

# How useful is fracking anyway? Study explores return of investment

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The value of a fuel's long-term usefulness and viability is judged through its energy return on investment; the comparison between the eventual fuel and the energy invested to create it. The energy return on investment (EROI) study published in the *Journal of Industrial Ecology* finds that shale gas has a return value which is close to coal.

In the United States, gas is mined from horizontal, hydraulically fractured wells in the [Marcellus Shale](#) of Pennsylvania. The study compares the total input energy with the energy expected to be made available to end users.

The analysis indicates that the EROI ratio of a typical well is likely between 64:1 and 112:1, with a mean of approximately 85:1. This range assumes an estimated ultimate recovery (EUR) of 3.0 billion cubic feet per well. This is similar to the EUR of coal, which falls between 50:1 and 85:1.

"Our analysis indicates that gas can be extracted from shale efficiently, from an energy perspective. The [energy return](#) on (energy) investment ratio (EROI) does seem to be at least as favorable as coal," said lead author Mike Aucott. "However, a comparison with coal is difficult. There appear to be large amounts of coal still available. Estimates of the amount of gas available from the shale plays vary widely. It is not clear yet whether there is anywhere near enough to rival coal over the long haul."

"There are concerns about [water pollution](#) and other environmental impacts associated with [shale gas](#) production", concluded Aucott. "With the assumption that these can be managed, and that production quantities remain consistent with initial production data, the favorable EROI suggests that shale gas will be a viable energy source for quite some time."

**More information:** Michael L. Aucott and Jacqueline M. Melillo, A Preliminary Energy Return on Investment Analysis of Natural Gas from the Marcellus Shale, Journal of Industrial Ecology, Wiley, [DOI: 10.1111/jiec.12040](#)

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