

THE UNITED STATES SHALE GAS EXPERIENCE AS A REFERENCE OF SUCCESS: MEXICO'S ENERGY SECURITY TRAP

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Overview

Shale gas has gained increasing attention worldwide in the light of the rapid production and the significant effects seen in the United States. Using this case as a reference, Mexico included shale gas on its energy planning priorities and rushed towards commercial production, but results have remained elusive. The main argument of this paper is that due to the intrinsic complexity and context underlying shale gas development in the United States, its use as a benchmark by Mexico for policy making purposes is misleading, given the challenges in reproducing the same factors of success embedded on the basis of the contextual differences between both countries.

Methods

As this paper proposes that the use of the United States shale gas experience in guiding international shale gas development is reminiscent of benchmarking practices, the notions on international benchmarking are analyzed to emphasize the complexity in employing a reference for policy making purposes on the basis of its performance without accounting for its context. Accordingly, the major factors of success for the United States shale gas experience are discussed in order to highlight the ample divergences with Mexico. In doing so, the paper aims to illustrate the challenges of devising shale gas development policies from the outcomes of the United States experience alone, underscoring that rather than using it as a performance-based benchmark supportive of political interests, it should rather serve as a guide for the examination of the processes and factors conducive to those results, to ultimately develop adaptive knowledge more beneficial for devising effective policies and exploiting unique opportunities for shale gas within the Mexican context.

Results

In the face of the contextual divergences and structural deficiencies in the gas industry in Mexico in comparison to the United States, it is suggested that the use of such benchmark could be jeopardizing Mexico's energy security, by depending on resources that might eventually be costlier or take much longer to develop in comparison to the expectations held and the initial plans made from a performance-based benchmark perspective approach without an additional adaptive strategy.

Conclusions

In spite of Mexico's inferred shale gas resources and its proximity with the United States, its results to develop shale gas on a commercial scale have been scarce due to its structural deficiencies, highlighting the need for energy policy makers to gain strategic knowledge from the benchmark to devise strategies adapted to the Mexican environment. Aside from this purpose, the use of a benchmark can be also advantageous to estimate the efforts, costs and timeframes associated in achieving shale gas production on a commercial scale in Mexico. The findings presented can ultimately be helpful for other countries looking forward to or in the process of developing their shale gas resources driven by the same reference.

References

Baker & Hughes, 2013. *Rig count*. [Online]
Available at: www.bakerhughes.com/rig-count
[Accessed 12 April 2013].

Binnion, M., 2012. How the technical differences between shale gas and conventional gas projects lead to a new business model being required to be successful. *Marine and Petroleum Geology*, 31(1), pp. 3-7.

- Blohm, A., Peichel, J., Smith, C. & Kougentakis, A., 2012. The significance of regulation and land use patterns on natural gas resource estimates in the Marcellus shale. *Energy Policy*, Volume 50, pp. 358-369.
- Comisión Nacional de Hidrocarburos [CNH], 2012. *Reporte de actividad exploratoria*. [Online]
Available at: www.cnh.gob.mx/docs/Reportes_IH/Reporte_de_Actividad_Exploratoria_Nov_2012.pdf
[Accessed 10 January 2013].
- Comisión Nacional del Agua [Conagua], 2012. *Atlas del agua en México 2012*, México: Secretaría de Medio Ambiente y Recursos Naturales.
- Department of Commerce [DOC], 2009. *Statistics of U.S. Business*, s.l.: United States Census Bureau.
- Dolowitz, D. & Marsh, D., 2000. Learning from abroad: The role of Policy Transfer in contemporary policy-making. *Governance: An International Journal of Policy and Administration*, 13(1), pp. 5-24.
- Dominique, K., Malik, A. & Remoquillo-Jenni, V., 2013. International benchmarking: Politics and policy. *Science and Public Policy*, pp. 1-10.
- Energy Information Administration [EIA], 2007. *About U.S. natural gas pipelines*. [Online]
Available at: www.eia.gov/pub/oil_gas/natural_gas/analysis_publications/ngpipelin/index.html
[Accessed 9 April 2013].
- Energy Information Administration [EIA], 2011. *World Shale Gas resources: An initial assessment of 14 regions outside the United States*, Washington DC: U.S. Department of Energy - EIA.
- Energy Information Administration [EIA], 2012. *Annual Energy Outlook 2012*, Washington DC: U.S. Department of Energy - EIA.
- Energy Information Administration [EIA], 2013a. *Annual Energy Outlook 2013 Early Release*. Washington: United States Energy Information Administration.
- Energy Information Administration [EIA], 2013b. *Natural gas data*. [Online]
Available at: www.eia.gov/naturalgas/data.cfm
[Accessed 22 January 2013].
- European Parliament, 2011. *Impacts of shale gas and shale oil extraction on the environment and on human health*, s.l.: European Parliament, Directorate-General for Internal Policies.
- Gény, F., 2010. *Can unconventional gas be a game changer in European markets?*, Oxford: Oxford Institute for Energy Studies.
- Huggins, R., 2010. Regional competitive intelligence: Benchmarking and policy-making. *Regional Studies*, 44(5), pp. 639-658.
- Jenner, S. & Lamadrid, A., 2013. Shale gas vs. coal: Policy implications from environmental impact comparisons of shale gas, conventional gas, and coal on air, water, and land in the United States. *Energy Policy*, Volume 53, pp. 442-453.
- Johnson, C. & Boersma, T., 2013. Energy (in)security in Poland the case of shale gas. *Energy Policy*, Volume 53, pp. 389-399.
- Kaiser, M., 2012. Profitability assessment of Haynesville shale gas wells. *Energy*, 38(1), pp. 315-330.
- Lozano Maya, J., 2012. La producción global del gas de lutita, ¿revolución para todos?. *Energía a Debate*, 8(53), pp. 6-12.
- Lundvall, B. & Tomlinson, M., 2002. International benchmarking as a policy learning tool. In: M. Rodrigues, ed. *The New Knowledge Economy in Europe. A strategy for international competitiveness and social cohesion*. Cheltenham: Edward Elgar Publishing Limited, pp. 203-231.
- Michot Foss, M., 2012. Natural gas price in North America. In: J. Stern, ed. *The pricing of internationally traded gas*. Oxford: Oxford University Press, pp. 85-144.
- Paasi, M., 2005. Collective benchmarking of policies: an instrument for policy learning in adaptive research and innovation policy. *Science and Public Policy*, 32(1), pp. 17-27.
- Papaioannou, T., Rush, H. & Bessant, J., 2006. Benchmarking as a policy-making tool: From the private to the public sector. *Science and Public Policy*, 33(2), pp. 91-102.
- Parker, M., 2009. Understanding process key to shale gas development. *Oil and Gas Journal*, 107(36), pp. 50-55.
- Petróleos Mexicanos [PEMEX], 2011. *Principales elementos del Plan de Negocios de Petróleos Mexicanos y sus Organismos Subsidiarios 2012-2016*, México: PEMEX.
- Polish Geological Institute, 2012. *First report: Assessment of shale gas and shale oil resources of the Lower Paleozoic Baltic-Podlasie-Lublin Basin in Poland*, s.l.: Polish Geological Institute.
- Secretaría de Energía, 2011. *Discurso 17 de noviembre de 2011*. [Online]
Available at: www.energia.gob.mx/portal/Default.aspx?id=2074
[Accessed 17 January 2013].
- Secretaría de Energía, 2012a. *Boletín 071.2012*. [Online]
Available at: www.energia.gob.mx/webSener/portal/Default.aspx?id=2312
[Accessed 9 April 2013].
- Secretaría de Energía, 2012b. *Estrategia Nacional de Energía 2012-2026*, México: Secretaría de Energía.
- Secretaría de Energía, 2012c. *Prospección del mercado de gas natural 2012-2026*, México: Secretaría de Energía.
- Secretaría de Energía, 2013. *Estrategia Nacional de Energía 2013-2027*, México: Secretaría de Energía.
- Selley, R., 2012. UK shale gas: The story so far. *Marine and Petroleum Geology*, 31(1), pp. 100-109.
- Shields, D., 2012. Reforma energética y shale gas. *Energía a Debate*, 8(53), pp. 16-18.
- Soeder, D., 2012. Shale gas development in the United States. In: H. Al-Megren, ed. *Advances in natural gas technology*. Croatia: InTech, pp. 3-28.
- Stojanovski, O., 2012. Handcuffed: an assessment of Pemex's performance and strategy. In: D. Victor, D. Hults & M. Thurber, eds. *Oil and governance. State-owned enterprises and the World energy supply*. New York: Cambridge University Press, pp. 280-333.
- Tordo, S., Tracy, B. & Arfaa, N., 2011. *National Oil Companies and value creation - Volume II*, Washington: The World Bank.
- Trembath, A., Jenkins, J., Nordhaus, T. & Shellenberger, M., 2012. *Where the shale gas revolution came from*, s.l.: Breakthrough Institute Energy & Climate Program.
- World Energy Council, 2010. *Survey of energy resources: Focus on shale gas*, London: World Energy Council