



# Management of Major Refining Projects and Surface Facilities

*ARPEL Workshop  
September 30 - October 2, 2014  
Cartagena, Spain*





# **Report on ARPEL Workshop: "Management of Major Refining Projects and Surface Facilities"**

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## **Introduction**

This workshop was conceived and organized by ARPEL Refining and Fuels Committee, with the following objectives:

- 1) Sharing experiences, best practices and lessons learned in the management of major refining projects and surface facilities by oil producing companies in Latin America and the Caribbean.
- 2) Analyzing the new trends in the management of major refining projects and surface facilities, led by experts in the state of the art of the topic, recognized at the global level.

Professionals of the following ARPEL member companies participated in the organization: ENAP, REPSOL, PETROPERÚ, ECOPETROL, PEMEX, PETROBRAS and PLUSPETROL. REPSOL was the exclusive host.

## **Agenda and call**

There were 19 presentations by professionals from operating companies and from engineering and construction companies; they are available in ARPEL website: <https://www.arpel.org/library/publications/search/>

Thirty-five professionals representing refining companies and engineering and construction companies in Latin America and the Caribbean participated. In association with the Workshop, there was a technical visit to the local refinery of REPSOL, recently expanded within the framework of a megaproject with an investment of over 3,200 million Euros.

## **Key Messages**

The main source of energy in the world, which accounts for approximately 85% of the total energy, are fossil fuels, oil, coal and gas, and no significant changes are expected in the energy matrix in the next 40 years.

In the refining industry, the major projects will be carried out mainly in the Middle East and the Far East (China and India), and to a lesser extent in Latin America, while in Europe and Japan there will be a marked reduction of the installed refining capacity.

It is expected that in the future crude oil available will be mainly heavy, acid and with high sulfur content. As the demand is for light products, deep conversion refineries will be favored.

The development of new technologies for production of alternative energy, the development of electric vehicles, the use of LNG in large means of transport (trucks, trains and ships), and



government policies aimed at the control of emissions, at air quality improvement and at cleaner public transport in large cities must be addressed by the refining industry to respond appropriately to these new challenges.

Another challenge for the refining industry is the production of crude of unconventional deposits because it is very light crude, but at the same time paraffinic and with very variable quality from one shipment to another despite the fact that the crude comes from the same field. On the other hand, the characteristic of these crudes causes many problems regarding transportation, storage and processing, which makes it necessary to modify the schemes of refineries.

The rate of utilization of refineries in Europe is 82%, and in the United States 92%, the latter case favored by the lower price of gas as a result of the development of shale gas and by the price difference between Brent crude and WTI.

All projects must be preceded by a thorough analysis of the market, analyzing different scenarios and considering the historical demand to forecast the future demand, as well as the environmental impact of the increased supply of product. To this end, companies use complex simulation tools.

In the case of state-owned companies, where national and regional strategic issues prevail, it is also recommended to perform a thorough analysis of the environment, so that, in addition to national strategic factors, the market where the company operates is considered.

The success of the project depends on planning, so it is very advisable to have a project management system that helps to consider all project stages, control points, and more importantly, to have highly trained personnel.

It is very important to define the stages of the project properly, as these are the database for financial institutions to make the disbursements of capital committed.

While all those involved in a project aim at its implementation in the specified timeframe, in a safe manner and in line with the budget, 60% of projects in the world are not completed on time or within their budget, and this is primarily due to the lack of rigor in the definition of the project and the lack of control of its various stages. It is very important not to disregard any stages defined in the management system and, above all, to be very rigorous in these controls.

There are companies that specialize in project management exclusively. They do not perform any engineering or assembly tasks, but they are very useful for operators with little trained personnel in this field, as they have specialized staff and management tools to plan projects and detect any diversion well in advance to correct it.

Before starting any megaprojects, it is essential to obtain the approval of the social community where they will be developed, apart from the government permits, which are necessary but not sufficient.

In Latin America, megaprojects, particularly upstream projects, are usually located in densely forested areas with native communities and, in some cases, uncontacted communities, so the development of projects has a great impact, both for the environment and for these communities, which are not directly benefited by them but are affected in their means of life.



This makes it necessary to agree on actions with communities and act in accordance with public policies of governments.

The development of these projects causes a major impact on communities, as they are highly labor-intensive and also require much equipment and services of all kinds, but after completing the project, all this is dramatically reduced. Therefore, it is very important to plan this whole process with governmental entities to avoid problems, especially at the end of works. It is of special importance to the development of these projects to achieve consensus with communities.

A special chapter refers to personnel safety, as in Latin America labor is not skilled. Therefore, training courses must be given on any required specialty before beginning any project. Once the training in the craft has been achieved, training on all matters related to personnel safety is required. Any worker who does not know his/her duties cannot perform them safely.

In the field of personnel safety, it has been proved that when companies are really consistent with their safety policies, megaprojects may be developed with low accident rates, and this is based on training and awareness of workers on how important it is to perform work safely in this field.

## **Conclusion**

Megaprojects are always of interest to communities and nations, and their success depends on rigorous planning, on the monitoring of the plan, on having trained human resources, on having government permits, on having the social license from communities and on carrying out the project while preserving the environment and personnel safety.

WORKSHOP

## MANAGEMENT OF MAJOR REFINING PROJECTS AND SURFACE FACILITIES

HOST



### ABOUT THE ORGANIZER

ARPEL is a non-profit association gathering companies and institutions of the oil, gas and biofuels sector in Latin America and the Caribbean. It was founded in 1965 as a vehicle for cooperation and mutual assistance among companies in the sector, with the primary purpose of actively promoting industry integration and competitive growth and the sustainable energy development in the region. Its membership currently represents over 90% of the upstream and downstream activities in the region, and includes national, international and independent oil companies, providers of technology, goods and services to the industry value chain, and other national and international institutions of the sector.



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



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