced"



► Fernando Coelho Filho, Ministro de Minas e Energia



Photo: Renato Lopes

► The event brought together numerous authorities, industry executives and journalists in Ribeirão Preto

RenovaBio

During the event, the President of the Republic in Brazil, Michel Temer, signed a decree regulating the National Biofuel Policy (RenovaBio). At the time, he pointed to the program as one of the most important acts carried out by his government. “RenovaBio is, I would say, just another chapter in a broad modernization agenda. But among all the agendas, fiscal responsibility, social responsibility, I would say that, because of the enthusiasm I see (...) I think that RenovaBio, of all acts, will be one of the most important that this government has practiced”, said Temer.

The law provides for the expansion of biofuels use in the country’s energy matrix, such as ethanol and biodiesel, stimulating the entire fuel production chain without imposing carbon taxes. RenovaBio sets mandatory annual targets for fuel distributors with the definition of mandatory percentages of biodiesel to be added gradually to diesel fuel and the percentage of anhydrous ethanol that will be added to gasoline production between 2022 and 2030.

In addition to the economic impact, the project is in line with the commitments made by Brazil in the Paris Agreement of United Nations (UN) to reduce the emission of greenhouse gases. In this aspect, the law also creates instruments to stimulate the practice of combating greenhouse gas emissions, such as the Certification of Efficient Biofuels Production and the decarbonization Credit, which may be issued by fuel distributors to prove the fulfilling of the individual target.

The optimism in the country’s economy is growing, said the president, mentioning the record harvest recorded in 2017: “Brazil [...] came back; it came back to a large extent thanks to the aid given by the agribusiness sector and Brazilian agriculture”.

The event was also attended by the Mines and Energy Minister, Fernando Coelho Filho (MME). According to him, the regulation of National Biofuels Policy (RenovaBio) will give greater security to attract investments to the sugar-energy sector.



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