

Methane hydrates: How important a resource?



At very low temperatures, water molecules can trap methane molecules in a crystalline lattice structure. This phenomenon was noticed several decades ago when a natural gas pipeline froze up and subsequently thawed, liberating the trapped methane. Awareness of large quantities of so-called methane hydrates in the deep ocean prompted the Department of Energy (DOE) to start a modest program in 1982) to look at recovering such deposits, but it was the Japanese who have been investing large sums of R&D dollars to find a way to mine this valuable resource. Japan has little or no indigenous hydrocarbon production, but has large methane hydrate beds in territorial waters sparking the country's great interest.

A recent article in [The Atlantic](#) suggests that methane hydrates could be the next new vast energy resource comparable to and possibly even more abundant than the natural gas and oil now being recovered in tight shale deposits with hydraulic fracturing (fracking). So far, the Japanese have only recovered relatively tiny amounts of methane and say it will be ten years before commercial amounts will be produced.

There will be skeptics who doubt that methane hydrates will become a dominant source of natural gas: The cost of production may be too high to compete with other sources. On the other hand, the same was said about tight shale gas until horizon drilling was developed, which made fracking highly economical. It's hard to know whether this is a good analogy. In [another](#)

[article](#) answering the Atlantic's piece the author believes that the cost of renewable energy (solar, wind, etc) keeps coming down, making these forms of energy more and more attractive (as well as releasing no carbon).

Japan has every reason to hope that methane hydrates will become a commercial reality for that country, which imports huge quantities of liquefied natural gas, more than ever now that nuclear energy has become a serious issue after Fukushima and the fact that one or more other Japanese nuclear plants are located at or near geological fault lines. So, the rest of the world will be watching to see if methane hydrates will make a difference, at least for that country.

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