

Integrated Solutions for Assessing and Managing Hydrocarbon Resources

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Abstract

Hydrocarbon Resource Assessments require the integration of all available regional G&G knowledge and expertise, and the utilization of an integrated set of software tools, which support the necessary workflows. They are typically performed by regulatory authorities, ministries and national oil companies and the goal is to obtain better understanding of the controlling geoscience factors and to use this for more accurate assessments of the volume and type of hydrocarbon resources. This can be done for all of the basins and plays in an entire country in order to enable their relative value to be assessed, or in specific areas of interest. The work needs to be performed regardless of the amount of available information, so conceptual and analog information are an integral part of the work.

Resource assessment projects enable authorities and investors to make better decisions and to address questions such as how basins and plays can be ranked in terms of their chance of success, so that they can improve strategic exploration programs and capitalize on the national resources. Yet-to-find oil and gas assessments support effective marketing and enable countries to differentiate their offerings from those of competing countries. The assessments need to follow specific industry-standard workflows and provide auditable and continuously updateable results. The primary goal is an objective valuation of the potential hydrocarbon assets of a country. Due to the often sparse data and the inherent uncertainties in the quality of the available data, resource assessments always have large uncertainties. However, the absolute values of the assessed resources are not the main concern - the type of hydrocarbon resources and their relative volumes in different basins and plays are the most important deliverables.

In this paper, we present the concept and applications of a workflow, which enables resource assessments to be performed with a structured and iterative approach, and using industry standard workflows and tools in order to maximize efficiency and auditability. The integrated solution described here supports the quantification of petroleum system elements and processes to evaluate the potential for the presence of hydrocarbons in target areas.