

## COMMENTARY

# Betting on cryptocurrency to gird Texas' grid is magical thinking

By Severin Borenstein

Of all the proposals to avoid another Texas electricity crisis, surely the most outside-the-box is Gov. Greg Abbott's plan to increase electricity demand



**Borenstein** from cryptocurrency mining. The idea is to beef up demand with new, electricity-intensive crypto mining, which will then attract new supply.

Then, when the grid is strained, scale back crypto demand and have that supply available for other consumers. Clever, right? Or maybe a bit too clever.

Of course, cryptocurrencies themselves are controversial: Are they a Ponzi scheme or brilliant currency innovation? Does their mining destroy the environment or support a clean energy transition? Is crypto mining an economic boost for surrounding communities or a visual and noise nuisance? Let's set those issues aside for now and focus on whether Abbott's plan for grid reliability will work.

At first, the answer may seem to be obviously no: Adding demand will just make supplies tighter.

But promoters of this plan highlight that their economic thinking goes beyond short-run demand to consider the longer-run additional supply that increased demand would elicit by encouraging new generation to be developed. The plan would also leverage the potential for crypto mining electricity demand to be highly price-responsive and nimble,



Steve Gonzales / Staff photographer

**Gov. Greg Abbott is encouraging energy-intensive crypto mining as a way to stabilize the grid.**

so it could quickly disappear when the price shot up.

## Picking up excess supply

But the actual impact of this demand on the market would be more nuanced, and probably not in a good way for the plan. If crypto mining demand goes away during price peaks, then it undercuts sellers' profits at those times — profit that is a significant driver of investment in power generation.

In fact, if crypto demand is only a factor when supplies are abundant and costs are low, it doesn't make new investment more attractive. Basically, crypto miners would just pick up the excess supply from existing capacity in off-peak hours, creating little or no need for new capacity.

And, of course, there is also the question of whether the crypto mining industry is the sort of long-term demand

growth that generation investors would be looking for. The volatility of cryptocurrency values isn't the most reassuring signal, nor are plans to drastically reduce energy used in crypto mining.

If this is anyone's idea of a serious response to the February 2021 crisis, they really need to consider alternatives.

## Demand response

Concerns about using crypto mining for grid reliability, however, go beyond whether it will provide incentives to build new power generation.

Most of the discussions envision miners cutting back during peak times as part of a demand response program. Demand response programs pay customers to reduce usage of electricity that they would have otherwise consumed. That can make some sense if the customer is buying at an

inflexible retail rate and has no other incentive to adjust.

But the crypto mining business model is based on buying electricity at wholesale prices or on a real-time variable price tariff. They would already have a strong incentive to cut back during grid emergencies without the additional payments from the demand response program, especially in Texas with its \$5,000 per megawatt-hour wholesale price cap. That means the mining companies get paid for reducing demand that they never would have put on the grid in the first place at those high prices.

The interaction of crypto mining and demand response payments is even more concerning, because the payments are based on reductions from a baseline, which is usually determined by the customer's consumption in certain previous hours. There is an industry

of consulting firms set up to teach customers how to "optimize" payments from such programs by increasing their demand baseline — what one might call maximizing abuse of the system.

What restricts such "optimization" is the customer's limited ability to shift demand to create as high a baseline as possible. But 30 to 40 percent of crypto mining electricity usage is for fans and other cooling technologies that can suck up power on demand. What a great technology for increasing baseline quantities to "optimize" profits from demand response programs.

## A Ponzi-scheme?

I admit, I'm not a crypto fan. I lean toward the environmentally damaging, Ponzi-scheme view. But even if it is a brilliant financial innovation, it's unlikely to be much help in the electrical engineering of a grid. Adding demand that disappears when the grid capacity is strained doesn't create much incentive to add grid capacity, and that goes double for demand from an industry whose future is highly uncertain.

At the same time, crypto mining is just about perfect for exploiting poorly designed demand response programs, which would mean paying millions to "reduce demand" that was never going to be there in the first place.

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