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Management of petroleum resources: Fiscal regimes for petroleum exploitation - An Egypt case study

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Nowadays, the global petroleum exploration and production industry witnesses numerous challenges. One of the principal challenges is the decrease of oil price which negatively impacted the pursuit of exploration activities. Such challenge requires the governments to give more incentives to enable investors to inject more investment particularly in areas with high risk and complicated geological structure (e.g. deep and ultra-deep targets). There are various tools through which the host government can incentivize IOCs to invest more in the exploration projects, the easiest way to do the aforementioned target is to make the terms and conditions of the licensing agreements more favorable for IOCs in terms of increasing the profitability and enhancing the rapid recovery of operating and capital costs besides maintaining a healthy and safe political environment. Furthermore the fiscal regime adopted by the NOCs for petroleum exploration and exploitation may be another window that creates a win-win situation between IOCs and NOCs, and there are different types of fiscal systems known for petroleum exploitation (production sharing, service, concession and joint venture). Each country has its contractual framework for petroleum exploration and production, and the country's decision to adopt a certain contractual system does not mean the invalidity of other contractual models to be applied. The purpose of this presentation is to demonstrate the basic fiscal regimes adopted by NOCs for petroleum exploration and exploitation and the main differences between each contractual type in order to understand this relationship and the context in which it is adopted; then we focus on a case study from the Egyptian upstream sector by showing the evolution of E&P agreements in Egypt and the Key Provisions of Production Sharing Agreements (PSAs).

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Experimental study of characterization of aged fluid in casing annulus

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According to data from publicly held company "Severgazprom", two graphs were plotted and they show that the number of defects from stress corrosion cracking (SCC) uplifts with increasing temperature (Figure 1). Sections of 115 km in length were considered. The temperature intervals at which the main gas pipelines were operated ranged from +60°C to +25°C in the summer, from +30°C to -30°C in the winter. Steel grade 17G1S, the diameter of the pipes varied from 1020 mm to 1420 mm. The temperature intervals at which the main gas pipelines were operated ranged from +60°C to +25°C pipelines were operated ranged from +60°C to +25°C in the summer, from +30°C to -30°C in the winter. Steel grade 17G1S, the diameter of the pipes varied from 1020 mm to 1420 mm. Also, the researches of M V Chuchkalov and A G Gareev were compared. The approximation was applied to their data and it was revealed that with an increase in temperature from 0°C to +70°C, the activation energy necessary for the process of occurrence of SCC on steel grade X70 decreases from 34 kJ/mole to 4 kJ/mole. The study of two graphs based on the results of slow strain rate testing shows that when the temperature was changed from +25°C to +50°C, the susceptibility to SCC increased from 0.85 to 0.87 for steels X65 and to 0.9 for steels X60. This indicates a direct effect of temperature as a detrimental factor, which increases the susceptibility of the metal to stress corrosion. Analysis of the second graph allows us to conclude that when the temperature increases from +25°C to +50°C, the ability of the metal to absorb hydrogen is doubled for X65 steels and upsurges for X60 steels by 2.5 times, and with growth of hydrogen concentration increases the risk of SCC. As a result of the work was demonstrated a clear dependence of the occurrence of stress corrosion on the main gas pipelines on the temperature.

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