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Bitcoin mining revives forgotten US industrial towns

Cheap electricity is attracting these companies to flock to the US and Canada

Rob Crilly

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March 12, 2018

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Employees check fans on mining machines at the Bitfarms cryptocurrency farming facility in Farnham, Quebec, Canada. Christinne Muschi/Bloomberg

For more than a century, the Alcoa company has been making aluminium in the small, upstate New York town of Massena.

It provided reliable jobs and good wages to a town that was known as a centre of the manufacturing industry.

That changed three years ago, when Alcoa – the biggest US aluminium producer – closed one of its plants, cutting more than 300 jobs at a stroke. Jobs at a second plant were saved only when the state stepped in with a rescue package.

This year has brought another, more unlikely saviour. Coinmint, a company mining Bitcoin, has leased all 1,300 acres of the shuttered smelter site to set up what it says could be the world's biggest cryptocurrency production centres.

The small, declining industrial town on the banks of the St Lawrence River, near the Canadian border, may seem an unlikely location for "New York's Silicon Valley", but it has all the properties sought by Bitcoin miners. Kyle Carlton, spokesman for Coinmint, listed the benefits: "Access to a large quantity of economical, renewable electricity, a favourable climate and the immense co-operation of the community that helped bring the project to fruition."

The explosion in the value of Bitcoin last year prompted a surge in start-ups running the energy-hungry computer systems needed to keep the global cryptocurrency system functioning. They have fanned out across the US and Canada in search of cheap electricity.

Coinmint could bring a financial bonanza to Massena. The company estimates its investment will run to $165 million and provide at least 150 jobs. It took over the old Alcoa East site in December and has 30 people at work. The first mining computers are due to be installed within days.

The activity has created a buzz throughout Massena, according to Steve O'Shaughnessy, a town supervisor.

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"Everybody is trying to figure out what a Bitcoin is first," he says.

"But it's definitely the topic of conversation in all the coffee shops and restaurants in the area.

"There are people who are hoping that it comes through, and others who are sceptical."

Any influx of jobs would be a boon to a town that has suffered badly from America's downturn in manufacturing. General Motors shut a plant with the loss of 500 jobs a decade before Alcoa downsized.

Other businesses followed. *The New York Times* recently profiled its hollowed-out shopping centre to illustrate how American towns are struggling to adapt to a changing economy. It described how residents remember when times were so good that Canadians would drive south for its shops, leaving their old shoes in car parks so they could travel back across the border wearing new ones to avoid import duties.

Coinmint's arrival at the old aluminium plant offers a potential new dawn. Another company has grand plans for Massena, too. Blockchain Industries has plans for $600m in server hardware, as well as a call centre, which would create as many as 500 jobs in the next five years.

Similar operations are popping up across the state. In Watertown – 160 kilometres down state highway 37 from Massena – a businessman is leasing 4,000 square feet in a former Rite Aid drug store to set up facilities that can be rented by Bitcoin miners.

A former paper mill in Plattsburgh has been turned into a mining hub. Cheap electricity is at the heart of all the plans. It is the key resource needed to keep powerful processors humming and ensure Bitcoin's blockchain – the decentralised register of transactions – is updated.

About every 10 minutes computers consolidate recent transactions into blocks, essentially converting them into a mathematical puzzle.

The first computer to solve the puzzle alerts the rest of the network, which checks whether the solution is correct and the transaction legitimate. If so, the block is added to the chain in the ledger and the miner that found the solution is rewarded from a limited supply of Bitcoin.

The process now consumes vast amounts of processing power. A global estimate maintained by Alex de Vries, who runs Digiconomist, puts the daily electricity consumption at 54 terawatt hours. That is equivalent to the energy use of Bangladesh.

The result is a scramble across America to find the cheapest electricity, from New York state in the east to Washington and Oregon in the west.

Chelan County in Washington state has some of the cheapest power in the country, all provided by dams along the Columbia River. With electricity prices as low as 2.2 cents per kilowatt hour, its rate is well below the national average of 6.7 cents per kilowatt hour – and half that of Massena – according to the Electricity Local comparison site.

Officials at the Chelan County Public Utility District reported a surge in applications from mining companies in the last quarter of 2017, as Bitcoin prices spiked. Four inquiries were for more than 100 megawatts each – enough to power more than 50 hospitals – in a district where total retail electricity production was 200 megawatts. It has since set up a website dedicated to helping high-power users and has sent a letter explaining why it would take some time to respond to each request.

"Overall, our electric generation, transmission and distribution systems are not generally able to incorporate the magnitude of your power needs within the short timeframes being requested," Chelan County Public Utility District says on its website. "However, we are very much interested in working with you to define options that would create value for our existing customer-owners and you."

Therein lies the dilemma. While local authorities welcome entrepreneurs bringing jobs and income, their energy demands could increase prices for other consumers and may require considerable investment in transmission and delivery infrastructure.

Robert McCullough of McCullough Research, an energy consultancy in Oregon, said there were clear advantages for electricity companies at a time when consumption was dropping along with prices.

"The issue is simple. The energy crisis is over. We have vast surpluses emerging in the US and Canada. And that's good news," he says.

"The question is, is this a suitable load for a utility?"

There are plenty who think not. China, for one, has moved to shut down its massive share of Bitcoin miners, concerned at both the energy consumption of the industry (the country is home to more than two thirds of the world's processing power devoted to Bitcoin mining) as well as the criminal use of cryptocurrencies. In January, a government task force monitoring internet finance ordered

local authorities to "guide" the shutdown of cryptocurrency miners.

That prompted a flood of companies to begin looking elsewhere, such as the Canadian province of Quebec. But it, too, has begun pushing back.

State utility Hydro-Quebec said it simply could not satisfy demand after 70 cryptocurrency mining operators applied to set up shop. And now the provincial government has taken a stand, saying earlier this month that new companies had to do more than simply turn up and plug in banks of servers. "There needs to be added value for our society; just having servers to do transaction mining and acquire new Bitcoins – I don't see the added value," said Philippe Couillard, Quebec's Premier, at a conference in Montreal, according to Bloomberg.

Mining operations are not risk-free. Servers run continuously and can overload systems that were not built for such heavy use, causing power cuts or worse. A grass fire in Chelan County last year was blamed on unauthorised cryptocurrency mining.

Then there is the volatility of Bitcoin itself. A sudden drop in the price – such as the crash in January when it sank to half its 2017 peak of almost $20,000 – could upturn the economics of production.

In a recent report, Mr McCullough compared the current vogue for Bitcoin mining with the 17th century Dutch Tulip Bubble, when it seemed the entire nation had caught the craze. "There is a fundamental similarity – when the price of Bitcoins (or tulips) reaches high levels everyone can start their own cryptocurrency (or plant tulips)," he wrote. "Building infrastructure to serve volatile loads may well leave stranded costs for other utility customers."

Massena, however, has an advantage. Its history with aluminium smelters means it already has the infrastructure for supplying an energy-intensive business.

Mr O'Shaughnessy says: "That's what these companies are doing, following the old smelters.

"Any place where they've been idled, if they've got the substations and transmission lines to get it there then it's perfect for these Bitcoin mining companies."

By using the shuttered plant, Coinmint has access to three 145MW transformers which at full capacity it believes would make it the biggest miner in the world.

Mr Carlton says it is wrong to think that the sector will be derailed by falls in the Bitcoin price. While profiteers and speculators might see Bitcoin as a commodity, he says, its real value is in the upgrade it offers the global financial system.

"Free markets have always been ultimately driven by efficiency, and clearly digital currencies are vastly superior in this regard," he says.

"We view this as a historical opportunity to participate in this upgrade, creating value not only for us and our clients, but for the global financial system as a whole."

Investors may still see trouble ahead for mining operations. Plattsburgh is considering a moratorium on any further expansion until it can produce guidelines on electricity use and zoning in a debate that could herald a national discussion of regulation.

That leaves Massena still hoping Coinmint can make good on its forecast of jobs and investment.

Mr O'Shaughnessy says supporters of the project were promising that it would turn his town into the Silicon Valley of New York.

"Wouldn't it be nice if it were so," he says with a chuckle. "With all the trials and tribulations we have had, with unemployment, problems of the past, if only we could count on someone bringing employment to the area."

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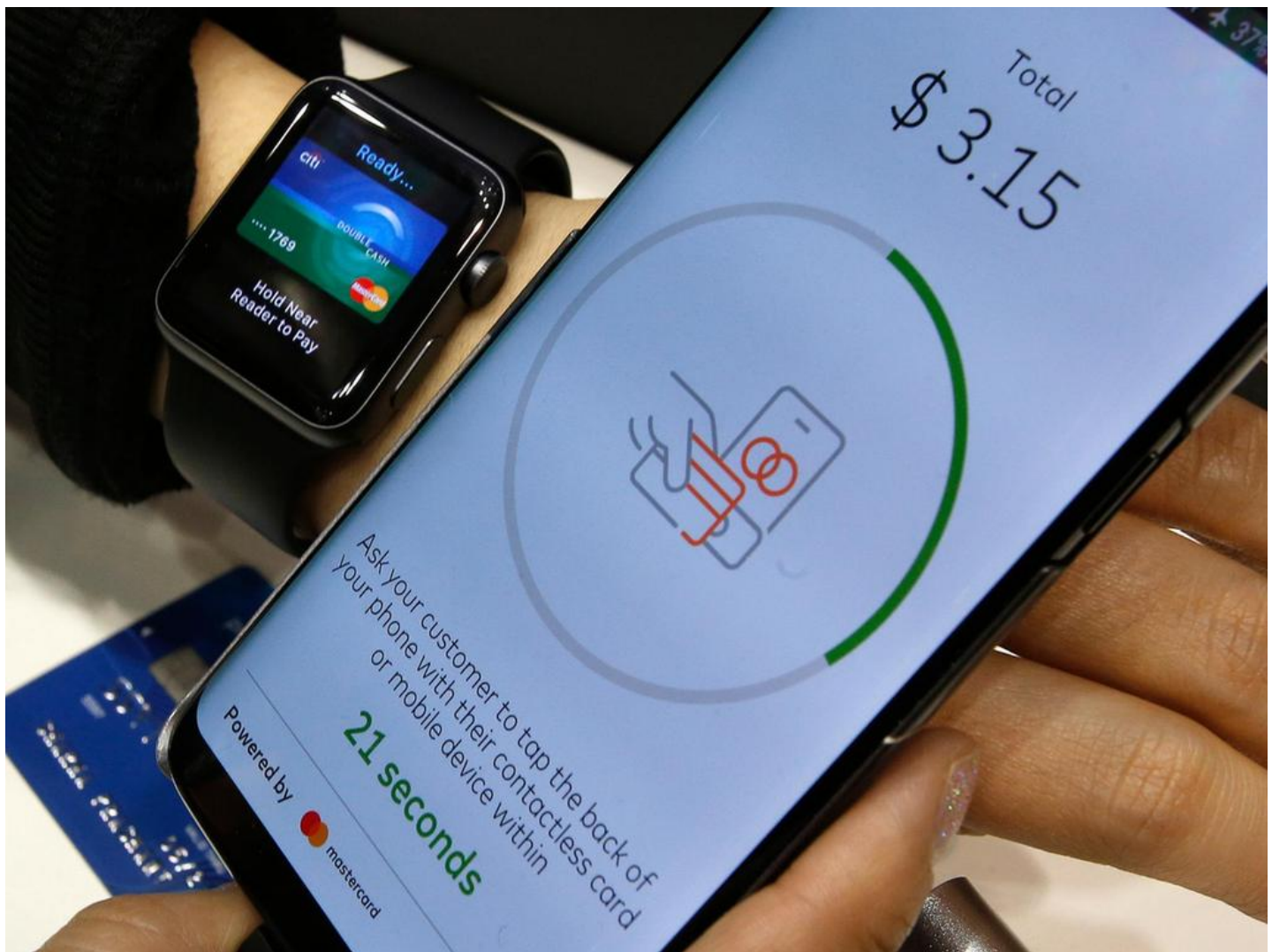
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