

Crypto mining could give orphaned natural gas wells a new lease on life

Blog post by Advisor Stephanie Grumet and Associate Ben Basset, 28 January 2022

The US oil and gas industry is no stranger to criticism from Washington, and the Biden administration has only ramped up the inflammatory attacks. At a time where the industry is desperate for a narrative change, an unlikely partner has emerged - crypto miners. For both industries, which have been unable to free themselves from the shackles of political scrutiny, this partnership could not only enhance reputations but also make tangible progress in tackling US greenhouse gas emissions. With the issue brought to lawmakers' attention during the January 20 House Committee on Energy and Commerce's hearing on the energy impacts of blockchains and cryptocurrency mining, expanding these partnerships just might be possible.

First, some background. Most orphaned wells have no active legal owners; wells were usually abandoned when they became uneconomic or if the operator went out of business or filed for bankruptcy. The Department of the Interior estimates there are 130,000 documented orphaned wells in the US, but the myriad of undocumented wells means the total number could be more than ten times as high. These orphaned wells are a serious environmental problem, too - they leak methane, a greenhouse gas 26 times more potent than carbon dioxide. The EPA estimates that these orphaned wells emit 280,000 metric tons of methane annually. It's not hard to see why plugging these wells became a \$4.7 billion American priority with the passage of the Infrastructure Investment and Jobs Act (IIJA), the massive bipartisan infrastructure bill passed last November.

Cryptocurrency mining has environmental concerns as well. The cryptocurrency mining process is extremely energy intensive; according to the Cambridge Bitcoin Electricity Consumption Index, Bitcoin's yearly electricity consumption (131.1 TWh) is higher than Ukraine's (124.5 TWh) and Norway's (124.3 TWh). Cryptocurrency mining is fairly mobile, and its insatiable power demand has driven crypto miners towards ever cheaper and dirtier generation sources - even pulling aging coal-fired power plants out of retirement.

Crypto mining at orphaned well sites is already underway in states like Texas and South Dakota. The process is fairly straightforward; methane is captured from the well and used to fuel a generator which in turn powers a shipping container full of computer processors that are used to mine for cryptocurrencies. Active, unproductive wells can play a role as well. Wells that aren't attached to pipelines are forced to burn off excess gas - also known as flaring - or vent it into the atmosphere. Layering crypto mining into traditional oil and gas E&P operations could add an additional revenue stream for corporations or portfolio companies.

With a rigorously climate-conscious approach, crypto mining at orphaned well sites can result in a net environmental and climate benefit. Such an approach could include:

- The use of an energy efficient generator capable of capturing 98% or more of the leaking methane;
- The acquisition of GHG offsets for any remaining fugitive methane emissions and all carbon dioxide emissions from the generator;
- A commitment to cap the well at the cessation of crypto mining. According to Resources for the Future, the median cost of well completions is \$76,000; funding authorized by the IJA could well cover those costs; and
- A commitment to recycle used computer processing equipment. Given the intensity of its use, these components rarely last more than three to five years.

With the application of these principles, crypto mining could become a sustainability asset, adding ESG bona fides by capturing and reducing greenhouse gas emissions. The reduction of ambient methane and volatile organic compounds would also help improve local air quality, bringing an aspect of environmental justice to bare; the Environmental Defense Fund (EDF) estimated that 9 million people live within one mile of an orphaned well.

But advocates will have some convincing to do. Despite generally having an elementary understanding of cryptocurrencies, lawmakers - Democrats especially - are concerned about the fossil-fuel related emissions and energy consumed in crypto mining. We believe the rumblings over crypto-related energy use will grow as mining proliferates - it is possible the SEC will look into regulating energy use and emissions from crypto, but we see that as being many years off.

The small subset of states with Democratic governors and a multitude of orphaned wells - think Pennsylvania and Colorado - could enact regulations to restrict the practice. However, we view that as unlikely. Environmentalists will be even less convinced, as most would much rather see the wells capped immediately. Plugging mines is also a job creator, something no administration wants to pass up.

However, congressman Griffith (R-VA)'s exchange with Brooks is evidence of lawmaker interest. Support could be particularly strong amongst lawmakers representing O&G-dependent states (largely Republicans), as fostering such partnerships could both support an important industry and stimulate local economies. A political environment almost totally devoid of compromise fosters seemingly unnatural partnerships. With that in mind, corporates and portfolio companies may find that this particular one is worth greater exploration.