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## How to frack cleaner: US company challenges traditional model

But the newly proposed shale gas exploration technique is currently hampered by high costs and environmental concerns

By Anca Gurzu • 22 June 2015 Last updated 16:11



Fracking waste in unlined pit in California, ©Flickr/Faces of Fracking

A leaked shale gas report rocked French politics a couple of months ago. At the centre was the government's decision to hide an analysis that outlined ways to explore this unconventional resource through an alternative to off-contested hydraulic fracturing. Since shale gas exploration is banned in France, the decision about how to handle the report was doomed to turn controversial no matter what.

Today, the American company behind the technological proposal is looking for a fresh start. Eager to distance itself from its French entanglements, eCorp Stim, a subsidiary of energy exploration company eCorp, has begun testing the waters across Europe, hoping to make a strong business case for the "cleanness" of its method in Europe's shale gas pioneering countries. However, high costs and environmental concerns are already posing problems.

The debate revolves around the idea of using non-flammable propane to release the shale gas, offering a potential alternative to the current practice of using high volumes of water and chemicals – the fluid mixture that has been often blamed for small earthquakes and environmental degradation.

The idea was to invent something more elegant, said Florence Maisel, eCorp's director of external relations for Europe, Middle East and Africa.

The company closely collaborated with former French Industry Minister Arnaud Montebourg, who – in contrast to the rest of his cabinet – was in favour of developing the country's vast shale gas reserves. Political changes led to Montebourg's replacement in August 2014, before the report could be officially released. This also meant the company lost its strongest cheerleader.

The original plan was to transform the non-flammable propane stimulation, also known as heptafluoropropane, into a "French technology," with the large majority of potential exploration revenues to be used to finance the country's energy transition, Maisel said.

With those plans are now a thing of the past, the company is nevertheless pushing its technology ahead. Maisel also represents her company in the Commission's fracking working groups set up last year.

The shale gas debate in Europe has toned down over the last months, but public opposition remains vocal in many countries.

## Challenges

While non-flammable propane could act as a substitute to the current water-based fracking fluid, it has a very high pollution potential, with an emissions capacity about 3,200 times higher than CO<sub>2</sub> if any of it would be leaked into the air.

It is also very expensive. It costs about US\$15,000 per cubic metre, compared to the current price for water (including treatment) of about US\$100 to US\$150 per cubic metre, said Philippe Charlez, an expert at the International Oil and Gas Association and also co-author of the book 'The Shale Oil and Gas Debate'.

For example, Charlez says, under current costs, it could take US\$30 million to exploit a well with ten fracks with non-flammable propane.

Heptafluoropropane is currently produced only in small quantities around the world, used mostly in fire extinguishers.

"There is a big problem regarding the economics," he said. "If there would be a production of higher amounts, prices could drop, but the cost would remain however very high. Oil and gas operators would hardly use for fracking a such high cost product if it is not guaranteed that it can reused at 99% after recovery."

Moreover, Geert Decock, director of EU affairs at Food and Water Europe, says he is not convinced the company can "offer watertight guarantees" that there will be no leakages whatsoever.

"Even minuscule leakage of this gas would reduce any climate benefits of using this new technology," he said.

E Corp is aware of these challenges.

"If you combine its two characteristics - high global warming potential and that it is very expensive - it means that [...] using [non-flammable propane] stimulation means that we need to make absolutely sure that nothing will be released in the atmosphere," Maisel said.

What makes the technology economically attractive is that almost all of the fluid can be reused, unlike water, of which only 30-40% is reused, she added.

Moreover, "if we were not able to develop a methodology to prevent any kind of leakage, we would abandon it immediately," Maisel said.

## Untested ground

But e Corp's immediate challenge remains a practical one. While the company has tested a pure propane stimulation technique before – which is very flammable – it has yet to do so with non-flammable propane.

Maisel said tests are planned as early as this summer in already existing shale gas wells in the United States.

"We are so sure we will increase production of the well that [the operators] will need to repay us only on the [difference of the extra production]," she said.

For Charlez, non-flammable propane stimulation remains a "paper technology".

"It can be interesting because it is not flammable and there is no need for chemicals, but the economic factor is today a killing factor," he said. "Today it is very difficult to use a credible alternative to water hydraulic fracturing."

Those arguments are not surprising for Maisel, who says traditional oil and gas players are in a comfort zone focused on the methods they know work. She said she is aware that there will be some convincing to do in the industry.

Moreover, the company's efforts might bear fruit first on the other side of the Atlantic, she said.

"This technology was invented to answer European considerations," Maisel said. "Ironically, it might be adopted in the US sooner," since shale gas exploration is already well advanced there.

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