



HEAVY OIL EXPLOITATION: UNAVOIDABLE FUTURE

HEAVY OILS

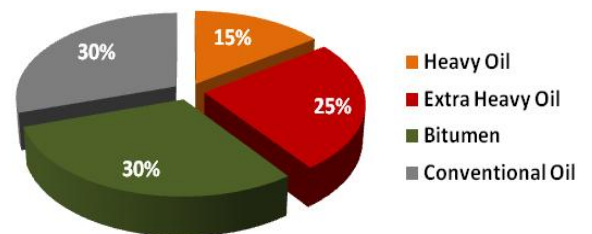
Highly dense hydrocarbons have a range which correspond from heavy, extra-heavy, and tar sands, their main difference with light and medium crudes is based on density and viscosity. Heavy crudes are characterized by gravities between 10 - 20 °API and present favorable conditions of mobility within the reservoir, meanwhile extra heavy oils their densities are less than 10 °API and their mobility is quite low. Finally, for bituminous oil, its gravity is also less than 10 °API, although its viscosities are greater than 10,000 cps, a fact that condemns their mobility within the porous media.



HEAVY OIL VOLUMES WORLDWIDE

Commercially extractable volumes of highly dense and viscous crude oils have been cataloged by definition under what the oil community knows as Unconventional Reserves, entering into a broad spectrum as the Tight Oil, Shale Oil and Shale Gas reservoirs. These particular hydrocarbon accumulation conditions directly indicate challenges of the highest technical level, and costs per barrel above the average required to extract light or medium crudes from the so-called conventional reservoirs.

The current boom about the shale reserves of the Eagle Ford and Bakken basins in the United States has made it the first oil producing country in the world above Arabia Saudita with 13 MMBOE /Day (Source: Energy Information Administration); in the same way, quantifications of important volumes have appeared in China, Argentina, Algeria, Mexico and Russia; This phenomenon, despite its high extraction costs, has slightly diverted the attention of the oil industry from efforts to exploit the large accumulations of heavy, extra-heavy and bituminous crude oil existing in countries such as Venezuela, China, Canada, India , Brazil, Oman, Russia, Suriname, Mexico and Colombia, highlighting that more than 65% of the world's reserves are due to heavy oils and they are located in the western hemisphere.



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In this sense, it is important to highlight the Enhanced Oil Recovery processes have been optimized, citing Thermal Processes under their different schemes (Huff and Puff, CSI, SAGD, HASD), Chemical processes (ASP Flooding) and emerging technologies such as electromagnetic and inductive methods, making them increasingly efficient and economically feasible.

Finally, the future of the Oil Industry is inevitably linked to the exploitation of heavy crude oil reserves in order to satisfy the growing world energy demand for the near future and the diet of many refineries for the generation of various raw materials and by-products.

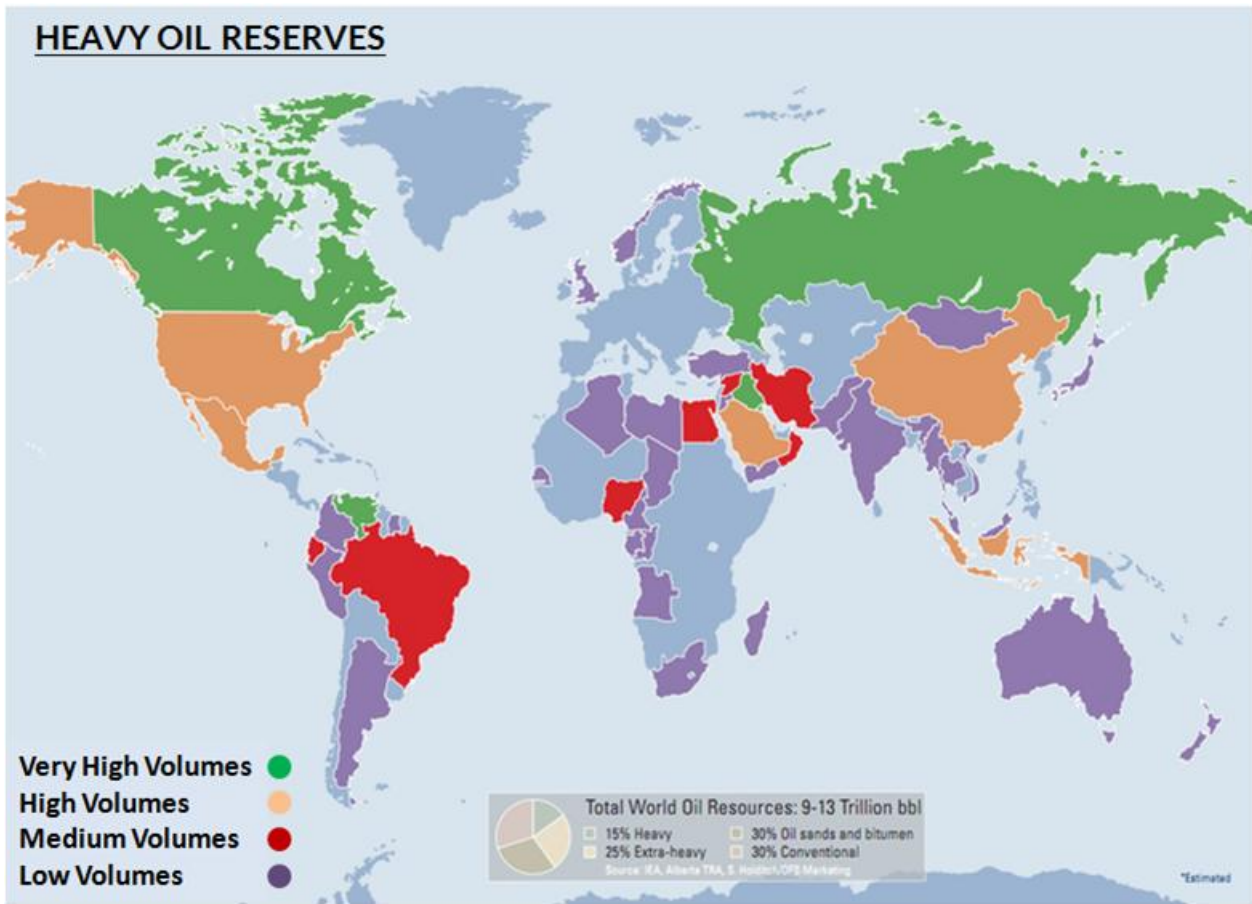


Figure N°1. Heavy Oil Volume Distribution Worldwide.