HYDRAULIC FRACTURING

Rising water use

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Advances in hydraulic fracturing ('fracking'), whereby high-pressure liquid and sand are forced into shale formations to extract hydrocarbons, has led to a significant increase in the production of shale gas in the United States in recent years. While on the national scale the water requirements for fracking are small compared to other industrial uses, at the local level there are concerns over the additional demand for water that it can bring, particularly in the western US where supplies are limited. Now, Avner Vengosh and colleagues at Duke University perform an analysis that indicates that the water footprint for fracking operations in the United States is increasing.

The researchers analyse data from over 12,000 wells, combining datasets detailing oil and gas production volumes with water-use figures at fracking sites in six shale regions in the United States. They find that between 2011 and 2016, the average length of lateral sections of horizontal wells increased, driving up hydrocarbon extraction yields. This was accompanied by greater water use per well, which in some cases rose by up to 770%. Significantly, water-use intensity — the amount of water required to produce a unit of energy — is also growing for both gas and oil. Moreover, the amount of wastewater generated from fracking, which comprises injected fracking liquid as well as highly saline water from the geologic formations, is rising, which could increase the water disposal burden.

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