OIL & NATURAL GAS CONFERENCE

ARPEL2015

LATIN AMERICA AND THE CARIBBEAN

COOPERATION AND INNOVATION FOR
A SUSTAINABLE ENERGY DEVELOPMENT

April 7 - 9, 2015 | Punta del Este, Uruguay

arpel 50 YEARS

REGIONAL ASSOCIATION OF
OIL, GAS AND BIOFUELS SECTOR COMPANIES
IN LATIN AMERICA AND THE CARIBBEAN

REPORT

REGIONAL ASSOCIATION OF
OIL, GAS AND BIOFUELS SECTOR COMPANIES
IN LATIN AMERICA AND THE CARIBBEAN

The year 2015 will go down in history as the year in which the **Regional Association of Oil, Gas and Biofuels Sector Companies in Latin America and the Caribbean (ARPEL)** celebrated half a century of life. It did so reaffirming its vocation for integration, faithful to its identity as a forum for energy convergence, and with a vision to be a reference for the consolidation of the industry as a provider of reliable and secure energy.

Under the motto **"Cooperation and innovation for a sustainable energy development,"** the Oil and Gas Conference ARPEL 2015 was held in Punta del Este, Uruguay, from April 7 to April 9.

This biennial event brought together more than 300 senior representatives of the energy sector in Latin America and the Caribbean, who found in this international meeting, the space conducive to deepen the analysis of the current situation of the oil and gas industry, the challenges and the regional opportunities, and the new global context that will mark the years to come.

For this purpose, a comprehensive program consisting of seven plenary sessions, seven keynote addresses, six lectures by CEOs, eight concurrent technical sessions, in addition to a forum of hydrocarbon agencies, gave rise to the presence of more than 90 international speakers who addressed a wide range of topics, from the geopolitical analysis and the situation of low prices to the development of new technologies, leadership, human rights and future global trends.

While the opening ceremony was attended by the Minister of Industry, Energy and Mining of Uruguay, Carolina Cosse, and the President of ANCAP, José Coya, in the closing ceremony the highlight was the presence of the President-in-Office of Uruguay, Raúl Sendic, who closed the event by congratulating the Regional Association on its 50th anniversary, noting that the ARPEL Conference contributed to strengthening the integration that Latin America needs. "These have been days of intense work to achieve better days, bearing in mind that there are opportunities to continue to grow, innovate and develop investments in energy," he said.

The report below presents the main thematic reflections over three days of deep analysis of the sector.

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Global and regional perspective of the energy sector

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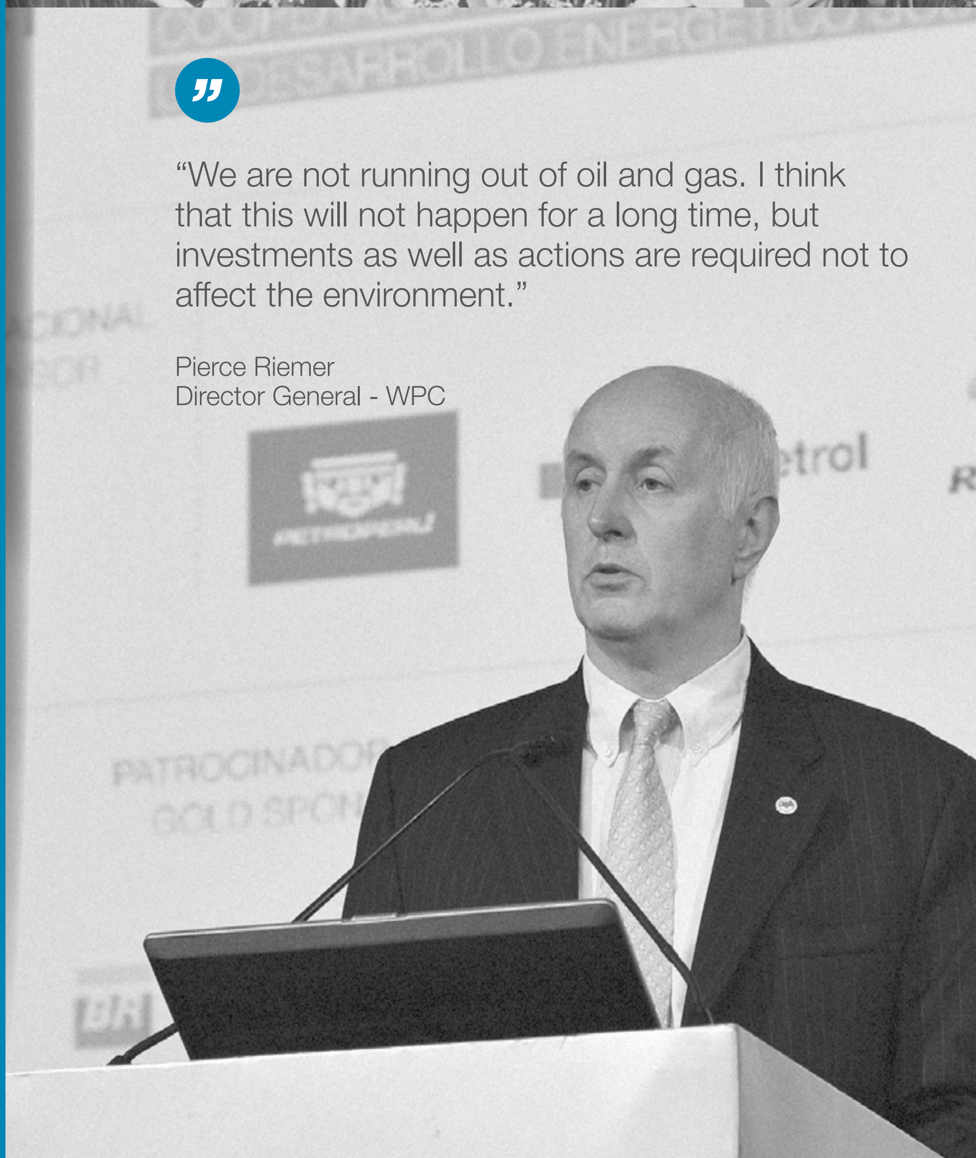
Global and regional perspective of the energy sector

“Between now and 2050, natural gas consumption will grow by 50%.”

Pal Rasmunssen
Secretary General - IGU



“We are not running out of oil and gas. I think that this will not happen for a long time, but investments as well as actions are required not to affect the environment.”

Pierce Riemer
Director General - WPC

During the next 35 years, hydrocarbons will remain crucial to the world energy market. In this scenario, the natural gas is envisaged as the fuel of the future, strongly driven by its price, ease of transportation and lower degree of environmental pollution in an era when climate change imposes challenges for the energy industry.

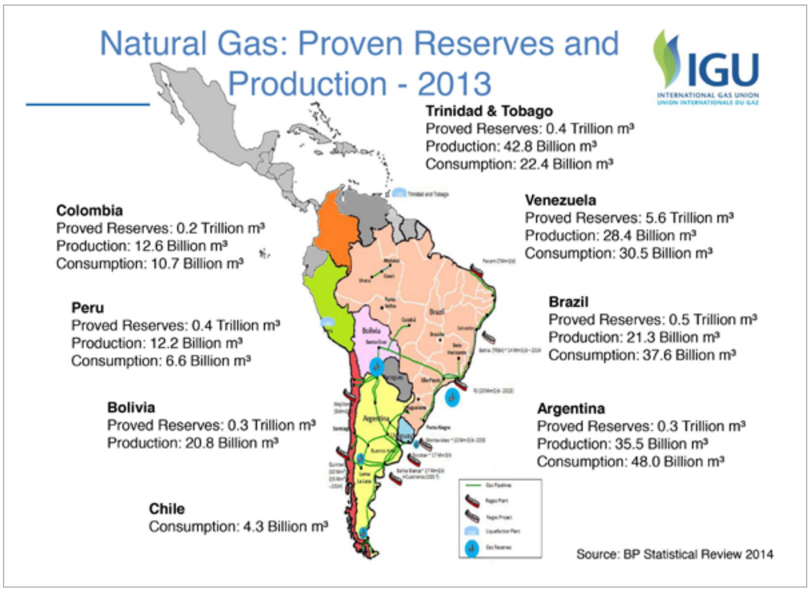
For the Director General of the World Petroleum Council (WPC), **Pierce Riemer**, the planet will not run out of oil and gas. In fact, their development will continue to require great efforts and investments to meet global demand composed of 9,000 millions human beings by 2050.

The lecturer stated that maintaining the current levels of production and meeting the growing demand would require around US$ 40 billion in the next 20 years. "We are not running out of oil and gas. I think that this will not happen for a long time, but investments as well as actions are required not to affect the environment with greenhouse gases," he said.

The Secretary General of the International Gas Union (IGU), **Pal Rasmunssen**, agreed that the overall prospects point to a significant increase in the consumption of fossil fuels and natural gas will have an increasingly important role in the long-term energy mix. "Between now and 2050, natural gas consumption will grow by 50%," he said.

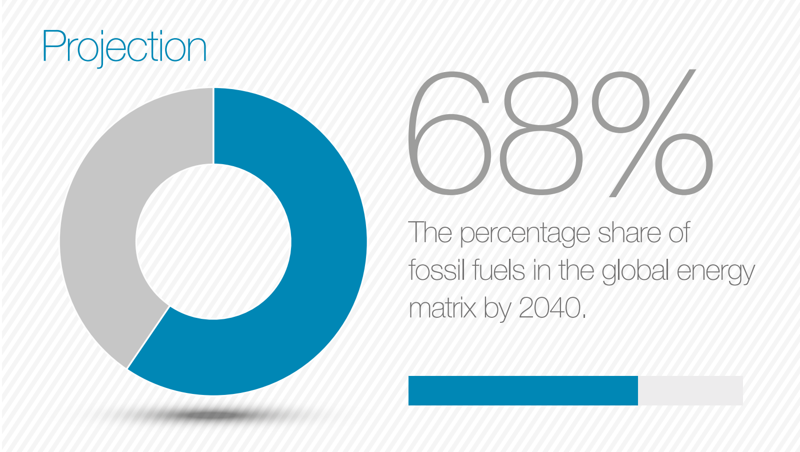
In a world where there are currently 1,400 million people without access to energy sources, gas can be a response to the global needs in combination with renewable energies such, as solar and wind power. In addition, based on reserves and current production, Rasmunssen stated that there is energy availability for the next 200 years.

Presentation made by Pal Rasmunssen (Gas is available and widely distributed)



Presentation made by Pal Rasmunssen (Gas is available and widely distributed)

Daniel De Nigris, General Manager of ExxonMobil Exploration Argentina.

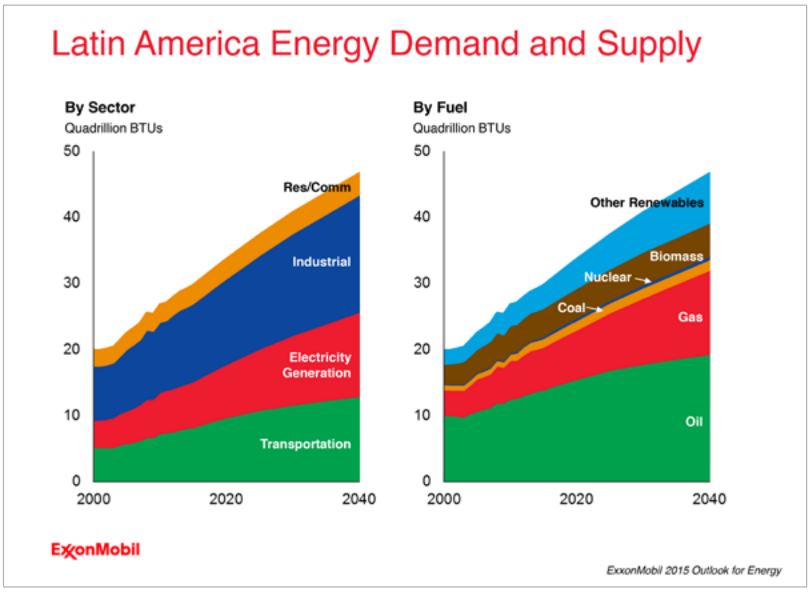


The General Manager of ExxonMobil Exploration Argentina, **Daniel De Nigris**, in a vision of the sector in 2040, stated that, in fact, gas will be the energy more used in the world, tripling its production to up to 38 billion cubic feet per day and consolidating fossil fuels with a 68% share in the global energy matrix.

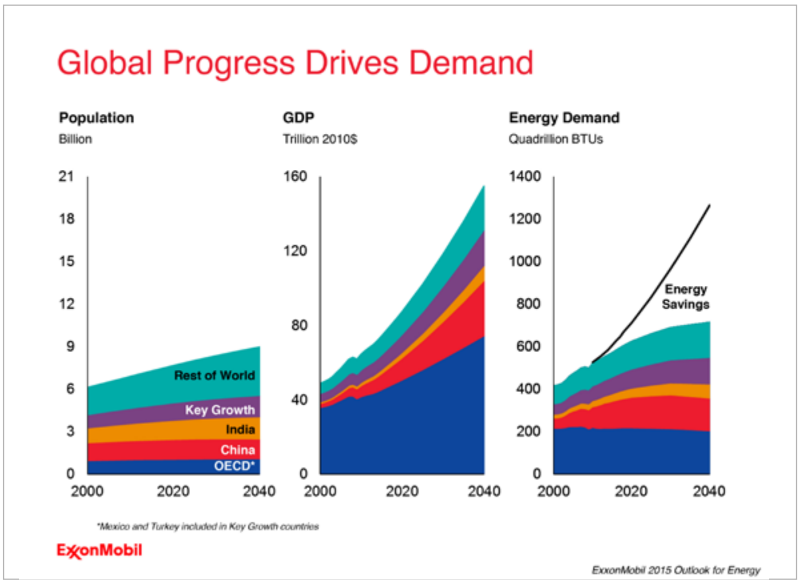
This momentum will be the result of 2,600 million people entering the global middle class segment, in addition to the development of future power generation and industrial projects, which "will represent a great production and logistics effort for the oil and gas industry," he said.

By then, the United States will have achieved self-sufficiency in natural gas, while Latin America will experience a balance between conventional and unconventional production, with Brazil as the main regional driver and generator of close to half of the continental energy demand.

What about Liquefied Natural Gas? De Nigris argued that its development will be just as important, because it will move 100 billion cubic feet/day, a volume three times higher than the present one.



Presentation made by Daniel De Nigris (Global Progress Drives Demand)



Presentation made by Daniel De Nigris (Global Progress Drives Demand)

"We cannot forget that Arab countries will continue to play a key role in the market and we should determine if they will use that role politically.".

Carlos Pascual
Senior Vice President – IHS

Geopolitics, risks and opportunities

However, the projection for the oil and gas industry will depend on the scenarios that arise in the global geopolitical environment. In this line, the Senior Vice President of IHS, **Carlos Pascual**, said that we have seen in the past five years in the world is equivalent to "seismic changes in the structure of the energy sector."

Pascual mentioned the growing energy performance of the United States through the "shale revolution," the fall in oil prices since the second half of 2014 and the "historic" Arab refusal last November to cut crude oil production, as factors that have reshaped the energy picture.

In the American case, the development of unconventional hydrocarbons has enabled the country to increase production, reduce their energy imports and project itself to be a net exporter of gas in the next five years.

According to the consultant, this performance has sparked global rumors and fears that point to an American distancing from the Middle East theater of conflict. In the future, this would imply higher risks in terms of global security, and the United States using its new energy potential to "punish its enemies and favor its allies."

Therefore, the fall in crude oil prices led by Saudi Arabia would be the response of the Organization of Petroleum Exporting Countries (OPEC) to the expansion of the U.S. shales, seen as potential competitors which must be weakened. “We cannot forget that Arab countries will continue to play a key role in the market and we should determine if they will use that role politically as we see today,” Pascual said.

China and India should also be considered. Their increasing energy consumption makes the growth of the global demand for oil and gas emerge from countries that are outside of the Organization for Economic Cooperation and Development (OECD), which in the long run can lead to a conflict of international governance on oil and its derivatives.

To illustrate this, Pascual mentioned that the International Energy Agency (IEA) is within the framework of the OECD, for which reason “if we do not change the governance of the IEA over time, we will not have the mechanism or the effective manner to govern the energy world,” he said.

Regarding the fall in prices, IHS considers that what we have seen since last year shows that “the risk has completely changed in the world. Now it is risky not just what comes out of the (oil) market, but also what returns to it,” by this meaning that the fall in the barrel price in 2014 was due to the oversupply of crude oil, after countries, such as Libya, Nigeria and, above all, the United States, reactivated their production.

It remains to be seen what will happen once a possible deal is reached under which the United States would relieve sanctions on Iran for its nuclear program. If so, the Muslim country would have the possibility to add 300,000 barrels per day to the world production until the end of 2015, which could also affect the crude oil price.

In this context, IHS estimates that the barrel price at the end of the year will be US$ 50 and it will reach US$ 70 in 2016.

Market and prices

The Director of Macro Oils at Wood McKenzie, **Ann-Louise Hittle**, agrees that the market rebalance in the long term will depend on the growth in demand in the countries that are not members of the OECD, especially China and India.
Until then, the global demand will continue to grow accompanying United States consumption, strongly driven by current low prices, and that would allow an increase in the demand of around 300,000 barrels per day.
On the supply side, Hittle said the industry also knew how to react quickly to the fall in prices, applying spending cuts that meant US$ 126,000 million less in the budgets of the upstream for the current management, 24% more cuts that those in 2014.

Mitigation measures to address the context

Like the upstream, the downstream sector had to take measures after the fall in crude oil prices. As a case study, the National Oil Company of Chile (ENAP), through its Finance and Administration Manager, **Ariel Azar Nuñez**, said during the Conference that the volatility of the price in the downstream business impacts directly on refineries because it exposes them to the variation in prices between the purchase of crude oil and the sale of refined products, a process called inventory cycle.
In this regard, ENAP faces an inventory cycle particularly long, since 99% of crude oil used is imported by sea, which makes the company a "pure price taker." To minimize this factor, ENAP applies a hedging strategy that seeks to protect 100% of their inventories exposed to the variation in prices, leaving no room for speculative positions.

02 //
Upstream: State plans on the table

02 //
Upstream: State plans on the table

Latin America maintains its potential for hydrocarbons investments, even in times of low prices. One of the most beneficial aspects are the changes in the rules of the game which States have implemented to make the inflow of new capital and the development of projects viable.

In this context, the most attractive areas are those yet to be explored, such as in Bolivia, where YPFB has 86 exploration projects to be undertaken within the next five to seven years. The Vice President of the state company, **Luis Carlos Sánchez**, stated that an Immediate Exploration Plan has been activated, which is bearing fruit "and as a result of a previous work, measures have been taken that help compensate for this situation of decline in international prices," he said.

In Uruguay, a country with no oil or gas tradition, there has been a "renewal" of hydrocarbon exploration. The Exploration and Production Manager of ANCAP, **Héctor De Santa Ana**, considered that in Round 2, for example, eight areas were awarded with a total of approximately 312,400 units of work that, at the market value calculated at that time, totaled US$ 1,560 million.

Luis Carlos Sánchez, Vice President of YPFB

Héctor De Santa Ana, Exploration and Production Manager of ANCAP

José Antonio Ruiz, Head of the Energy Security and Marketing Division of the Ministry of Energy of Chile


Brian Richardson, Oil and Gas Manager of the Petroleum Corporation of Jamaica

David Muñoz, Director of Hydrocarbons of the National Secretariat of Energy

On the other hand, the Head of the Energy Security and Marketing Division of the Ministry of Energy of Chile, **José Antonio Ruiz**, considered that the trans-Andean country is a large market for gas, especially for electricity generation, to which more than 50% of energy imports go. According to the executive, the Chilean potential lies in unconventional resources in the southern regions, such as the Magellan Basin and the “Zone G” reservoir, with a potential of 440 million cubic meters of tight gas per square kilometer.

Meanwhile, the Oil and Gas Manager of the Petroleum Corporation of Jamaica, **Brian Richardson**, stressed the strategic location of the country, both due to the transport routes and the enormous onshore and offshore reservoirs of crude oil and gas. In addition, he emphasized that the potential is 2,200 million barrels, and contracts can be developed under the “production-sharing” modality with flexible tax systems.

Despite not having oil tradition, the Director of Hydrocarbons of the National Secretariat of Energy, **David Munoz**, stated that Panama also offers opportunities. Since 2011, ten sedimentary basins have been identified, and the Hydrocarbon Law was revised, making significant amendments in terms of royalties, taxes, and distribution.

Finally, the Director General of the National Hydrocarbon Commission of Mexico, **Gaspar Franco**, considered the last Energy Reform to be positive. It has given a new horizon to the nation. In this context, there were two rounds, the "Round Zero" and the "Round One", which bid a diversified portfolio of 14 blocks, in which 49 companies expressed their interest. "We are working very hard on transparency and accountability to give confidence to all those who go to work in Mexico," he said.

With many possibilities in exploration and production, research centers are fundamental to the upstream. Experiences, such as those of the Center for Research and Development (CENPES) of Brazil, YPF Technology (Y-TEC) of Argentina or the Mexican Institute of Petroleum (IMP), show advances that allow optimizing costs and increase the efficiency of the industry.

The General Manager of R&D in Geoengineering and Well Engineering of CENPES, **Roberto Fagundes Netto**, explained that the Center, that only in Rio de Janeiro has an area of 300,000 square meters, about 200 laboratories and more than 8,000 equipments in operation, addresses the technological demands that drive Petrobras projects, especially in the Presalt. The executive placed emphasis on two projects in particular. The first project seeks to reduce construction costs of offshore wells by 30%; the second project aims to increase the rate of penetration during drilling with the use of laser.

In addition, the IMP also contributes to research. The Deputy Director of the Directorate of Hydrocarbon Processing Research, **Florentino Murrieta**, said that the purpose is to promote innovation, the scaling up of processes and products. "The goals of the organization are focused on the increase in new technologies to add value to the industry," he said.

Gaspar Franco, Director General of the National Hydrocarbon Commission of Mexico


Roberto Fagundes Netto, General Manager of R&D in Geoengineering and Well Engineering of CENPES


Florentino Murrieta, Deputy Director of the Directorate of Hydrocarbon Processing Research

02 //
Upstream: State plans on the table

Eduardo Vallejo, Manager of Business Development and Strategy of Y-TEC

Richard Brown, Vice President of Unconventional Resources of Schlumberger for South America

Sergio Giorgi, Director of Unconventional Resources of Total Austral

Meanwhile, the Manager of Business Development and Strategy of Y-TEC, **Eduardo Vallejo**, stated that this Center emerged to promote the development of the Vaca Muerta deposit, thus increasing the likelihood of success in the production of unconventionals.

In this regard, the Vice President of Unconventional Resources of Schlumberger for South America, **Richard Brown**, said that the industry has to be more efficient to exploit unconventionals outside North America.

As an example, the executive said that one of the first steps in the United States and Canada was to replace old equipment by state-of-the-art equipment. In this way, at the end of 2013 there were 1,560 drilling rigs that could drill 22,000 horizontal shale wells, in addition to performing 400,000 fracturing stages. “As an industry, the estimate was that in 2013 US$ 40,000 million were spent only in fracturing operations,” he said.

The Director of Unconventional Resources of Total Austral, **Sergio Giorgi**, underscored the fact that the company’s strategy in Vaca Muerta is to determine the existing potential and comply with contractual obligations. “It is necessary to define the conditions in order to achieve the cost-effective development from all standpoints,” he added.

Carlos Colo, Executive Manager of Exploration and Development of YPF, and **Francisco Paz**, Operations Manager of Zona Centro of Petroamazonas EP

Recovering reserves

Water injection is the method of secondary recovery more commonly used in the world due to the low cost of the water, the availability and the effectiveness in displacing oil in reservoirs. This is a proven technique that has been applied since the last century, the Operations Manager of Zona Centro of Petroamazonas EP, **Francisco Paz**, explained when responding to the question of how to improve the recovery factors for existing reserves.

According to the executive, the increase in the recovery factor in deposits where water injection has been used after the primary exploitation of the field is about 6% to 20%. This percentage may be higher if the field has favorable characteristics from the point of view of its geology and the relationship of mobility between oil and water.

In Argentina, where the average level of production of the ten major oil deposits is 35 years, YPF aims to increase 1% of the recovery factor for reserves. This represents approximately 500 million barrels of oil or the equivalent of 2.2 years of production. In line with this, in the last few years, YPF has carried out an activity and very significant investment to reverse the trend of declining production of both gas and oil.

“There is a maturity in the fields and high exploitation averages. However, when we see the recovery, this is still low and allows many opportunities to develop some techniques,” the Executive Manager of Exploration and Development of YPF, **Carlos Colo**, said.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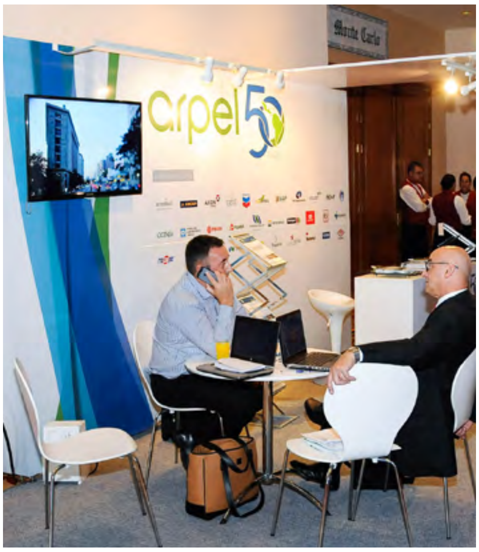
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03 //
Vision of the refining industry at a global level

03 //
Vision of the refining industry at a global level

When considering global demand for petroleum products in the period 2013-2040, one can see an overall growth of the demand of around 21 million barrels per day, which represents a growth of 23%, the Executive Manager of Refining of YPF, **Gabriel Grzona**, explained. In this context, Latin America and the Asia Pacific region will experience a greater growth. In the case of Latin America, growth will reach 42% due to migration of demand from industrialized countries.

On the other hand, middle distillates at the global level will increase by 5%, and Latin America and the Asia Pacific region will be again the main players. As regards the quality of fuels, the trend points to a reduction in the sulfur content. All this, with the incorporation of biofuels, both to gasoline and diesel, to reduce carbon dioxide emissions.

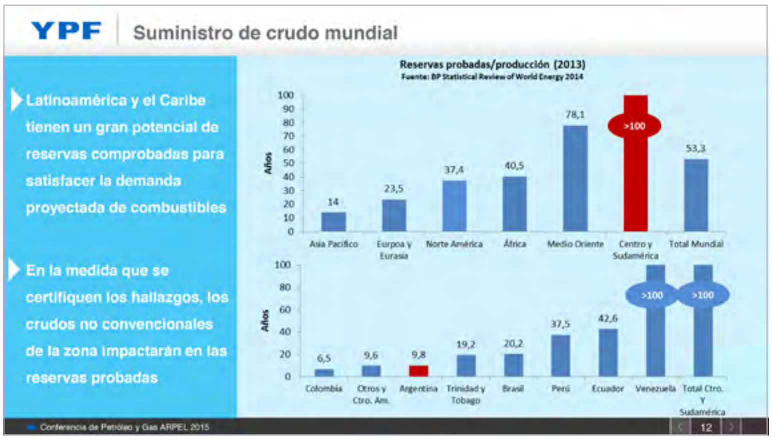
Gabriel Grzona, Executive Manager of Refining of YPF

In addition, according to Grozna, Latin America will grow in its distillation capacity like Asia, the Middle East and Eastern Europe, while the United States and Europe will suffer a rationalization of their capacity. As regards refining capacities, the trend of refining projects is being driven by a greater demand for fuel specifications, higher conversion of heavy crude, improving competitiveness of refining margins with new upgrading and conversion projects. In this respect, Latin America is the third region with conversion, upgrading and desulfurization projects after Asia and the Middle East. However, the difficulties will be to find the necessary funding for their development.

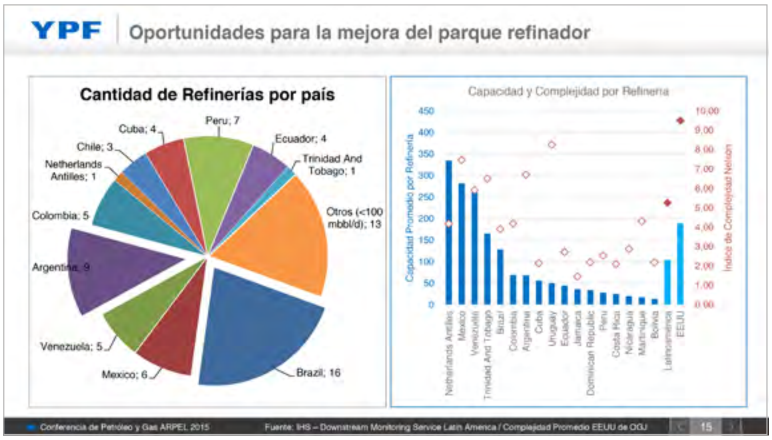
One of the major challenges for the region is competitiveness. The reality shows that energy efficiency of continental complexes presents a gap compared to the American market, 25% higher.

A similar situation is present in the cost of maintenance. Latin American complexes spend 45% more to distill the same amount of oil as in the United States. This is added to the fact that construction costs in the region are generally higher than in the United States, and therefore it is 70% more expensive to install a processing plant on the continent than in the United States.

In conclusion, the main strengths for the refining industry in Latin America are linked to a growing demand, availability of crude oil and a strong presence of national companies. In terms of opportunities, there are possibilities for regional integration and refining schemes with potential improvement. On the other hand, the weaknesses noted are the difficulties in financing, while the U.S. competition, with lower operating costs, is perceived as a threat.

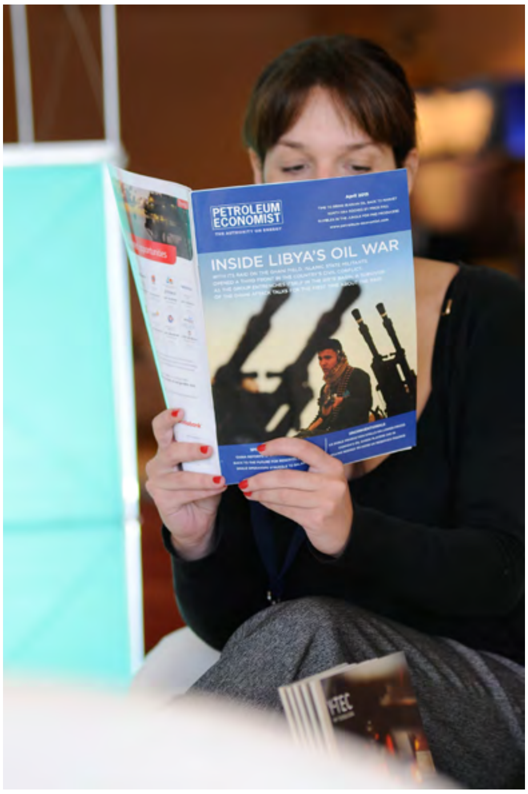


Presentation made by Gabriel Grzona (Opportunities for improvement of the refining plants)



Presentation made by Gabriel Grzona (Refining Capacity)


Y-TEC
INNOVACIÓN
Y DESARROLLO
TECNOLÓGICO
PARA LA
INDUSTRIA
ENERGÉTICA
Y-TEC


PETROLEUM
ECONOMIST
INSIDE LIBYA'S OIL WAR


ARPEL2015
REPSOL

04 //
The challenges of sustainability: leadership, values, culture and labor force

04 //
The challenges of sustainability: leadership, values, culture and labor force

“What exactly is going wrong here?” asked the Director of Higher Education of Repsol, **Maria Jesús Blasco**, when she opened the fourth plenary session of ARPEL Conference 2015.

“We are an industry that can offer challenging projects, characterized by the use of large and complex technology, and with access to the most sophisticated means (…) However, despite the possibilities of having a secure career with competitive salaries, we are not sufficiently able to retain talent,” she argued.

More than a response, the executive raised a premise: integrating the vision, values, and business projects with those of society is becoming increasingly important.

In an industry characterized by the long term, sustainability is a challenge. Human resources are an essential element within that scheme. Therefore, the task of finding, training and integrating them to the culture and values of the sector demands a major effort.

For the Executive Secretary of the Brazilian Institute of Oil, Gas and Biofuels (IBP), **Milton Costa Filho**, despite the fact that universities have improved as regards the training of new professionals, they still cannot offer what the companies of the sector require.

“Despite the possibilities of having a secure career with competitive salaries, we are not sufficiently able to retain talent.”.

Maria Jesus Blasco
Director of the Higher Education Center - Repsol

“We cannot but hire young people, because this is a sector that works in the long term. If we do not hire them, it would be suicide for the industry.”

Milton Costa Filho
Executive Secretary - IBP

This factor is striking if one takes into account the fact that virtually all of the new talents entering the industry come from universities. The Vice President of Human Resources of Schlumberger, **Frederic Dyen**, confirmed the data: 95% of talents working in the company are recruited in universities. "The selection is a key issue and a strategic objective for us. Every year, Schlumberger recruits 5,000 professionals, including engineers and technicians. For this reason, our relationship with universities is very important," he said.

Hence the need to ensure alignment between the companies in the sector and the academic entities. "We have to listen to the industry, because we must work for them," replied **José Antonio Hernández**, Professor at the National Autonomous University of Mexico (UNAM).

In fact, the UNAM has undertaken a pilot process for reformulating the career of Petroleum Engineering. Contracting professors with more than 30 years of experience in oil and gas, many of whom are working actively in the sector as well as a new professional profile aligned with the sectoral requirements have been the steps taken so far.

On the other hand, there are companies that have developed their own training programs so that talents work

Frederic Dyen, Vice President of Human Resources of Schlumberger

in accordance with the standards established by the industry. This task is more noticeable in countries such as Spain, which has no oil resources, but that has Repsol as a global operator. "We are an oil company where there is no oil and that means a lot," Blasco said.

The Higher Education Center of Repsol has been working for 15 years. It now trains around 950 professionals in a process that seeks to complement the basic education with technical areas directly related to the oil industry.

With more experience in the field, Petrobras has been providing training for half a century through its corporate university. Through public competitive examinations, the company has been

“We have to listen to the industry, because we must work for them.”

José Antonio Hernández
Professor at the National Autonomous University of Mexico

selecting the best engineers and geologists of Brazil to train them. “The training began 50 years ago because there was a clear difference between what the university offered and what the company needed in terms of training,” Costa Filho added.

According to the executive, until last year, when the price of the oil barrel was around US$ 100, the need to hire skilled labor intensified. With the fall in the oil price, reality has changed. Today, there are adjustments and staff cuts throughout the world. Despite this, “we cannot but hire young people, because this is a sector that works in the long term. If we do not hire them, it would be suicide for the industry,” he said.

However, what can be done to make the oil industry more attractive to new professionals? Blasco stated that society seems to perceive the oil and gas industry as “dirty and unsafe”. Costa Filho said that, in addition to environmental awareness of new generations, there is an image of “arrogance and lack of communication with society” on the part of the sector. These aspects are detrimental at the time of adding talents. In this scenario, the Academic Director of In-Company Programs of the IAE Business School, **Ruben Figueiredo**, in his presentation on New Leadership, Values and Culture, said that according to a study of the Corporate Leadership Council there are seven critical attributes to attract and engage talents.

Rubén Figueiredo, Academic Director of In-Company Programs of the IAE Business School

On the one hand, talents are attracted through compensations and stability. On the other hand, talents are committed to the organization when there is quality leadership, good management and a collaborative work environment. Finally, talents remain attracted and committed when there are opportunities for development and respect.
The director of IMAGINE, **Fernando Alonso**, said that this context opens new knowledge opportunities for business, which implies a paradigm shift in the leadership of organizations.
According to the expert, in the next few years, leaders will be forced away from the traditional role of supervision, control and guidance to be more closely tied to the administration of conversations with their assistants, so that they can reach the highest level of their competencies.
Along this line, he said that organizations are moved with emotions and not with the mind. “How many leaders are there with the highest quality of knowledge, but who lack adequate emotionality? How many leaders are there who have no knowledge, but have the capacity for empathy and moving emotions with a more prominent leadership? “he said.
If the purpose of the companies is attracting and engaging their workforce, a fundamental aspect is the respect for human rights. **Norma Colledani**, member of the Inter-American Commission on Human Rights, explained that companies have a role to play in relation to Human Rights and in the framework of their Corporate Social Responsibility policies. Colledani said that there are three factors to take into consideration: protection, respect and remedy, which lay the foundation to promote good practices regarding compliance with human rights within companies.

Fernando Alonso, Director of IMAGINA


Norma Colledani, member of the Inter-American Commission on Human Rights


Socios


ARPEL2015
Martes 7 de abril - 11:00 hs. -12:00 hs.
SESIÓN I-B
Desafíos de la gestión de talento humano en la implementación de la estrategia del negocio
Deloitte.
Tuesday April, 7 - 11:00 a.m. to 12:00 p.m.
SESSION I-B
Challenges of human talent management in the implementation of the business strategy.


TURNING


PETROBRAS
Bloomberg
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ASOCIACIÓN REGIONAL DE EMPRESAS DEL SECTOR PETRÓLEO, GAS Y BIOCOMBUSTIBLES EN LATINOAMÉRICA Y EL CARIBE
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La Experiencia Cuenta


Weatherford
TURNING CHALLENGES INTO OPPORTUNITIES

05 //

Summary of Keynote Addresses and Dialogue of Presidents

Energy demands and investment opportunities in a new global context

05 //
Energy demands and investment opportunities in a new global context

Despite low international prices, Latin America continues to be a center of development with investment opportunities. Its energy wealth as well as the potential demand shows a horizon with investment requirements close to one billion dollars for the next two decades in areas such as oil, gas and electricity generation.
Achieving these volumes of investment will be a challenge that should be accompanied by national and international oil companies, regulatory agencies and States, which together must respond to a population growth estimated at 130 million new inhabitants, 1,000 new energy projects and a production of 10 million barrels of oil per day.

Population

year 2035

130

million

New population that will be added to **Latin America** until 2035 and that will boost demand for energy.

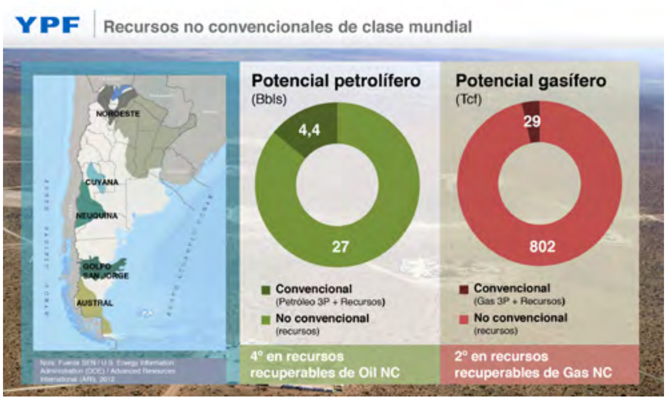
For this reason, according to the President of Chevron Colombia, **Javier La Rosa**, everything points to the fact that Latin America will face an increase by more than 40% in oil demand and more than 75% in gas demand. “The region has a significant growth rate and the oil and gas industry has been a leader in this process,” he said.

What are national companies doing to meet these challenges? The answer seems to be the same in several countries in the region: investment.

The President and CEO of YPF Argentina, **Miguel Galuccio**, said that the investment in his company, mainly focused on the upstream, grew up in the last year around 177%, with an amount of US$ 6,000 million, far exceeding the US$ 2,200 million recorded in 2011. The executive explained that one of the main objectives is the massive development of unconventional hydrocarbons, and therefore, the investment increased from US$ 380 million to US$1,685 million, representing a growth rate of 343%.

Javier La Rosa, President of Chevron Colombia

Miguel Galuccio, President and CEO of YPF



Presentation made by Miguel Galuccio (World-class unconventional resources / Loma Campana: First unconventional large-scale development in Argentina)

On the other hand, the General Manager of the Ecuadorian Petroamazonas EP, **Oswaldo Madrid**, said that the decision of the company is to continue to invest steadily. However, he clarified that the targets must be reformulated with a different strategy to meet these objectives, especially in view of the scenario of low crude oil prices. “The challenge faced by the company, considering that its activity directly impacts on the economy of the country, is to achieve an optimal balance between investment, the cash flow of the State and the oil production,” he said.
In the case of Brazil, the Chief Executive Officer of Gas and Energy Trading and Marketing of Petrobras, **Rodrigo Vilanova**, said that the company has been successful in exploration and has consequently achieved an increase in reserves thanks to recent investments. Along this line, the Reserve Replacement Ratio of Brazil is 125%, while the relationship between reserves and production is for 19 years. A 30% of these reserves are located in the presalt, whose discovery, moreover, has allowed increasing Brazilian exploratory success from 59% in 2011 to 75% in 2014.
However, the interest created by the continental energy potential is not only a matter of state-owned companies. According to the Executive Director of the Pacific Region of Repsol, **Evandro Correa Nacul**, Latin America is very important for his company, so much so that, out of the ten strategic projects proposed in the last corporate plan, six are in the region and four of them in the production stage. Only in exploration, the company has invested at a rate of more than US$ 300 million per year, which, coupled with the investment of

Oswaldo Madrid, General Manager of the Ecuadorian Petroamazonas EP


Rodrigo Vilanova , Chief Executive Officer of Gas and Energy Trading and Marketing of Petrobras

Evandro Correa Nacul, Executive Director of the Pacific Region of Repsol its partners, would amount to over US$ 1,200 million annually.

However, just as Latin America offers opportunities, it is also a region that often experiences political and social instabilities. In this scenario, the President and CEO of Pluspetrol, **Steve Crowell**, said: “Experience tells us that there are opportunities at any point of the curve. We are trained to find them.”

With this approach, the company led by Crowell has positioned itself as an expert in sensitive operations within complex environments.

Nevertheless, it is clear that the continent is pivotal to the sector. “Twelve years ago, the region represented 6% of the operations of Schlumberger and today it has reached nearly 20%. It is a very strong growth, perhaps the best growth the company has experienced,” the President for Latin America of Schlumberger, **Hatem Soliman**, said.

He also highlighted the efforts of the countries to have more reserves, increase production and improve the quality of life of their inhabitants.

All this in a context in which the sector has been living with half the crude oil price for almost one year. “We must be prepared to operate in this new scenario,” the President of Tecpetrol, **Carlos Ormachea**, said.

According to the executive, the industry must find a way to do things looking for greater efficiencies in the entire value chain. “No one can find the answer and the solution alone. Predisposition toward change has to be, eventually, in regulations and even in contracts,” he said.

Steve Crowell, President and CEO of Pluspetrol


Hatem Soliman, President for Latin America of Schlumberger


Carlos Ormachea, President of Tecpetrol

For the time being, a good way of plotting the situation was presented by the President for the Western Hemisphere of Weatherford, **Krishna Shivram**. In his opinion, it is time for companies to go on "diet to become fit" after several years of "abundance and fattening." "It is good to go on diet, be thinner and strong enough to overcome this type of circumstances, which will certainly change over time," he said.

Krishna Shivram, President for the Western Hemisphere of Weatherford

The low price, a relief for imports

Low prices are not bad news for all. The President of the Costa Rican Oil Refinery, **Sara Salazar,** explained that the fall in crude oil prices represents an improvement in national finances "because the deficit is reduced, the oil bill will be lower and less foreign currency will leave the country".

Costa Rica is 64% dependent on petroleum products, and in this percentage, the vast majority is consumed by transportation, and to a large extent, individual transport. Therefore, it faces a major dilemma, "because the energy consumption increases and transport systems are very poor," she said.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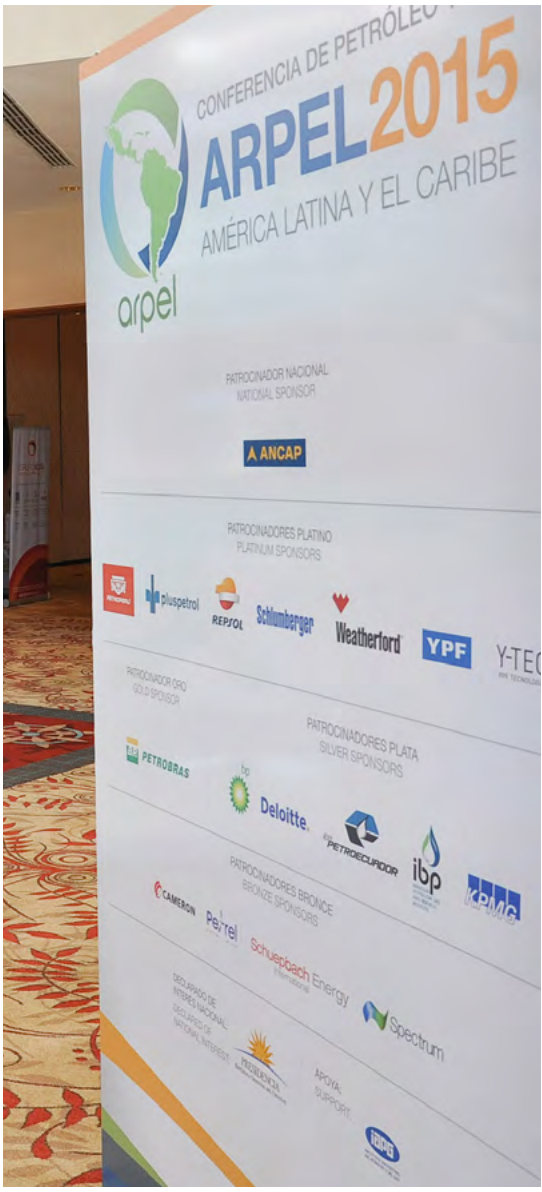
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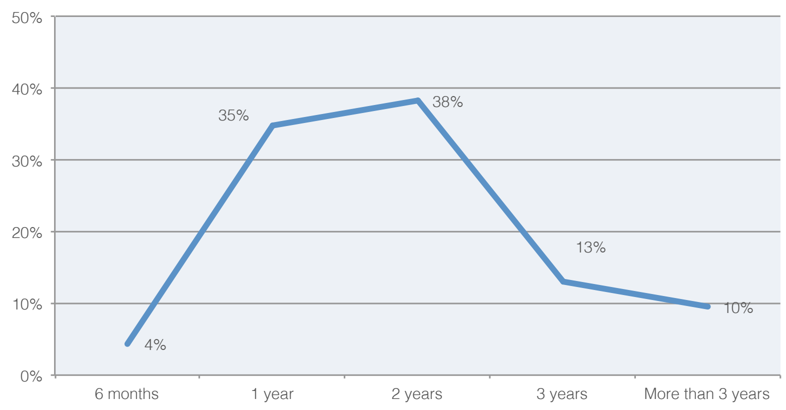
Interactive Surveys

The ARPEL Conference while organizing keynote lectures, dialogues and concurrent technical sessions, provides the audience with the opportunity to participate in interactive surveys in which executives and highly qualified professionals give their opinion on various topics of the energy sector in the region.
In this regard, we highlight the following conclusions that give an idea of how the situation of the sector is seen in the region and the world.

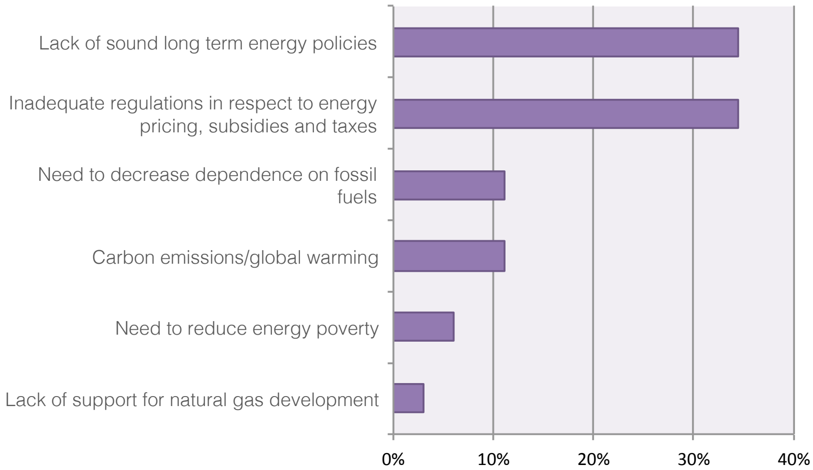
For the items that are having a greater impact on crude oil price, 34% considered it is a combination of geopolitical issues, oversupply, low growth of demand and financial speculation, while 32% stressed that geopolitics had greater weight, and 26%, oversupply. As regards the time when the oil price is estimated to be above $70, 35% believed that in a year and 38% in two years. Only 10% said that it would be in more than 3 years

In how much time do you estimate that the price of oil will be above US$ 70?



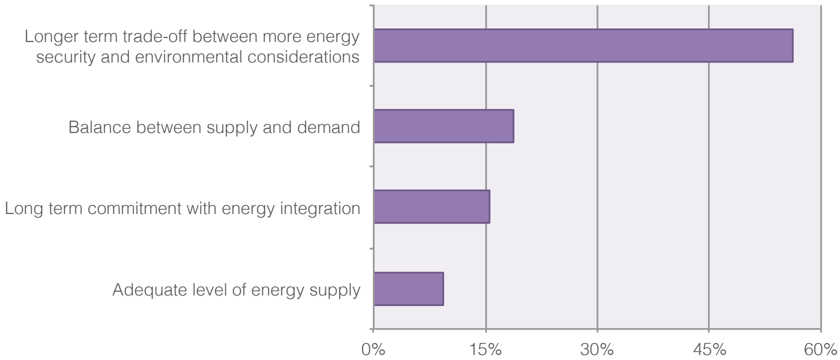
Seventy percent said that the most important energy issues faced today by the region were the lack of long-term energy policies and inadequate regulations on prices, taxes and subsidies.

What do you think is the most important energy issue facing the region today?



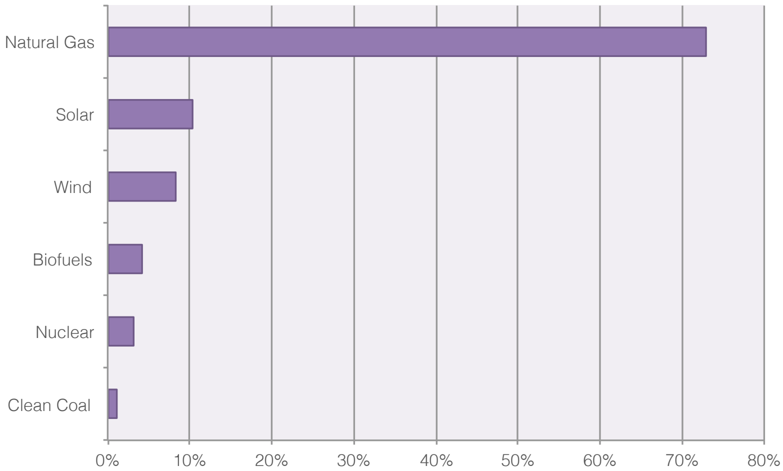
In this respect, 56% of the audience considered that the long-term commitment to energy security and environmental considerations is the most important factor that any energy policy should emphasize.

Which is the single most important factor an energy policy should stress?



The executives surveyed anticipate that natural gas will become the dominant clean-air energy source in the next 20 years, with 73% of the responses.

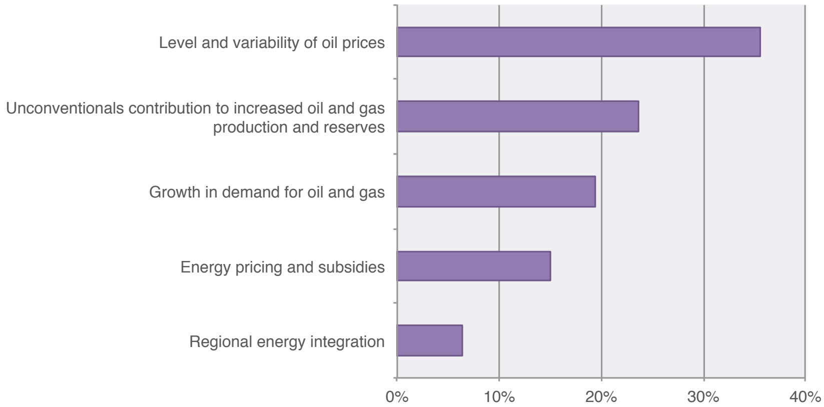
Which of the following do you anticipate will become the dominant clean air energy source within the next 20 years?



In turn, 40% considered that the industry should place emphasis on this energy resource at the time of developing environmentally friendly technologies. Economic development, population growth and energy security were the topics considered as having the greatest impact on the industry, from an economic, political and social perspective.

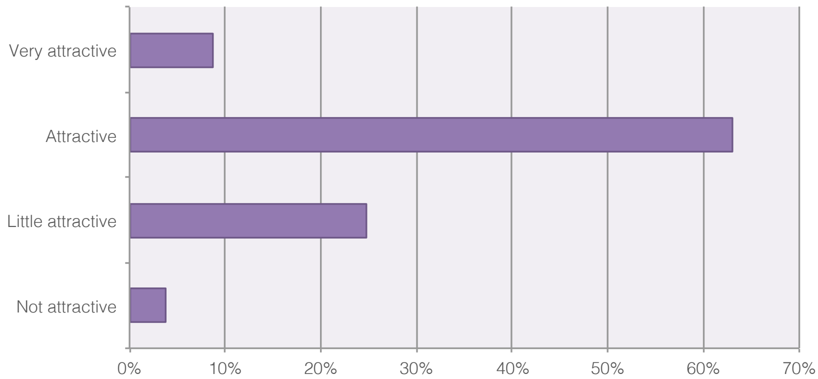
From the market perspective, the most outstanding topics were the level and variability of prices, and the development of unconventional deposits.

From an energy market perspective, which of the following issues you believe will have the most impact on energy industry future?



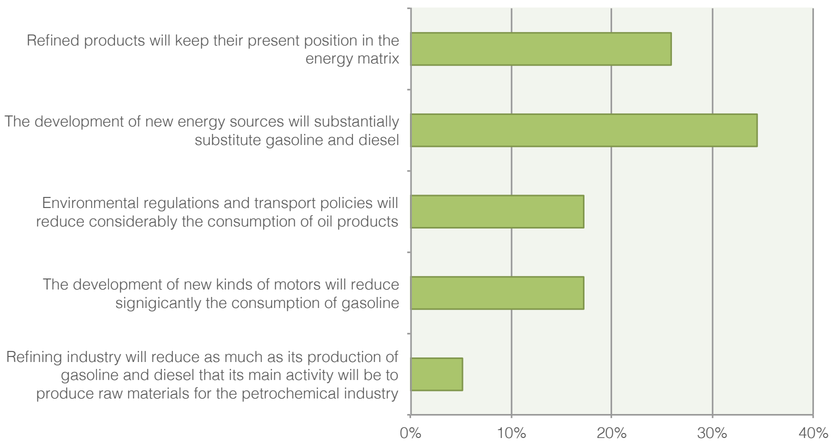
Seventy percent of the audience considered the current scenario of risks and opportunities as attractive or very attractive to invest in the region.

How would you classify from the point of view of risks and opportunities, the investment in LAC given the new global and regional context?



Twenty-six percent of the audience considered that refined products will maintain their current position in the energy matrix by 2040, while the remainder considered that they will be behind for different reasons, such as the development of new sources of energy (34%), environmental regulations and public transportation policies (17%) and development of new engines (17%). On the other hand, 5% of the audience considered that the main activity of the refining industry will be providing inputs for the petrochemical industry.

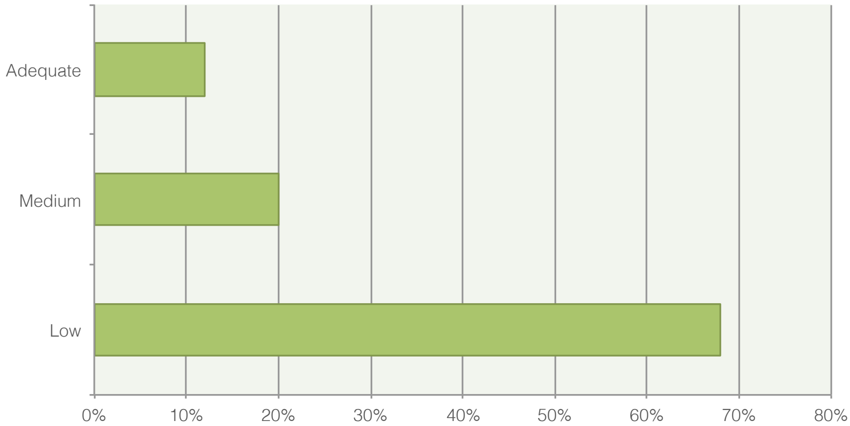
How do you imagine refining industry in Latin America & the Caribbean in 2040?



As regards the development of transportation technology, electricity was considered as the one with the greatest progress in coming years.

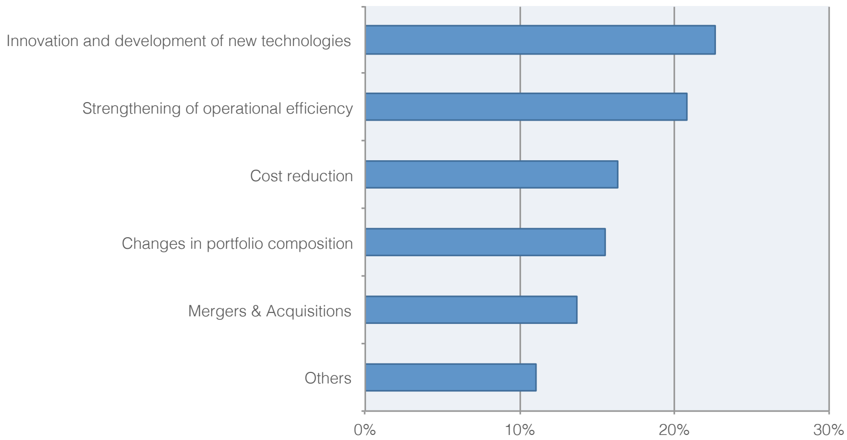
Sixty-eight percent of participants considered that the budgets allocated to R&D are insufficient to meet the technological challenges of the sector in the region. In turn, 82% stated that there are no sufficient incentives to guide young professionals to R&D activities. On the other hand, there was almost unanimous agreement that strengthening cooperation between R&D institutes would be one of the ways to face technological challenges.

How do you perceive the R&D budgets in the region to face the sector's technological challenges?



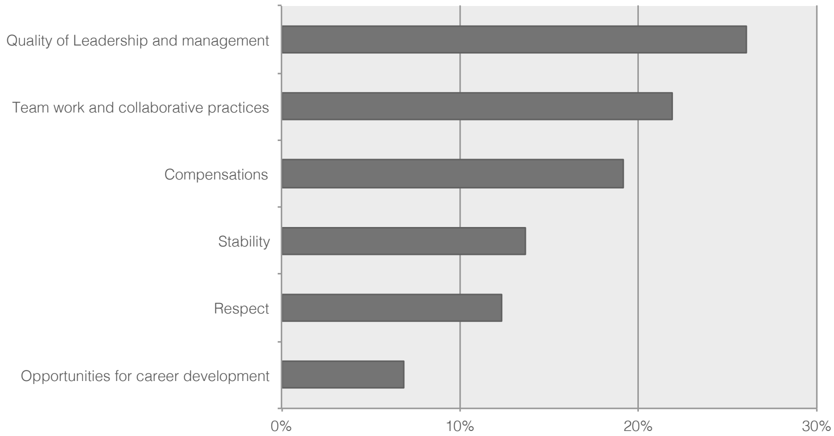
As mentioned by several speakers at the Conference, the survey confirms that the main opportunities for companies in this price scenario are opened through innovation, development of technologies, operational efficiency and cost reduction.

What strategies and opportunities do you see for your company in the present crude oil price scenario?



With respect to management of human talent, the existing challenges for recruitment in the O&G industry are the profiles and expectations of candidates as well as the difficulty in attracting young talents. In turn, when asked about the most critical aspects to attract the labor force, the quality of leadership and the work environment were considered more important than other more traditional aspects, such as compensation, stability or career and development opportunities.

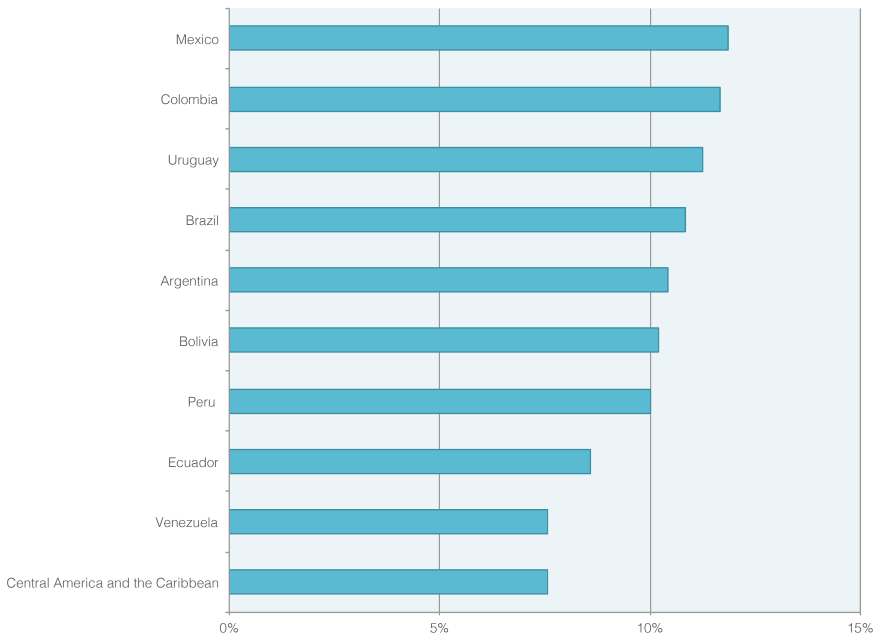
From the following critical attributes to attract and commit the labor force, which do you consider more important?



70 percent of those surveyed suggested that their companies are implementing new training solutions based on new technologies, "simulation" being the most developed techniques (34%), followed by on-line tutoring (29%). On the other hand, coaching techniques would be marginally used by companies and neuroscience still does not have a large place in the management.

As regards the upstream and the development of investment opportunities, Mexico and Colombia were elected as the most attractive countries for investment, while Ecuador, Venezuela and Central America and the Caribbean were evaluated as the less attractive.

Rank from most to least attractive the investment climate in the following countries



Shale gas and deep waters were considered by executives as those with the greatest potential to add resources to the region, closely followed by shale oil, heavy oil and the presalt, leaving the equatorial margin a little further behind. Bidding rounds were chosen as the preferred mechanism for access to resources (52%), followed by direct negotiations (29%). There was equal interest for unconventionals, marginal fields, deep waters or exploration. The following were considered equally important determining factors for investment: access to land, infrastructure, business opportunity, need for access to oil resources and oil prices.

The following factors were considered equally important at the time of making the decision of where to invest: the ability to sell offshore, the repatriation of profits, the foreign currency facility, the country risk, the regulatory framework and the geological potential.

The regulatory frameworks, the terms of contracts and tax incentives were considered as the most important factors for a greater flow of investments in Latin America.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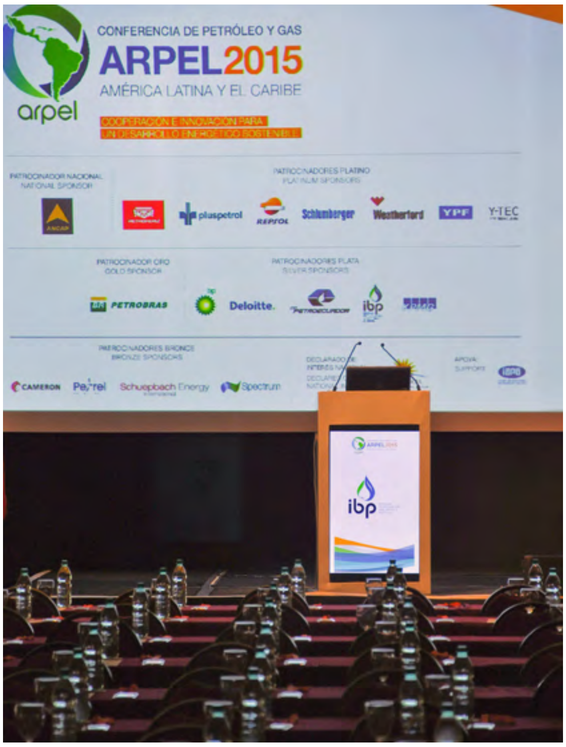
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