



# The Weekly Hash, 7/12/21: Miner Economics Improve Despite Range-bound Price

China's mining ban continues to play out, as observed Hashrate resides at 89 EH/s. We expect another 10%+ drop in difficulty at the next reset as observed Hashrate is equally below the current target. We recently lowered our year-end target Hashrate estimate to ~145EH/s (see [here](#)), with an upward bias if electrical infrastructure bottlenecks prove more transient than our model currently indicates.

The market has shifted from being semiconductor constrained to being power / infrastructure constrained. Given the long lead times on the infrastructure side, we assess it will take several quarters for the infrastructure deployment to be complete. As a result, Hashrate will likely be below our prior forecasts for the next ~10 quarters.

Bitcoin fell 3.1% week-on-week to \$34,258 as of 7/11 midnight UTC. Price has hovered in this range for almost a month now, despite recently-improved miner economics on increased BTC / PH/s flow last reset. Furthermore, we assess equipment prices should fall significantly over the next few months, given the shortage of sites into which to plug future deliveries; this should also accelerate an upgrade cycle of still-profitable S9 or S17 equipment to latest-generation rigs.

Total BTC earnings per PH/s are ~8.96 mBTC, down from ~9.28 mBTC / PH/s last week on decreased transaction fees. (1mBTC or milliBTC = 1/1000 BTC.) Improved BTC earnings have not driven price accordingly, as miners seek to deploy rigs to

capitalize on current margins. Transaction fees fell 334 bps WoW to 2.3% of miner rewards, or 0.20 BTC per block, with very low congestion levels in the "Mempool".

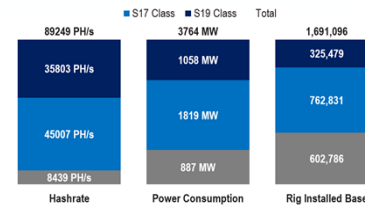
Bitcoin mining revenue fell to \$307 / PH/s per day and \$457/MWh as price stagnated and improved BTC flow / PH/s from the ongoing China mining ban, which eliminated a large portion of the network. This will continue to improve in the short term as the market adjusts to the falling Hashrate.

The BitOoda North American Hash Spread™ dropped 7% from \$449 to \$418. We define the BitOoda Hash Spread™ as the difference between the cost of power per MWh and the Bitcoin mining revenue per MWh. This gives miners a quick sense of the surplus generated by their business to cover personnel, overhead, depreciation, and profit. The weighted average around the clock U.S. wholesale industrial power price (5 markets) of \$38.90 / MWh leads to an aggregate spread of \$418.

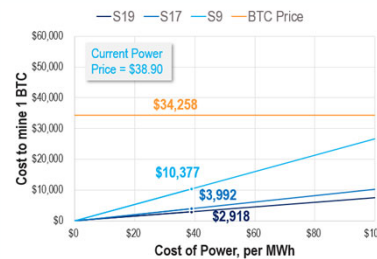
	S9 Class	S17 Class	S19 Class
Hash Spread	\$89.53	\$294.92	\$417.84
Week on Week	(9.0%)	(7.2%)	(7.0%)

Older-gen S9-class devices saw their Hash Spread™ down ~9% to \$90/MWh. S17-class devices, the bulk of the installed base, saw a hash spread of about \$295/ MWh.

We estimate that the Bitcoin mining network currently consumes about 3.7GW of power. Excess rigs over available power should accelerate the retirement of older-gen equipment in the coming months.



The 75 MWh required to mine 1 BTC with S19-class rigs translates into \$2,918 in power expense. It costs \$10,377 using S9 rigs, a ~70% margin, excluding labor.



### Takeaways

- Mining economics have maintained its improvement since last week following the reset
- Chinese miners are seeking sites to which to direct future equipment deliveries, but infrastructure bottlenecks should lead to 2+ years of better mining economics relative to our prior estimates
- We assess this presents an opportunity for US-based miners to gain share and acquire rigs and new hosting customers at attractive terms

## Research

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### Key Takeaways

- Mining economics remain extremely attractive for operators with access to power at the right voltage
- Chinese miners are seeking sites to which to direct future equipment deliveries, but infrastructure bottlenecks should lead to 2+ years of better mining economics relative to our prior estimates
- We assess this presents an opportunity for US-based miners to gain share and acquire rigs and new hosting customers at attractive terms
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# BitOoda Hash™ Dashboard

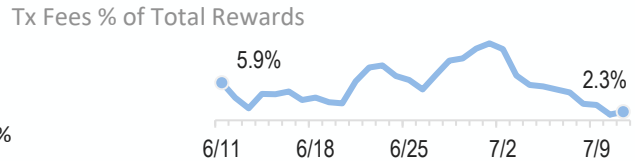
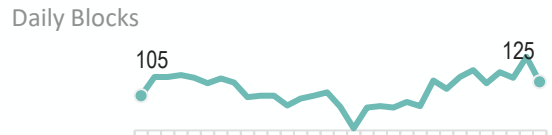
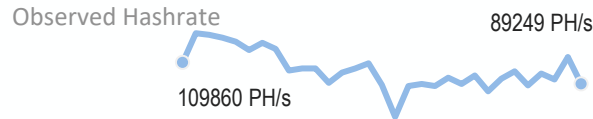
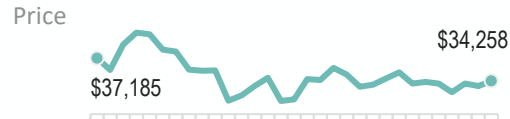
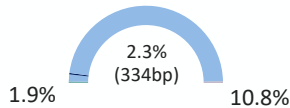
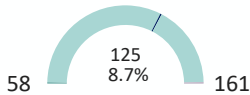
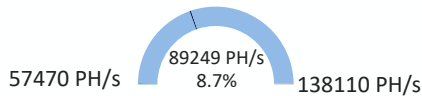
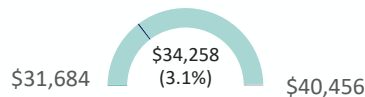
## July 12, 2021

### Definitions

**Hash Spread:** the difference between the revenue per MWh from mining BTC and the weighted average cost of peak and off-peak power across 8 US zones. It is a quick measure of the profitability of US-based latest-generation mining rigs.

**MWh:** Megawatt hour  
**PH/s:** Petahash per second  
**Tx Fees:** Fees for BTC transactions

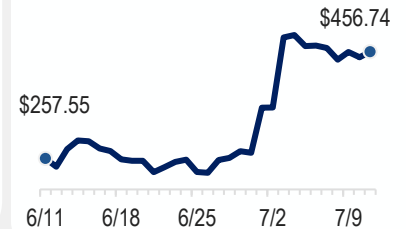
### 30 Day Range and 7-day % change



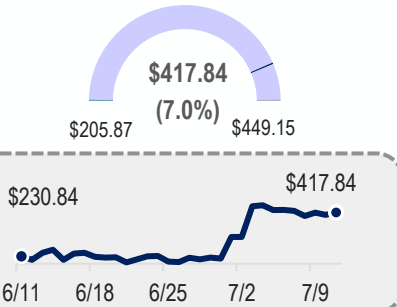
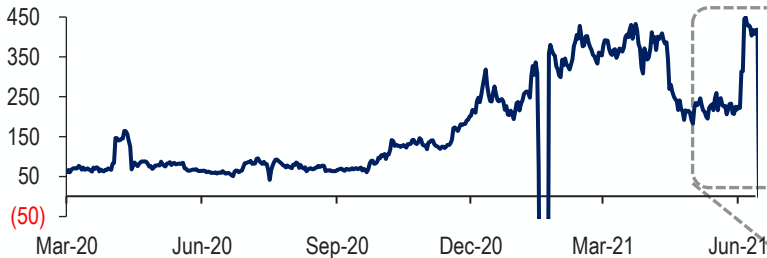
### Daily Revenue per PH/s



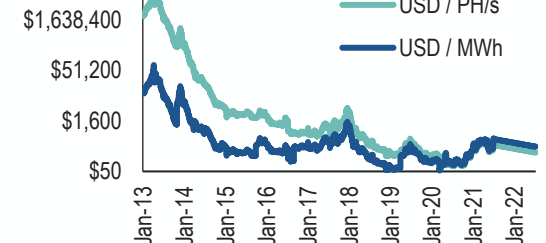
### Revenue per MWh (\$19 Class)



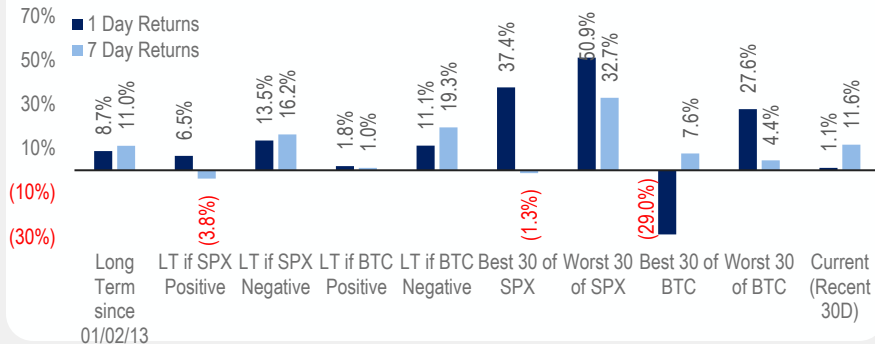
### BitOoda North American Hash Spread™



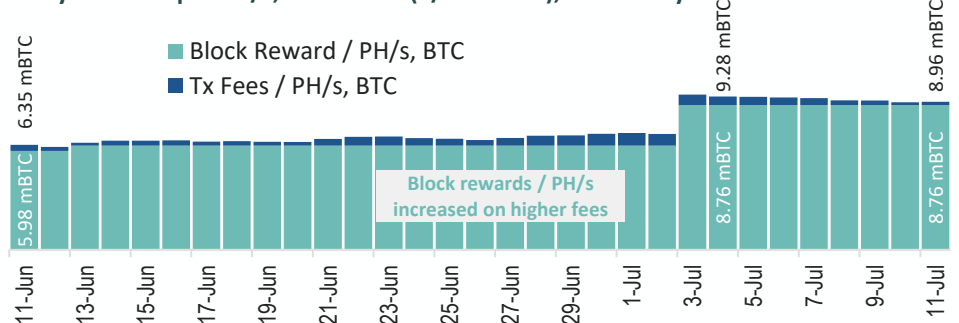
### Revenue, since 2013



### Historical BTC Correlation to S&P500



### Daily Rewards per PH/s, in millibTC (1/1000 BTC), last 30 days





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Sam Doctor, the research analyst denoted by an “AC” on the cover of this report, hereby certifies that all of the views expressed in this report accurately reflect his personal views, which have not been influenced by considerations of the firm’s business or client relationships.

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