

NON-CONVENTIONAL GAS REGULATION: INTERNATIONAL COMPARATIVE ANALYSIS

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Overview

Over the last decade, the technological feasibility in the exploration of unconventional reservoirs, especially shale gas reservoirs, gave rise for an unprecedented shift in the oil and gas industry worldwide, turning those energy resources into major competitors in the international energy mix scenario. The shale gas revolution in the US alongside the propagation of hydraulic fracturing practices has had a profound impact on natural gas prices and energy independence from conventional oil reserves, aiming to enhance energy security. Also, the huge availability of shale gas, that produces much less CO₂ than coal, promises to support the transition from coal-fired to gas-fired power generation, consequently reducing greenhouse gases emissions and tackling issues that surround climate change. Besides, depleted shale gas formations offer an interesting opportunity of CO₂ storage due to enormous capacity, ability to physically trap CO₂ as well as reduced sequestration costs by taking advantage of existing infrastructure [1].

However, the technique of hydraulic fracturing (commonly referred to as “fracking”) still undergoes an intense criticism on behalf of international community due to potential technical and environmental damages, that can be irreparable to the environment and human/animal health, such as groundwater contamination [2], induced seismicity [3] and fugitive emissions [4].

In that light, it is crucial the establishment of appropriate policies and a concise regulatory oversight with the aim of ensuring the protection of the environment as well as to promote public policies for populations that have been affected by those practices. From this standpoint, this work presents an international comparative analysis between the regulatory experiences of non-conventional gases in North America, China, European Union and Argentina, which have been key players in that scenario.

Methods

After evaluating the available methods for carrying out this work, the descriptive research was chosen with the aim of delineating the regulation aspects for different countries and establishing comparisons between them. Regarding the research procedures and strategies, this work employed a bibliographic research in order to gather different contributions around the theme addressed.

Results

The expected results suggest divergent regulation experiences concerning non-conventional gas exploration. The US presents a well-established shale industry and the rules of development are set by a series of federal, regional, state and local regulatory actions. At a good stage of regulation maturity, Canada provinces are constantly updating their frameworks in order to suit gas extraction advancements. Compared to North America’s regulation experiences, Argentina is still at an incipient stage and the treatment granted to unconventional reservoirs is practically given by amendments to the main hydrocarbons law. China’s policy is based on the Five-year Plan issued by the Chinese government, that aims to encourage a more rapid development of the industry. However, detailed regulations and rules should be settled for significant improvements. In the European Union, the first step towards a consistent shale gas regulation consisted in the 2014 Recommendation on unconventional hydrocarbons. Nonetheless, there is an intense debate surrounding the failure of the current regulatory framework in addressing the environmental impacts caused by fracking coupled by population distrust.

Conclusions

Production of non-conventional gases, especially shale gas, by ways of horizontal drilling and hydraulic fracturing has critically increased in the recent years. Although this boom was followed by great optimism, it led to wide concerns regarding the environmental effects that those practices might cause, such as groundwater damage, air pollution, seismicity induction and habitats destruction. In this context, it is imperative to set firm and strict regulations in order to primarily balance risks and opportunities. The results gathered show that regulations across the countries are heterogenous, as expected. Countries vary in how they regulate their whole production chain and North America proves to be, by far, the player ahead in terms of regulatory frameworks and experiences.

References

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