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More than a decade of continuous economic growth, political stability, and a transparent regulatory framework has transformed Peru into a favorite South American destination for oil and gas investors.

Peru is seducing investors, domestic and foreign alike. While the rest of the world is overcast with gloom, the sun continues to shine on the land of the Incas.

Peru's GDP is expected to grow by approximately 7% in 2009, according to International Monetary Fund estimates. In 2008, Lima hosted both the EU-Latin America and Caribbean, and the Asia-Pacific Economic Cooperation summits, placing the country on the world's business map. President Alan García continues to tour the world courting potential investors, with a growing number of free-trade agreements in his bag (an agreement with the U.S. was entered into force in February of this year).

Perupetro, the public agency in charge of awarding oil and gas concessions in Peru, has signed a record

number of exploration contracts over the past several years. And finally, the second phase of the large Camisea gas venture, which has radically changed the country's energy matrix since 2004, started production in October 2008, boosting Peru's average output to roughly 145,000 barrels of oil and condensate and 348 million cubic feet of gas per day during the year's last quarter.

To benefit from this stepped-up production, Peru LNG, a plant and terminal project to export natural gas, is to begin operating in 2010. And companies with interests in the petrochemical business are already planning projects that could become reality in the next five to 10 years, indirectly providing a significant incentive to further exploration.

This rosy picture was nearly spoiled in fall 2008, when the press released audiotapes revealing potential irregularities concerning the most recent bidding round, in favor of a Norwegian E&P company. The scandal, popularly known as "petrogate" or the "petroaudios," had little substance, or at least not enough



Petrex's CX-11 drilling rig at work at BPZ Energy's Corvina platform.

to justify the hundreds of pages written about it; however, President García also ensured it dominated the headlines by ordering a reshuffling of his cabinet. Both the prime minister and the minister of energy were removed, along with several of the other ministers.

Nevertheless, the outlook among those active in the sector, both during and since the scandal, continues to be one of business as usual. While the controversy was still unfolding, in October, industry leaders from around the region gathered in Lima for the sixth edition of the Ingepet oil and gas fair. The managers' concerns seemed to revolve around environmental permits or uncertainties regarding the price of oil, rather than the country's political stability—at least until the next presidential election.

The industry is at a dynamic stage, and large companies are increasingly present: ConocoPhillips, Repsol YPF, Petrobras and, more recently, Reliance Industries of India, among others. Joining them in taking the industry forward are medium-sized companies such as Pluspetrol (Camisea's operator and the country's largest producer of hydrocarbons), Hunt Oil (leading partner and operator of the Peru LNG project) and Perenco (holder of sizable heavy-crude assets whose economics are still under study).

"Latin American countries have realized how important it is to be self-sufficient with regards to energy," affirms Mahtali Ketfi, general manager of Algerian state-owned company Sonatrach, member of the Camisea consortium. "Peru is at the center of a large hydrocarbon trend and there are going to be

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many discoveries in the medium term, to the point that it will become a net energy exporter soon." This point is stressed by many of Peru's leaders. If Peru LNG can make the country a net exporter of gas as soon as next year, Perupetro expects the same development in oil by 2012-13.

"There's nothing better to attract investors than a large discovery, and even countries that are highly unstable seem to be attracting more investment," says Francisco Dulanto, general manager of Graña y Montero Petrolera (GMP), a local oil firm.

Yet most players agree that Peru's geological potential is real: "If you compare Peru to North America, it is still highly underexplored, especially in certain areas where no infrastructure has been built," says Rex Canon, president and CEO of Maple Energy, a diversified oil and gas company with interests in refining, power generation and renewables.

The infrastructure issue is indeed key. Most exploration takes place in the Amazon jungle, where blocks can only be reached by air, making transport expensive, or by boat, which is only possible when the rivers are navigable, and that still takes significantly longer than road transportation. Both E&P and service providers need to make significant efforts to overcome the geographic barriers: "We

have a huge logistical infrastructure: five people in Lima and 30 people in Iquitos are dedicated solely to the task of logistic operations. It is probably the most challenging part of the business," says Brian Beatty, president of South American Exploration, a seismic company.

Undoubtedly, the other big challenge involves the immense richness of bio- and ethnic diversity, and the fact that many of the people in the areas of focus are very poor. Strict environmental standards and a good relationship with the local communities are essential for successful exploration activities—let alone production sites or related large projects.

"In many of these areas the state does not really have a presence, so the companies have to fill the gap with health and education programs," says Hunt Oil general manager Carlos del Solar, who firmly believes in the capacity of hydrocarbon and mining companies to improve the situation. "We are not a huge firm, and yet we have invested over \$2 billion since we arrived in Peru. The opportunities for our business are outside of Lima, where two-thirds of the population is still poor, so we are in the best position to help make a difference."

Gaining the trust of the locals and of the nongovernmental organizations opposed in principle to E&P activities in

"Latin American countries have realized how important it is to be self-sufficient with regards to energy," says Mahtali Ketfi, general manager, Sonatrach."

the jungle is not an easy task, not least because the companies operating in Peru in recent years come from countries as varied as Canada, Vietnam, China, Russia, Colombia and India. This can result in enormous cultural gaps, and in some cases, significant differences in the way the companies operate. However, in Beatty's words, "The oil companies, the government and the native communities are all dedicated to working together to move the industry forward in the most efficient, safest, and environmentally friendly manner possible." As exemplified by the enormous value that Camisea gas has brought to Peru, this cooperation can only be in the country's best interests. □



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An Interview With Daniel Saba

The president of Perupetro discusses the country's ambitious plans for its energy industry.

Global Business Reports (GBR) Mr. Saba, you frequently stress the point that Perupetro's goal is to make Peru a net exporter of oil. When will that be a reality?

Mr. Saba Perenco, operator of Block 67, expects to produce 30,000 to 40,000 barrels per day by 2011 and 100,000 barrels of heavy oil per day in 2013. Repsol and Pluspetrol are also developing projects for the exploitation of heavy oil, which will probably be confirmed in the months to come. Perupetro's projection is that if these companies are successful, by 2012-13 Peru will be a net exporter of oil, with a total production of more than 200,000 barrels daily. In the medium term, I believe we can equal the production levels of Ecuador and Colombia. Even old fields, like the ones in the northwest of the country, keep producing at decent levels; and in areas that were thought to be empty, new discoveries have been made.

GBR What are the main exploration projects under development?

Mr. Saba According to the size of their investments, we could highlight the activities of Pluspetrol, Repsol and Petrobras, as well as Perenco, Talisman and BPZ. What needs to be understood about Peru is that the country has been underexplored for nearly two decades. Since the mid-1980s, there has been a very delicate economic situation in the country, and then in the 1990s, we had the privatizations and the price of oil was not attractive enough for foreign investors, while in Peru no domestic company could undertake the exploration activities. Terrorism also had a very negative impact. Investments only arrived in the country with the new millennium. Now, the developments are very promising.

GBR How could Peru attract more major companies?

Mr. Saba There are important multinational players operating in our country, including Repsol, Petrobras, ConocoPhillips and large state-owned Asian companies. The arrival of more majors will depend on new discoveries. Today, majors have significantly changed their approach, replacing their expenditures in exploration with investments in other companies that have good assets.

GBR Some critics say that the blocks are too big to carry out effective exploration.

Mr. Saba If blocks have been big, this is because there was very little information on the areas. As per the contract conditions, the companies relinquish 50% of their block after the third exploration stage, and indeed the average size of blocks has decreased from one million hectares to 600,000 hectares. As the industry develops, the areas for exploration will become smaller. If a company has one million hectares, it is not for the purpose of holding it without carrying out any work; it will identify its area of interest and return the rest to Perupetro.

GBR What is the potential for exploration in the years to come?

Mr. Saba We currently have 80 contracts (19 for exploitation and 61 for exploration) covering 70% of the land with potential, and we are still waiting to formally sign 20 more contracts from the 2008 round. These figures had never been seen before in Peru. There is a bidding round expected in 2009 that is still



"We expect to be producing over 200,000 barrels per day in 2012-13," says Daniel Saba, president of Perupetro.

being prepared. We are studying several blocks that would potentially require very strict environmental standards, for instance in areas around Camisea. We could offer those blocks under special conditions, to ensure that they are taken by solid companies, and we have external environmental audits in order to monitor the whole process.

GBR How have the contract conditions offered by Perupetro evolved in the last years?

Mr. Saba In general terms, the conditions have been the same. What we have changed is the royalties, because in 2006 we had fixed royalties for the whole country, between 5% and 20%, and now with the bids system we have augmented these to between 15% and 32%. Currently, if you add up royalties and taxes, the distribution of revenues between the state and the oil and gas companies is around 50-50, which ensures the stability of the contract in the long term from an economic and political

point of view.

GBR In general terms, how would you assess the attractiveness of Peru for foreign investors?

Mr. Saba The investment climate in Peru is very positive. Within this region, I think the only country that can offer similar levels of attractiveness for this industry is Colombia. Other nations have different policies, but investors are clearly showing their preference. Even our recent change in royalties was implemented according to what the market was able to offer. We did not set the new conditions by decree.

GBR Do you think the "petroaudios" scandal has affected the image of the country abroad?

Mr. Saba It has had a far bigger impact internally than abroad, and the APEC (Asia Pacific Economic Cooperation) summit was the best example of the interest that foreign investors maintain in Peru. The irregularities contained in the "petroaudios" were exaggerated by the press, which made a scandal out of it. Then the first reactions by the politicians were very strong, perhaps because the videotapes that unveiled corruption scandals a few years ago are still very fresh in everyone's mind. But after the investigations it is clear that Perupetro and the whole framework for oil and gas concessions cannot be put into question, and investors know it.

GBR What would you say is Peru's Achilles' heel with regards to its oil and gas industry?

Mr. Saba What is probably lacking in Peru is a strategic plan to develop the natural gas resources in the long term. Peru has become a large producer and consumer of gas in a very short period of time, and that has created some imbalances that will need correction. Apart from this, all the conditions for the development of our oil and gas resources are in place.

GBR Looking at the future, what are the prospects for the oil and gas sector in Peru?

Mr. Saba We expect to be comfortably exporting oil in the medium term, and to have even bigger reserves of gas. In 20 to 30 years, hydrocarbons are going to be scarce worldwide; therefore, having oil and gas available in a stable country like Peru is going to put us in a very advantageous position. As Perupetro, we will continue to work worldwide and invite new investors. □

Developing Fast

Oil production rose significantly in Peru during 2008. On the exploration side, there should be good news over the next two to three years, as companies fulfill their obligations under the terms of contracts signed with Perupetro.

The year 2008 was an important one for Peru's oil and gas industry. The quarterly production figures of oil and liquids increased from the first quarter's 105,593 barrels per day to 145,240 barrels daily in the fourth quarter. The main increase was delivered by Block 56, also known as *Camisea II*, where liquids extracted from the natural gas amounted to 34,246 barrels per day in the fourth quarter, making it the largest producing block in the country immediately after it began operations.

Company-wise, it is Pluspetrol, in charge of exploiting the two *Camisea* blocks (88 and 56), plus another two areas (1-AB and 8) in northern Peru, which ranks as Peru's largest producer, with roughly 100,300 barrels per day during fourth-quarter 2008. The Argentinean company's share of that amount is slightly less than half; the rest is held by a number of partners, including Hunt Oil, Korea National Oil Corp. (KNOC) and SK Energy, among others.

Aside from Pluspetrol's four operated blocks, the remaining 45,000 barrels per day of liquid hydrocarbons produced in the last quarter of 2008 were distributed among Petrobras (14,300 barrels daily in Block X), Petro-Tech (10,400 barrels daily in Block Z-2B, offshore), Interoil of Norway (5,200 barrels in blocks III and IV), BPZ Energy (3,800 barrels in Block Z-1, offshore) and Olympic (3,500 barrels per day in Block XIII). Also, there are a number of smaller players.

Seeking more potential

While the current production figures do not make Peru a large oil contributor to the industry overall, the number of multinationals and junior E&P companies carrying out exploration work has increased substantially in recent years, creating



Victor Lay, general manager of Veraz Petroleum, oversees exploration in Block 126.

the potential for a strong impact on production in the medium term.

This potential has not gone unnoticed by companies such as ConocoPhillips, which entered Peru through the acquisition of Burlington Resources and operates four exploration blocks; Talisman, which took over Occidental Petroleum's assets in Peru; and Ecopetrol of Colombia, which earlier this year bought local producer Petro-Tech, in a 50/50 joint venture with KNOC, for \$900 million.

Petro-Tech is the country's largest offshore producer, and just before the deal with Ecopetrol and KNOC, it approved a five-year strategic plan that anticipates a \$1-billion investment, with the objective of raising oil production to 30,000 barrels per day. Pedro Alarcón, senior manager-geosciences at Petro-Tech, describes the company's recent evolution:

"In 2005 we made our discovery of San Pedro Field, where we found 36-degree-API oil in naturally fractured reservoirs from the Paleozoic age. That was a turning point, because it changed the whole approach to exploration offshore Peru." Since then, the company has begun building its own platforms, and plans to drill about 200 wells in the next three to four years to boost production. Besides Block Z-2B, the company has another eight exploration concessions.

"We have three main areas of focus: the mature fields of Block Z-2B, where we will improve production; the Bay of Bayóvar, where we have already discovered oil and gas; and Block Z-33, where we are ready to drill," Alarcón says.

Stephen Gast, ConocoPhillips' exploration manager in Peru, explains the company's rationale for entering the country. "ConocoPhillips has long been interested in the geology of Peru's Marañón Basin, where there has been production in excess of

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one billion barrels of oil. A number of large discoveries in Ecuador offsetting the Peru blocks where ConocoPhillips has interests also suggests the potential for major hydrocarbon deposits in Peru." During 2008, the company acquired more than 400 kilometers of seismic data in Block 104, while in its 45%-owned Block 39, operated by Repsol, there was an additional 500-kilometer seismic program.

Calgary-based multinational Talisman Energy is also concentrating on the Marañón Basin, particularly in Block 64, where the company started drilling a well in December (the deepest onshore well ever drilled in Peru, according to company sources). It will reach total depth late in second-quarter 2009. Talisman's other main block is 103, where a 3-D seismic program is planned; however, the company is facing some issues in its relationship with the locals there.

"In Peru the key challenge is managing time," says Mark Dingley, general manager, Talisman. "The regulatory requirements and the environmental impact assessment after you acquire a block are only half of the procedure to get the license to operate. You still need to engage with the communities to access land, including social initiatives and compensation. Taking 12 to 18 months to be able to do actual oil work is not unusual."

Timing is indeed important, and for a company like Perenco, which acquired

expensive-to-develop heavy-crude assets from Barrett Resources in Block 67, the economics are not very clear, given current oil prices.

The oil and gas sector in Peru has one key advantage, however. Since many contracts were signed in the past few years and companies need to abide by the terms, which state clear exploration phases, good news continues to arrive. BPZ Energy, for example, recently announced that its proved reserves had jumped to 17.1 million barrels of oil by year-end 2008, a 44% increase over the previous year's figure.

Everyone is awaiting a potentially large discovery, which could come from any point on the spectrum of companies at work in Peru. AIM and Lima-listed Maple Energy, a medium-sized firm present in Peru since the 1990s and already producing oil in blocks 31B and 31D, recently assembled its own rig to overcome the country's drilling-equipment shortage, and is undertaking a 22-well development-drilling program in these blocks, while harboring strong hopes for the resources that may be hiding in Block 31-E.

Peru is also counting on the junior exploration companies which, with a lean structure, are agile enough to concentrate on key areas of focus and move fast. That's the case with Canada's Veraz Petroleum, which operates Block 126 and plans a \$10-million 3-D and 2-D seismic

program there this year, after which Colombian Petrominerales (a subsidiary of Calgary-based Petrobank) will become operator, subject to Perupetro's approval. Veraz, which intends to list on the TSX-V exchange soon, will retain a 45% interest in the block after the transaction.

To date the company has had a very good response from the local communities in Block 126, which was drilled previously by other companies, including Occidental Petroleum. But Oppe Cosijn, Veraz' president and CEO, was less satisfied with the bureaucratic response the company encountered after signing the agreement with Petrominerales. "The approval process of joint-venture transactions requiring a change to the hydrocarbon contract is onerous and time consuming," he says. "In Canada, for example, the government is not involved and the process is more fluid."

Problems such as these, and the fact that blocks cover very large areas (another aspect needing improvement, according to Víctor Lay, Veraz' general manager) result from Peru's relative inexperience in promoting modern exploration. As the sector develops, these bumps in the road should disappear. The authorities have been setting up a very competitive framework, and while benefits are evident, the peak of exploration activities will likely be reached in the next few years. □



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The Camisea Effect

The Camisea natural gas project has radically transformed the energy matrix of Peru. Demand has grown exponentially, requiring investments in infrastructure to expand capacity.

It was July 1998 when Shell, together with Mobil, decided to abandon plans for a \$3-billion investment in Camisea, after having spent \$250 million analyzing the project's feasibility. The cancellation followed a dispute with the Fujimori government, which did not want a monopoly in the upstream and distribution segments. Shock waves were felt throughout the industry, as the project would have represented Peru's first world-class investment in years.

But the 11 trillion cubic feet (14 trillion today) of liquids-rich natural gas reserves in blocks 88 and 56 continued to beckon. Peru's administration quickly launched a new bidding process, the result of which was also surprising. While the French consortium led by Elf offered to pay a royalty of 35.5%, the joint venture of Pluspetrol, Hunt Oil and SK Energy in 2000 won the project by pledging to pay 37.24%. Today, the Camisea consortium also includes Tecpetrol, Sonatrach and Repsol.

By 2004 Camisea's Block 88 was already in production, and in 2008, the 255 million cubic feet per day (MMcfd) being produced there represented 77% of the country's total gas production. Block 56, also run by the Camisea consortium, began



Ricardo Ferreiro, general manager of TGP

extracting liquids in October 2008, while reinjecting the gas. Yet gas demand is growing rapidly, and the company in charge of transportation from the Cusco area to the coast, Transportadora de Gas del Perú (TGP), a joint venture operated by Argentinean company Tecgas (part of the Techint Group), is having to invest heavily to avoid bottlenecks.

As TGP's general manager, Ricardo Ferreiro, says, "Our contract initially foresaw a pipeline capacity of at least 205 MMcfd, expandable to 450 MMcfd, at a moment when Peru was virtually using no gas. The contractual predictions were that the full capacity of 450 million daily would only be reached in 2016."

Demand, fueled by government-set low gas prices and a period of rocketing oil prices, evolved much faster than expected. TGP is already investing \$280 million in its network to expand capacity from the current 314 MMcfd to 450 MMcfd by year-end 2009. And more will follow.

"For the next three to four years, we are talking of transporting about 1 billion cubic feet equivalent per day (Bcfed) of natural gas for the local market as requested by the government, 100,000 to 120,000 barrels of liquids daily (from a current



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65,000 barrels daily), plus 620 MMcfd of natural gas for the Peru LNG project," says Ferreiro.

TGP took advantage of the Techint Group's experience in crossing the Andes with similar projects to overcome the enormous challenges of Peru's geography. But the \$1.7-billion total expenditure (including the current expansion to 450 MMcfd) in a project having a long-term investment return would not have happened without political stability, emphasizes Ferreiro.

In addition to power generation, residential and vehicular uses of gas have also grown exponentially around the area of Lima. AEI/Promigas-owned Cálidda, the company in charge of natural gas distribution in the capital, already serves about 12,000 residential users and 60 vehicular service stations. The company has far bigger targets in mind, however. "We are proposing an investment of nearly \$260 million over the next four years that will include another loop of the high-pressure pipeline and distribution networks. We expect to reach connections to 65,000 clients after the projected investment," says Ernesto Córdova, Cálidda's general manager.

To reach these figures, the company will have to overcome obstacles such as a daunting bureaucracy (Lima is divided into 49 municipalities) and the cultural reluctance of Peruvian residents to switch from bottled gas to the network's natural gas, which they fear is unsafe. "Natural gas is safe, it is all to do with education. It is surprising that people in Peru are not afraid of LPG (liquefied petroleum gas) but are afraid of natural gas," says Córdova. Fortunately, the population's mentality is adjusting quickly.

The government's plan is to repeat the capital's success elsewhere, and it is urging the development of necessary related infrastructure. One of the main projects is the Gasoducto Andino del Sur, a \$1.5-billion, 1,085-kilometer pipeline that will take Camisea gas to several cities in the south of Peru.

The concession was awarded last year to Kuntur, a company controlled by New York City-based Conduit Capital Partners. The company recently appointed Alejandro Segret, a former

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TGP general manager, to run the project, for which the EIA should be completed in 2010.

"The original idea was to take the gas from Camisea to Cusco. Now, although Cusco receives a tax payment from the gas and liquids produced, the average citizen in the region does not see the benefits of gas in his day-to-day life. Since Cusco's demand is insufficient to make the project feasible, we need to create the demand, promoting power generation and petrochemical projects, and take the gas to other cities in the south," says Samuel Gómez, a partner at Conduit.

Adding value

The enormous success of low-cost gas has created some market imbalances. For example, the country has ignored, for the most part, its great potential for hydropower, and gas-to-power projects have generally not bothered to install combined-cycle facilities. Rather than only burning the gas, many agree that this resource should be used to add value to the country's economy, through establishing petrochemical sites. But will there be enough gas to feed all the projects being outlined?

"If domestic consumption grows too fast,

there may not be enough gas to support a petrochemical project, with the gas already dedicated to the LNG plant," warns Han-Jin Yoo, general manager of SK Energy, a Korean conglomerate that is part of the Camisea consortium and is looking to invest in petrochemicals in Peru.

Another company planning to enter this market is Brazil's Braskem which, together with Petrobras and Petroperú, is studying the feasibility of a polyethylene project based on ethane cracking. Yet as of today, Camisea's gas reserves do not appear sufficient to feed a project of the size Braskem is contemplating (one million tons per year capacity), as well as the rest of the demand. "The current reserves would only ensure a plant with production below 700,000 tons per year, and that would not be competitive on an international level," says Carlos Brenner, manager of international projects, Braskem.

Whether they proceed or not, Braskem's project and other ones under study are a great incentive for gas exploration. In Camisea's neighboring blocks, 57 and 58, Repsol and Petrobras have very promising prospects to find more sizable reserves. Indeed, Repsol could soon confirm the existence of 2 trillion cubic feet in Block 57, which would further highlight Camisea's wealth—a wealth Peru will continue to capitalize on in the years to come. □

The Outlook for Peru

2008 turned out to be a very active year for Peru's oil and gas industry. Operators drilled 183 development wells, two confirmatory wells and five exploratory wells, with interesting results. Wells were drilled, in general, in compliance with the work commitments agreed upon in more than 80 contracts currently in effect between the companies and Peruvian state agency Perupetro S.A.

The production results were also very promising, with oil and liquids output increasing by 5% and gas production growing by 26% during 2008 (year-on-year).

This situation is a consequence of the contractual and legal stability Peru is offering to foreign investors and of the fact that its main framework has not changed since 1993, when the Hydrocarbons Organic Law was enacted. In addition, Perupetro's license model contract offers a set of very attractive conditions.

Although environmental regulations and citizen-participation requirements are creating certain challenges and delaying some projects, the level of exploration and production activity is still increasing, and ongoing interest from new players has not been affected.

—Alberto Varillas, attorney at García Sayán Abogados, Lima



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Transforming Needs Into Opportunities

As the ranks of Peru's oil and gas players grow and E&P activities increase, new opportunities arise for service providers.

Having hosted little exploration in the last two decades of the 20th century, it isn't surprising that Peru suffers from infrastructure shortages that are magnified by its challenging geography. While there are insufficient service providers in some areas, the situation is changing for the better. Service companies are expanding, widening their scope and offering more diversified services. As exploration work gathers pace, the ancillary businesses are becoming more experienced, and therefore, more competitive.

South American Exploration (SAE), a seismic company co-founded in 2006 in Lima by ex-Veritas employee Brian Beatty, is an excellent example of this rapid growth. After becoming the leading provider of seismic-data-acquisition services onshore in Peru, it is opening branches in 2009 in both Bolivia and Colombia.

For Beatty, one of the secrets of SAE's success, despite the fact it is only three years old, is its staff's familiarity with the industry. "Most of our key workers have been in Peru since 1987 with other seismic acquisition companies. If you have a look at the resumes, the people in this office are the same individuals who performed the seismic survey in Camisea years ago."



A Servicios Aéreos de los Andes Twin Otter near Iquitos, in the jungle.



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CSM personnel working at Pluspetrol's operation in Bolognesi.

Experience is essential not only to handling the logistics in the Amazon jungle, but also to avoid conflicts and engage in mutually beneficial relationships with the local communities, as other seismic companies in Peru, such as Global, PGS or Geokinetics, readily acknowledge.

Iván Ortega, Latin American manager of Global Geophysical Services, underlines one challenge seismic companies frequently face. "Third parties often cause issues which impair our relationships with the communities by trying to force their agenda on the locals." For this reason, gaining these communities' trust at the outset is key. "As in many other businesses, the cover of the book is what makes the difference, and the cover of our book is our people," says Beatty.

EIAs, social concerns

"It is ironic that it takes longer to get the environmental permit to do the job than to actually do the job," says Douglas Reichenbach, PGS area manager for on-shore. Environmental impact assessments (EIAs) are probably the biggest headache for E&P and service companies. The exploration boom and the seasonal nature of work in the jungle have created bottlenecks in the processing of many applications. Presenting a flawless study is the best way to speed up the process, and a number of environmental consultants, such as Walsh, ERM and Golder Associates, are available to assist.

Golder, an engineering and consultancy firm traditionally linked to the mining sector worldwide, was involved in the Camisea project, assisting with the pipelines, and in the Peru LNG project. Its general manager, Rafael Dávila, underlines Golder's track record of dealing with the Ministry of Energy and Mines: "Oil and gas clients find themselves in the same type of sequences as the mining companies. We are dealing with the same ministry and the routine is very similar. We have a good reputation and our EIAs

have never been delayed or rejected."

For Francisco Pinilla, ERM branch manager, the environmental standards applied in Peru have changed radically since the EIA regulations were passed in the early 1990s. "The turning point was the Camisea project. There was a lot of pressure from international organizations to raise the bar, and that has also meant a stronger attention to the social aspects."

Similarly, the approach to dealing with social issues has also changed significantly, emphasizes Óscar Díaz, president and CEO of Viceversa Consulting, a Peruvian corporate responsibility consultancy (CSR) firm. "In the last three years there has been a substantial change in the way CSR is perceived in Peru. The philosophy has switched from philanthropy to sustainable development."

Díaz outlines what he believes are the four pillars of success: "Every project needs to be sustainable over time, financially viable, socially acceptable, and feasible from a technical point of view." He also stresses that risk management needs to follow an inclusive strategy of integrating all the stakeholders involved. "We define ourselves as a social hinge, to act as a link between the authorities, the companies and the communities. We try to make them all speak the same language."

While environmental and social issues must be monitored constantly throughout a project's lifetime, new needs arise once permits have been granted and the site is ready to be constructed. Serpetbol, a Bolivian company established in the 1960s, came to Peru in 2002. "We had worked for Pluspetrol, Repsol, and Tecpetrol in Argentina and Bolivia, and some of these contacts encouraged us to move to Peru with them, because there were no medium-sized contractors in the market," recalls Gonzalo Montenegro, Serpetbol's general manager.

In late 2002, when most of the Camisea construction bids had been awarded to Skanska, a multinational, and

Graña y Montero, a large local construction firm, Serpetbol managed to grab a slice of the pie: "It was the right timing because we landed on those opportunities as Camisea was in the middle of the initial investment." By late 2008, Serpetbol had 1,000 workers in Camisea. Now, as the second phase of construction there is about to end, the company's aim is to diversify its client portfolio.

Another company involved in construction and other oilfield activities is Energy Services del Perú. A local firm, it specializes in working in remote locations and covering different businesses, from platform construction to the exploitation of marginal oil wells.

Jorge Rivera, president, is also the CEO of Upland Oil and Gas, a junior exploration firm in charge of Block XXIV, and the promoter of Energy Gas, a CNG distribution company. "Our ideal situation would be integration: producing gas with Upland, developing the infrastructure and transportation in the north of the country and providing all the related services," says Rivera, who is also very attentive to opportunities in heavy oil. "I hope that the price of oil will make it possible to develop the crude oil fields of Perenco and Repsol, because those are going to need lots of services."

Besides local players, the oilfield services area is also served by multinationals such as BJ Services, Baker Hughes and Weatherford, which can offer the latest technologies developed by their sizable R&D bases. Says Juan Carlos Villamarín, country manager of Weatherford, "The tendency of the market here is to have extended-reach wells. After drilling, it is pretty difficult to get to the total depth when you are logging the well with wireline. So Weatherford developed a tool to easily reach TD. Then, tripping out of the well, you are measuring the entire reservoir, and that saves significant rig time. It is a technology that has had great results for BPZ and Pluspetrol."

Logistics, logistics, logistics

When it comes to logistics, companies have two main choices: taking care of everything themselves, or finding a partner. "Today, oil companies have hundreds of different contracts for every operation: for helicopters, for cranes, for tractors, etc. Our view is that they would be better off dealing with one single contractor that, as a long-term partner, will manage their logistics so they can concentrate on their E&P activities," says Alberto de Losada, general manager of CSM. The company, a logistics firm based in the U.K., is developing its business in Latin America out of its Lima office, with Pluspetrol, Talisman and Petrobras among its clients.

If it is very challenging for a seismic company to set up camp in the middle of the Amazon jungle, it is no less difficult to move a large rig when the time arrives to drill. Luciano Furini, general manager of Italy-based Petrex, says, "In Peru the rigs operate in very remote areas and must be moved in a so-called combined mode, which means that, as there are no roads, all the rigs' components are mobilized along the rivers to reach the client's main logistics base, and by helicopter up to the drilling locations."

It is no wonder the process is long and costly. Moreover, the high demand for the only two large Chinook aircrafts available, operated by Columbia Helicopters, means that they are not always readily available.

Besides rigs, field staff also is constantly being flown in and out, boosting the air passenger services business. Servicios Aéreos de los Andes, a local firm created four years ago, has grown its fleet to a current 10 helicopters and three twin otters, two of which are hydroplanes. It compiled more than 5,000 flight hours in 2008.

Servicios Aéreos de los Andes' general manager Walton Mery stresses the importance of strict safety standards in a business where external factors such as



Rafael Dávila, general manager of Golder Associates

weather can have a big impact. "Apart from implementing the safety management system and being ISO-9001 certified, we send all our pilots abroad every year to receive training at the flight simulator. It is not an obligation under Peruvian laws, but we believe it is very important to invest in our staff and continually do these training programs."

Next up

The services sector is developing in many different directions. SAE is expanding internationally, into countries such as Colombia and Bolivia. Weatherford expects to grow its activities by 40% in 2009. And heavy oil promises an array of opportunities, as does offshore E&P, still in its nascent stages.

The players have adapted to the new, dynamic environment and have become highly competitive. The world crisis may have provoked uncertainty worldwide, but one thing is certain: Peru continues to be an attractive place to do business, and its oil and gas sector reflects that reality. □



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Global demand for hydrocarbons will remain strong in the coming decades, but the world is witnessing an increasing focus on renewable energies, driven by greater concerns about global warming and greener regulations. Indeed, mandatory mixes of ethanol and biodiesel are being implemented across the planet, creating enormous opportunities for greenfield projects in biofuels production.

Peru has already passed a 2% mandatory mix of biodiesel in diesel (5% in 2011), while gasoline will need to be mixed with 7.8% ethanol by January 2010. The market has arrived, and indeed, during the first months of the new regulations, some voices have been raised against imports of subsidized biodiesel from North America (Peru has a free trade agreement with the U.S.).

Pure Biofuels produces biodiesel in the local market. During 2008, the Nevada-based company acquired a refinery in Lima and finished constructing a second refinery, plus a liquid storage terminal in the port area of Callao, within Lima's conurbation. Total installed capacity is some 62 million gallons per year, although production won't reach that figure immediately.

The company is now developing its jatropha agricultural pro-



**Rex Canon, president,
Maple Energy plc**

ject, so as to start replacing soybean oil in two to three years time. The use of jatropha will considerably increase the company's margins and the product's competitiveness, according to Pure Biofuels' general manager, Luis Alberto García. "Jatropha requires very little water in comparison with other plants, and you can even use waste water. Global demand for biodiesel will grow in the years to come, not just because of the new regulations, but also because biofuels will become more competitive in price as the industry starts using nonedible vegetable oil from plants such as jatropha."

Other companies in the biodiesel arena include Heaven Petroleum Operators, part of Peruvian-owned Grupo Herco, which inaugurated its plant on the outskirts of Lima earlier this year and plans, like Pure Biofuels, to soon switch from soybean to jatropha; and Palmas del Espino, a subsidiary of Grupo Romero, which operates palm plantations plus a biodiesel and a biogas plant in the regions of Loreto and San Martín, in the jungle.

Ethanol

The first company to develop an ethanol project was Maple Energy, which has already acquired 12,000 hectares of land

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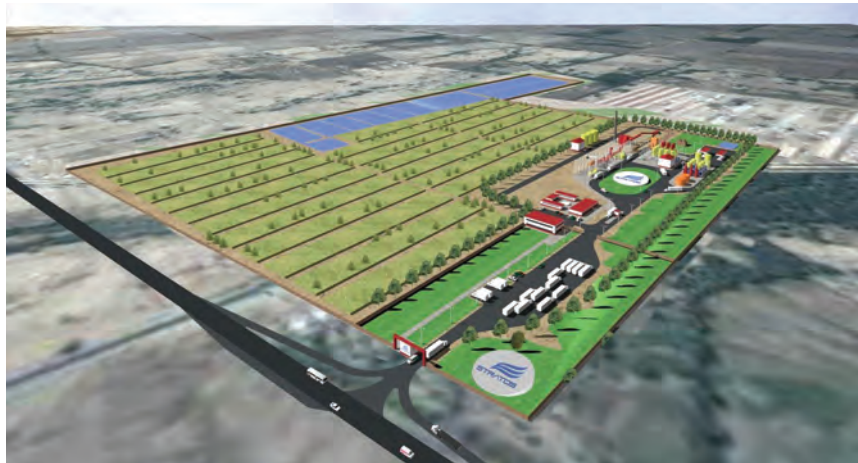
(8,000 will be planted during the first phase) and plans to export to markets in North America and Europe, as well as sell to local consumers. The total planned investment is \$222 million. The company's president and CEO, Rex Canon, emphasizes Peru's enormous advantages for ethanol production.

"This is arguably the best place in the world to grow sugarcane, which in turn is the best feedstock for producing fuel-grade ethanol with today's technology. We predict that our project will yield approximately 153 tons of cane per hectare per year on average, whereas in Brazil, which is the gorilla of sugarcane production, they are at about 80 tons per hectare per year. In addition, because we are next to the Pacific Ocean, we can export our ethanol product easily."

On the industrial side, Maple's project will be self-sufficient in terms of energy consumption. "We are constructing a power plant that will use the residue cane as fuel to produce electricity. So the products out of this facility, using mainly our own sugarcane feedstock, will be 35 million gallons per year of fuel-grade ethanol, and 37 megawatts of electricity, about half of which will be used for our own internal purposes, while the rest will be sold into the national power grid."

Grupo Romero is developing the ethanol Caña Brava project, and Stratos Renewables of the U.S. has another sugarcane-based development, for which it has already secured land to produce 90 million gallons per year (the target is 180 million gallons per year by 2014). All three ventures are in the northern region of Piura, where conditions allow for year-round harvesting.

For Tom Snyder, president and CEO of Stratos Renewables, efficiency will define competition in the global market. "The projected demand for ethanol in the U.S. is 7.5 billion gallons in 2012. By 2022, this figure will have risen to 36 billion gallons. Energy policy proposals in the European Union ask for a



Stratos Renewables' projected facilities at Estrella del Norte, including sugarcane plantations, a mill and distillation equipment.

10% biofuel blending by 2020, and the Asian giants, China and India, are taking similar initiatives. In this context, it will be the lowest-cost producer who will get the business.

"I believe we can transport ethanol from the western coast of Peru to California cheaper than corn ethanol produced in the U.S. Midwest."

The final advantage Peru's northern region offers for ethanol producers is that, unlike other areas in the Amazon jungle, it doesn't require deforestation. "We are taking pure desert and converting it into an agricultural area, creating thousands of jobs. We are not destroying existing resources. That is one of the reasons why Peru is so attractive," says Snyder.

Peru has an oil and gas future, but definitely a green future as well. □



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