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Opinion

Fracking: Calling for an Effective Geo-Communication Strategy

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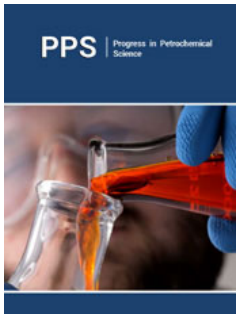

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Abstract

Fracking has been at the forefront of public attention for a while now. One of the externalities of the fracking practice is the anxiety and mistrust in authorities that some members of the affected communities experience. This article suggests that this social externality could be ameliorated with the help of a clear geo-communication strategy that seeks to differentiate systemic risks of the current fracking model from the preventable risks posed by poor regulation & accidents. The authorities could then be advised to show comprehensive steps for preventing the later category of risks, thus reducing the amount of mistrust and overall fracking-related stress in their communities.

Opinion

According to the Independent Petroleum Association of America, fracking (hydraulic fracturing) is one of the unconventional development methods used for oil and natural gas extraction. With the help of this practice, hard-to-extract oil and natural gas have become a valuable economic instrument for securing energy independence and job creation for many communities worldwide. On the other hand, environmental concerns such as water pollution by methane and fracking fluid leakage, anthropogenic seismic activity, contribution global warming etc. have also accompanied the rise of fracking. These have been further exacerbated in the public eye because of unfortunate events such as the 2018 Ohio explosion that turned a well into a methane super emitter, releasing in 20 days as much methane as almost all European countries emit over a year [1].

Studies also show that the topic of fracking causes stress and mistrust (including "us vs. them" mentality) in interviews with the public [2,3]. And a UK case study illustrates that while the public's perception of fracking is overall conflicted, the public support for fracking drops when asked about allowing it locally [4].

It is hereby suggested that there can be a substantial benefit to the public from an efficient geo-communication that would seek to avoid conflating systemic risks of the current hydraulic fracturing model (regardless of the regulations/precautions) and the risks associated with poor regulations of the fracking facilities. Let us take a brief look at one example from both categories [5].

Continuing the topic from above: while the water contamination concerns near fracking wells have been substantiated in some cases, in others, we can find a more hopeful outlook. The 2018 study by Botner EC et al. [6] titled "Monitoring concentration and isotopic composition of methane in groundwater in the Utica Shale hydraulic fracturing region of Ohio," found no relationship between CH_4 (methane) concentration or source in groundwater and proximity to active gas well sites [6]. Another important factor that deserves to be communicated is naturally occurring methane in the groundwater of any given region. As a result, the question of anthropogenic contamination of groundwater with methane (as a result of fracking) becomes a question of prevention measures (regulations): for instance, preventing old wells from diffusing shell gas into the water table.

On the other hand, by the nature of the fracking mechanism itself, fracking produces (a systemic) seismic impact. However, this impact is usually in the form of vibrations that are detected by sensitive seismic instruments [7]. What causes most of the concern is wastewater injection back into the earth, which has the potential of lubricating fault lines [7]. Disposal of wastewater is subject to regulations (for example, The Clean Water Act in the US). The wastewater can also be recycled in some cases. As a result, even though the risk of anthropogenic seismicity is systemically present in hydraulic fracturing, it is important to communicate to the public that its extent can be minimized and evaluated on a case-by-case approach. Hence, it is hereby advised that to alleviate mistrust and stress related to the existence of fracking in a community, an efficient geo-communication strategy should provide the public with a comprehensive view of the distinctions in likelihood and scale of risk factors, benefits of the industry, and the regulations imposed on it. The goal should be to empower the community to take advantage of their energy source with a sense of informed security.

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