BPM20

Petroleum System Modeling-based Resource Assessment for Conventional and Unconventional Hydrocarbons

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SUMMARY

A “state-of-the-art” multidimensional petroleum system modeling-based technology was developed for resource assessment. This is a key technology that can integrate and process all of the available geologic data to assess the resource potential and enable hydrocarbon properties of oil vs. gas potential to be understood and predicted for both conventional and unconventional petroleum resources. It is of strategic importance to be able to proactively explore for and secure future hydrocarbon resources. Due to massive financial commitments involved in exploring and producing hydrocarbons, a rigorous assessment of resources to quantify and demonstrate the overall potential of a prospective area is frequently required. The regularly updated resource assessment is of particular importance for national development and to establish a foundation for the development of the long term corporate financial strategies. Petroleum resource assessments (yet-to-find resource assessments) are used to quantify discovered and undiscovered petroleum (oil and gas), that is technically and economically recoverable within a certain time frame. It is therefore essential to standardize methods and tools for resource assessments based on scientifically sound and industry-standard geoscientific analyses, to document the procedures that are used, and to ensure that the analysis is complete and relevant to support petroleum exploration activities. This standardized methodology generates chance of success maps from petroleum system element maps, which includes dynamic charge, reservoir and seal risks. One of the most important elements of this methodology is the ability to audit and revise these play chance maps as new data can be readily incorporated and risk maps of the play updated because data and interpretations are available in an integrated environment.

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