

Brazil Takes to Middle East Know-How to Extract Oil from Rock

Contributed by Isaura Daniel
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Brazil's state-controlled oil multinational Petrobras is looking at opportunities in the schist sector in Jordan and Morocco. According to the international executive at the company, Demarco Epifânio, the oil giant is conducting feasibility studies regarding the execution of two projects in the segment in the two Arab countries.

Research may take 24 months to be concluded. Schist is a sedimentary rock from which oil and gas can be produced.

"We are assessing opportunities abroad, using the Petrosix technology," says Epifânio.

Currently, Petrobras only produces bituminous rock oil in Brazil and has one of the world's most modern technologies for the process. The company produces 3,800 barrels per day of schist oil in the country. It recently signed an agreement for assessing technical viability in the area in the United States as well.

According to Epifânio, Petrobras has no intention of increasing its production of bituminous rock oil in Brazil. In fact, the main interest of the company is not even to expand schist oil production, but rather to take its technology in the field to other countries. "Petrobras wants recognition for its technological development and use of technology developed in Brazil," claims the executive.

The interest of Petrobras in Morocco and Jordan is justified by the fact that the two countries, just like Brazil, have schist reserves that rank among the largest in the world.

Brazil occupies the second position in the ranking, after the United States. Jordan ranks fourth and Morocco the fifth. The country with the world's third largest volume of the rock is Congo, according to data supplied by the Brazilian oil company.

Petrobras has a branch named Industrialization Business Unit, headquartered in the city of São Mateus do Sul, in the state of Paraná, in southern Brazil, which is responsible for the activities of the company in the schist area.

The company processes 7,800 tons of schist per day. From the schist, the company then extracts oil fuel, naphtha, fuel gas, liquefied gas and sulphur, as well as by-products that may be used in the asphalt, cement, agricultural and ceramics industries.

Petrobras' reserves in the area are located in a region baptized by the company as the Irati Formation, which encompasses the states of São Paulo (in the Southeast), Paraná, Santa Catarina and Rio Grande do Sul (the three of them in the South) and Mato Grosso do Sul and Goiás, both in the Midwest.

The reserve contains the equivalent of 700 million barrels of oil, 9 million tons of liquefied gas, 25 billion cubic metres of schist gas, and 18 million tons of sulphur.

The agreements with Morocco and Jordan were signed last year. With Jordan, Petrobras inked a memorandum of understanding with the local Ministry of Energy and Mineral resources to evaluate the possibility of using the Petrosix technology in a bloc located in the field of Attarat.

With the Moroccan National Office for Hydrocarbons and Mines, Petrobras closed a deal for a feasibility study on the viability of commercial development of schist beds.

Petrosix

According to information from Petrobras, Petrosix is the only continual, low-water-consumption schist oil extraction process. Schist contains kerogen, an organic compound that decomposes thermally for oil and gas production.

In broad terms, the process is as follows: schist is extracted and transported to a crusher, in which it is fragmented. The pieces are then placed into a vertical cylindrical reactor for high temperature heating. That is when the schist liberates the organic material that forms oil and gas.

Schist is also chilled, which leads oil vapors to become condensed. In the form of droplets, they are then taken outside the cylinder. The gases then undergo another cleaning process for light oil production. The remainder goes to a treatment unit, where fuel gas and liquefied gas are produced and the sulphur is recovered. The technology was developed more than 30 years ago by Petrobras.

Center of Excellence

Petrobras launched this Monday, June 23, the Center of Excellence in Engineering, Supply and Construction, with the objective of "developing and consolidating the Brazilian industry in the sector, by staying aligned with global technological development, and the spread of best practices in planning, construction engineering and installations assembly."

The center is the result of a project by the Program for Mobilization of the National Oil Industry (Prominp), and is being

created as a Civil Society Organization of Public Interest (Oscip).

The center is supported by the Brazilian Development Bank (BNDES), the Brazilian Ministry of Mines and Energy, companies in the sector such as Shell (Holland), Statoil/Hydro (Norway) and Repsol YPF (Spain).

According to the executive manager for Engineering at Petrobras, Pedro Barusco, "the creation of the center of excellence aims to bring these organizations together, so as to potentialize efforts in action development, and thus increase the share of Brazilian companies in investment projects by oil and gas companies in Brazil and abroad, on competitive and sustainable foundations."

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