



2024 Halving Analysis

Understanding Bitcoin Market Cycles and Opportunities Created by the Halving

Prepared by Blockware Intelligence

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Table of Contents

01	Why Bitcoin?	<ul style="list-style-type: none">• Superior monetary properties• Immutable scarcity• Programmatic issuance schedule
02	Bitcoin Cycles and Halvings	<ul style="list-style-type: none">• Supply side dynamics• Demand side dynamics• Why the halving can't be priced in
03	Halving Sequence of Events	<ul style="list-style-type: none">• Pre-Halving mining dynamics• Post-Halving mining dynamics• Post-Miner capitulation
04	2024/25 Bitcoin Bull Run	<ul style="list-style-type: none">• \$2B+ of annual sell pressure removed• Decreasing amount of supply available• Approaching gold's market capitalization
05	Why Mine Now?	<ul style="list-style-type: none">• Outperform holding spot BTC• ASICs have become more liquid• BTC price can grow faster than difficulty



Why Bitcoin?

Bitcoin is the Best Money

Bitcoin is different from all other assets (crypto and traditional) due to its unique property of **immutable scarcity**.

Unlike other commodities, Bitcoin has a predetermined algorithmic supply schedule that cannot be changed.

No matter how many miners join the network, there will never be more than 21,000,000 BTC.

Traits of Money	Bitcoin	Crypto	Gold	Fiat (US Dollar)
Fungible (<i>Interchangeable</i>)	High	Low	High	High
Non-Consumable	High	High	High	High
Portability	High	High	Moderate	High
Durable	High	High	High	Moderate
Highly Divisible	High	High	Moderate	Moderate
Secure (<i>Cannot be counterfeited</i>)	High	Low	Moderate	Moderate
Easily Transactable	High	Moderate	Low	High
Scarce (<i>Predictable Supply</i>)	High	Low	Moderate	Low
Sovereign (<i>Government Issued</i>)	Low	Moderate	Low	High
Decentralized	High	Low	Low	Low
Smart (<i>Programmable</i>)	High	High	Low	Low



Why Bitcoin?

Immutable, Absolute Scarcity

Gold is an asset similar to Bitcoin in that they are both non-sovereign stores-of-value.

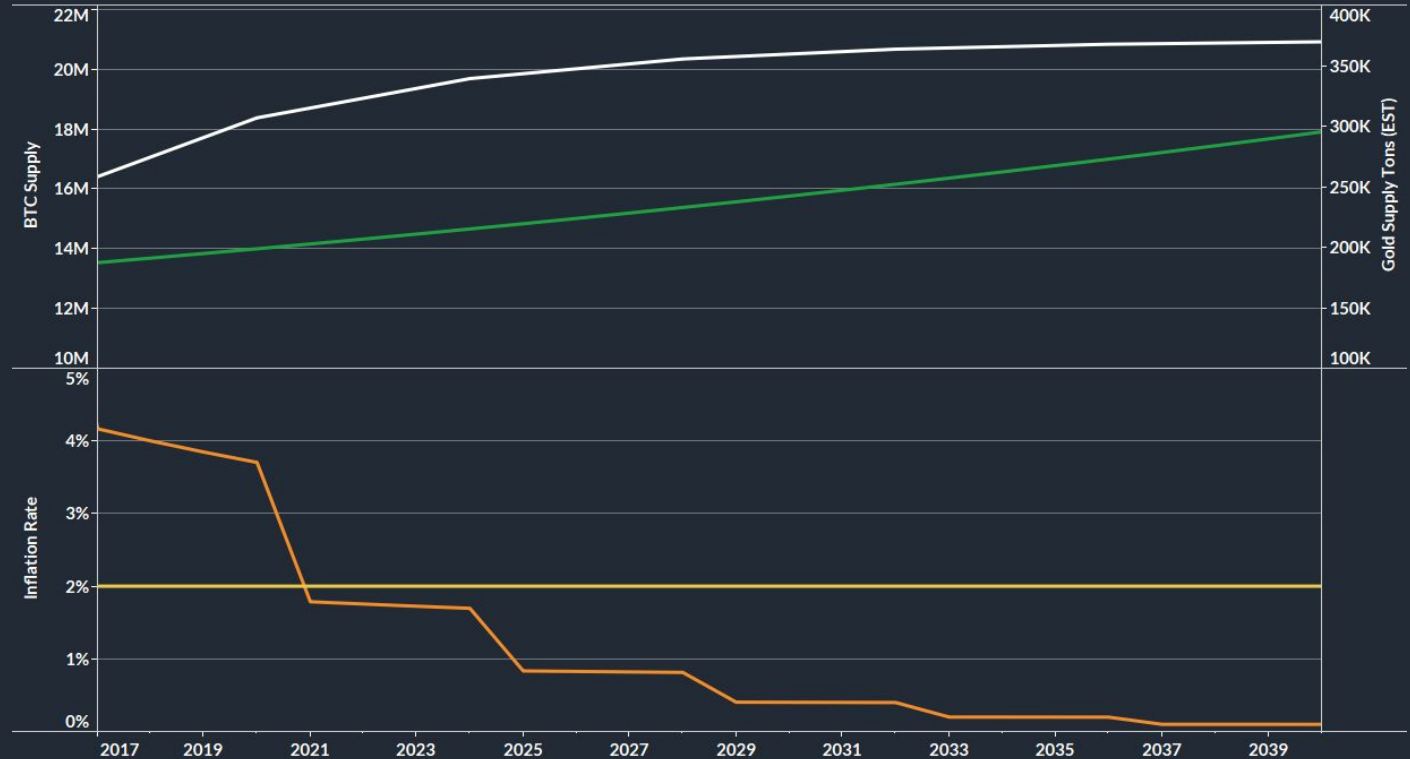
However, when juxtaposed, Bitcoin poses far more desirable attributes:

1. Bitcoin is absolutely scarce while gold is only relatively scarce.
2. Bitcoin is more portable, divisible, fungible, and is less vulnerable to rehypothecation by centralized custodians.

After the 2024 halving, the inflation rate of Bitcoin will fall under 1%; which is less than half that of gold.



BTC Circulating Supply, BTC Inflation Rate, Gold Estimated Circulating Supply, Gold Inflation Rate





Bitcoin Cycles

Bitcoin is Highly Cyclical

There are multiple factors contributing to the cyclical nature of Bitcoin's price, including network adoption and the macroeconomic environment, but **the most impactful is the mining subsidy halving.**

Bitcoin's market cycles are unique due to its fully transparent blockchain; providing market participants with more granular information than any other asset class. Moreover, the predictable supply schedule further impacts the psychology of market participants, ie. demand.

For more information on the non-halving factors impacting Bitcoin's cyclicity, check out this previous [Blockware report](#) on the topic.



BTC: Price, Daily Supply Issuance (14D Moving Avg.)

Source: Glassnode





Bitcoin Cycles

Stage 1 (Halving)

- Initial sell pressure as weak miners liquidate BTC to fund their operations.
- Sell pressure is relieved as weak miners go offline and difficulty adjusts downwards.

Stage 2 (Bull Market)

- Higher percentage of supply accumulated by efficient miners and long-term holders.
- Positive feedback loop: Higher price → attention on BTC from investors → greater demand → further price appreciation → blow off

Stage 3 (Bear Market)

- Increased price → increased mining profitability → more miners coming online → higher difficulty → increased sell pressure to cover operating expense
- Capitulation from short term holders and unprofitable miners

Stage 4 (Recovery)

- Price support established after weak miners capitulate as long term holders accumulate.

Stage in Halving Cycle	BTC Price	Hash Rate
1. (Halving) 3 months		
2. (Bull Market) 16 months		
3. (Bear Market) 12 months		
4. (Recovery) Remainder of Epoch		

Halvings are Bull Market Catalysts



Halvings reduce sell pressure

Every 4 years, the amount of new BTC released per block gets cut in half. This occurs until 2140 at which point no new BTC are mined.

Miners are the primary force of sell pressure on the price of Bitcoin. They receive all of the newly issued Bitcoin, a majority of which they must sell in order to fund operating expenses for their mining operation.

Many market participants speculate on the future of Bitcoin, but one thing is certain: every four years the block subsidy will be cut in half, leading to a material reduction in the quantity of BTC being sold into the market.

The weakest miners on the network are eliminated and sell pressure is significantly reduced. The price of BTC begins drifting up, and a new wave of adoption then begins.



BTC: Price, Hashrate (7D Moving Avg.)

Source: Glassnode



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Halvings are Bull Market Catalysts



Halvings bring new demand

With supply being diminished, demand is the only remaining variable determining the market price of BTC.

Many market participants understand the supply-side dynamics at play due to the halvings. Historically, this has led to a surge in demand in the months following each halving, as evidenced by on-chain data.

Due to the positive sentiment market participants prepare to deploy capital at the first sign of upward momentum.

Decreased supply + increased demand = strong positive signal for price appreciation.



BTC: Price, Entities Net Growth (30D Moving Avg.), (365D Moving Avg.)

Source: Glassnode



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Halvings are Bull Market Catalysts



Halvings cannot be “priced in”

Despite their predictable nature, halvings cannot be fully “priced in” before they occur. A higher price today would result in more miners coming online, introducing additional sell pressure, limiting price appreciation.

Moreover, the weakest miners, those with old-generation machines and/or high operating costs, are the first to unplug post-halving. The elimination of these miners significantly reduces sell pressure; as they were selling most of their BTC to fund their operations.

Lastly, there are some market participants that believe halvings are bad for the security of the Bitcoin Network as the diminishing block subsidy reduces the amount of miners, making Bitcoin more vulnerable to an attack. When halvings successfully occur these doubters are proved wrong and positive sentiment increases.



Bitcoin Price Growth Per Halving Epoch





Halving Sequence of Events



Pre-Halving

Weak miners (least efficient rigs and/or highest energy rates) are operating close to breakeven; selling most of their BTC to cover operating expenses.

Strong miners are operating with healthy margins.

Post-Halving

Block subsidy drops from 6.25 to 3.125. Miners that were struggling to break-even prior to the halving are now forced to turn their rigs off, lest they operate at a loss.

Strong miners continue to operate as normal. Inefficient miners begin to capitulate, resulting in a significant drop in network difficulty.

Post-Capitulation

Historically, extreme difficulty reductions signal favorable probabilities for long term capital deployment.

Strong miners benefit from the decrease in mining difficulty, as they now have healthier margins.

This decreases sell-pressure and increases BTC accumulation by strong hands.



Pre-Halving Mining Dynamics

Pre-Halving

Before the 2024 halving all miners will be operating at a profit but are likely selling at least enough BTC to cover their operating expenses.

Many miners are operating at near breakeven prices with the hope that the BTC price immediately increases after the halving, which is unlikely to happen.

April 2024 Pre-Halving										
Layer	Electricity Rate (kWh)	S9 % of Network	S17 % of Network	S19 % of Network	S19XP % of Network	Total % of Network	S9 Shutoff BTC Breakeven Price	S17 Shutoff BTC Breakeven Price	S19 Shutoff BTC Breakeven Price	S19XP Shutoff BTC Breakeven Price
1	\$0.010	1.0%	0.0%	0.0%	0.0%	1.0%	\$10,888.89	\$4,800.00	\$3,253.33	\$2,293.33
2	\$0.020	2.5%	0.0%	0.0%	0.0%	2.5%	\$21,777.78	\$9,600.00	\$6,506.67	\$4,586.67
3	\$0.030	1.0%	1.5%	5.0%	0.0%	7.5%	\$32,666.67	\$14,400.00	\$9,760.00	\$6,880.00
4	\$0.040	0.0%	1.5%	10.0%	0.5%	12.0%	\$43,555.56	\$19,200.00	\$13,013.33	\$9,173.33
5	\$0.050	0.0%	1.5%	10.0%	0.5%	12.0%	\$54,444.44	\$24,000.00	\$16,266.67	\$11,466.67
6	\$0.060	0.0%	1.0%	15.0%	1.0%	17.0%	\$65,333.33	\$28,800.00	\$19,520.00	\$13,760.00
7	\$0.070	0.0%	0.0%	20.0%	5.5%	25.5%	\$76,222.22	\$33,600.00	\$22,773.33	\$16,053.33
8	\$0.080	0.0%	0.0%	20.0%	2.0%	22.0%	\$87,111.11	\$38,400.00	\$26,026.67	\$18,346.67
9	\$0.090	0.0%	0.0%	0.0%	0.5%	0.5%	\$98,000.00	\$43,200.00	\$29,280.00	\$20,640.00
Total		4.5%	5.5%	80.0%	10.0%	100.0%				

*Includes Whatsminer & Avalon Equivalents

Assumes \$35,000 BTC, 420 EH/s peak network hashrate in April 2024 before the halving, and hashprice (\$/TH) of \$0.079.

Based on a previous Blockware Intelligence Report using public miner investor relations resources, Coinshares Research, and Blockware Research.



Pre-Halving Mining Dynamics

ASIC Breakeven Prices

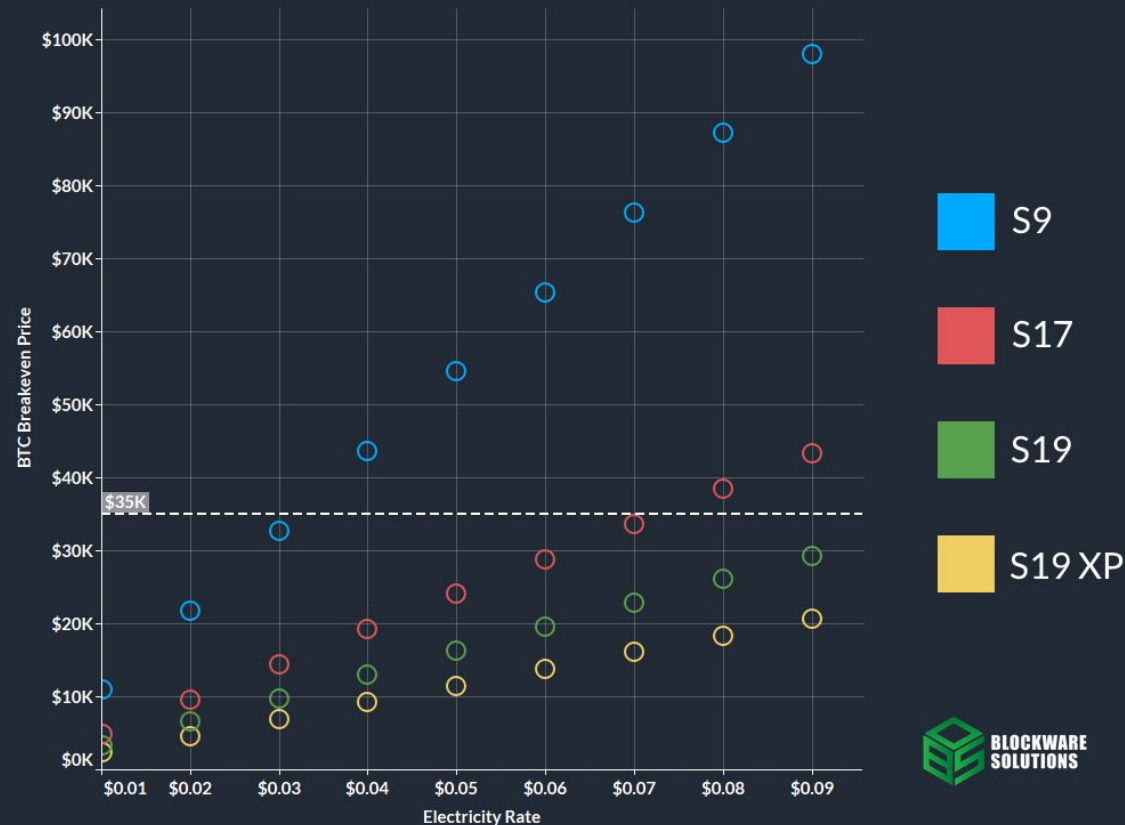
Based on Difficulty of 420 EH/s

Pre-Halving

Miners with the most efficient machines and the lowest energy rates have the lowest Bitcoin breakeven prices.

Miners with high breakeven prices are either unprofitable, or forced to sell a high % of the Bitcoin they mine in order to cover their operating expenses.

The chart to the right depicts the breakeven prices of miners based on machine type and electricity rate prior to the 2024 halving.



*Includes Whatsminer & Avalon Equivalents

Based on a previous Blockware Intelligence Report using public miner investor relations resources, Coinshares Research, and Blockware Research.



Pre-Halving Mining Dynamics

ASIC Breakeven Prices

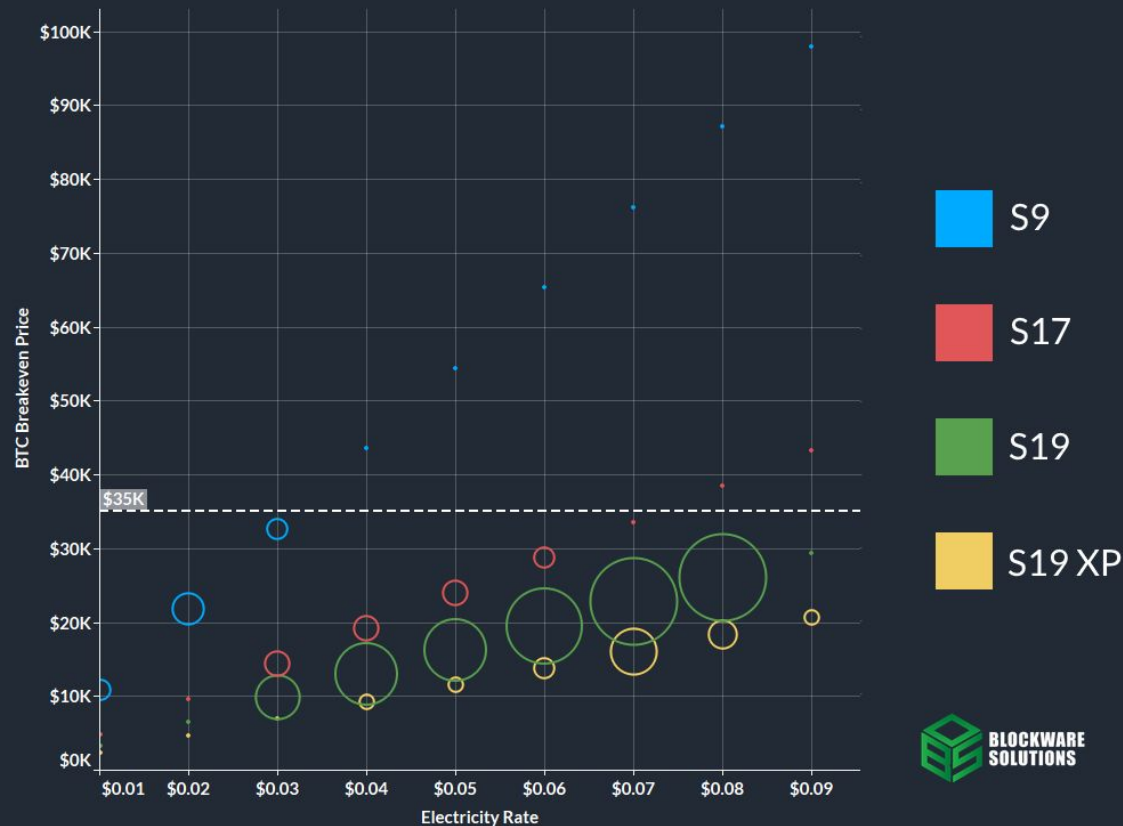
Based on Difficulty of 420 EH/s

Pre-Halving

A majority of the network consists of Antminer S19 (or equivalent models) in the 6-8 cent per kWh range.

Prior to the halving, these miners need to sell over half of the BTC they mine in order to cover their operating expenses.

This cohort of miners will be under the most pressure once the block subsidy is cut in half.



*Includes Whatsminer & Avalon Equivalents

* Size Adjusted for % of Total Network Hashrate

Based on a previous Blockware Intelligence Report using public miner investor relations resources, Coinshares Research, and Blockware Research.



Post-Halving Mining Dynamics



Post-Halving

After the 2024 halving many miners will become unprofitable.

Since miners have already made significant capital expenditures on mining infrastructure and are locked into energy contracts they are unlikely to turn off immediately. Instead they will try to continue operating for as long as possible hoping BTC increases enough to make them profitable again.

April 2024 Post-Halving

Layer	Electricity Rate (kWh)	S9 % of Network	S17 % of Network	S19 % of Network	S19XP % of Network	Total % of Network	S9 Shutoff BTC Breakeven Price	S17 Shutoff BTC Breakeven Price	S19 Shutoff BTC Breakeven Price	S19XP Shutoff BTC Breakeven Price
1	\$0.010	1.0%	0.0%	0.0%	0.0%	1.0%	\$20,787.88	\$9,163.64	\$6,210.91	\$4,378.18
2	\$0.020	2.5%	0.0%	0.0%	0.0%	2.5%	\$41,575.76	\$18,327.27	\$12,421.82	\$8,756.36
3	\$0.030	1.0%	1.5%	5.0%	0.0%	7.5%	\$62,363.64	\$27,490.91	\$18,632.73	\$13,134.55
4	\$0.040	0.0%	1.5%	10.0%	0.5%	12.0%	\$83,151.52	\$36,654.55	\$24,843.64	\$17,512.73
5	\$0.050	0.0%	1.5%	10.0%	0.5%	12.0%	\$103,939.39	\$45,818.18	\$31,054.55	\$21,890.91
6	\$0.060	0.0%	1.0%	15.0%	1.0%	17.0%	\$124,727.27	\$54,981.82	\$37,265.45	\$26,269.09
7	\$0.070	0.0%	0.0%	20.0%	5.5%	25.5%	\$145,515.15	\$64,145.45	\$43,476.36	\$30,647.27
8	\$0.080	0.0%	0.0%	20.0%	2.0%	22.0%	\$166,303.03	\$73,309.09	\$49,687.27	\$35,025.45
9	\$0.090	0.0%	0.0%	0.0%	0.5%	0.5%	\$187,090.91	\$82,472.73	\$55,898.18	\$39,403.64
Total		4.5%	5.5%	80.0%	10.0%	100.0%				

*Includes Whatsminer & Avalon Equivalents

Assuming \$35,000 BTC and 420 EH/s peak network hashrate in April 2024 after the halving. Hashprice (\$/TH) would be \$0.0395.

Based on a previous Blockware Intelligence Report using public miner investor relations resources, Coinshares Research, and Blockware Research.



Post-Halving Mining Dynamics

Post-Halving

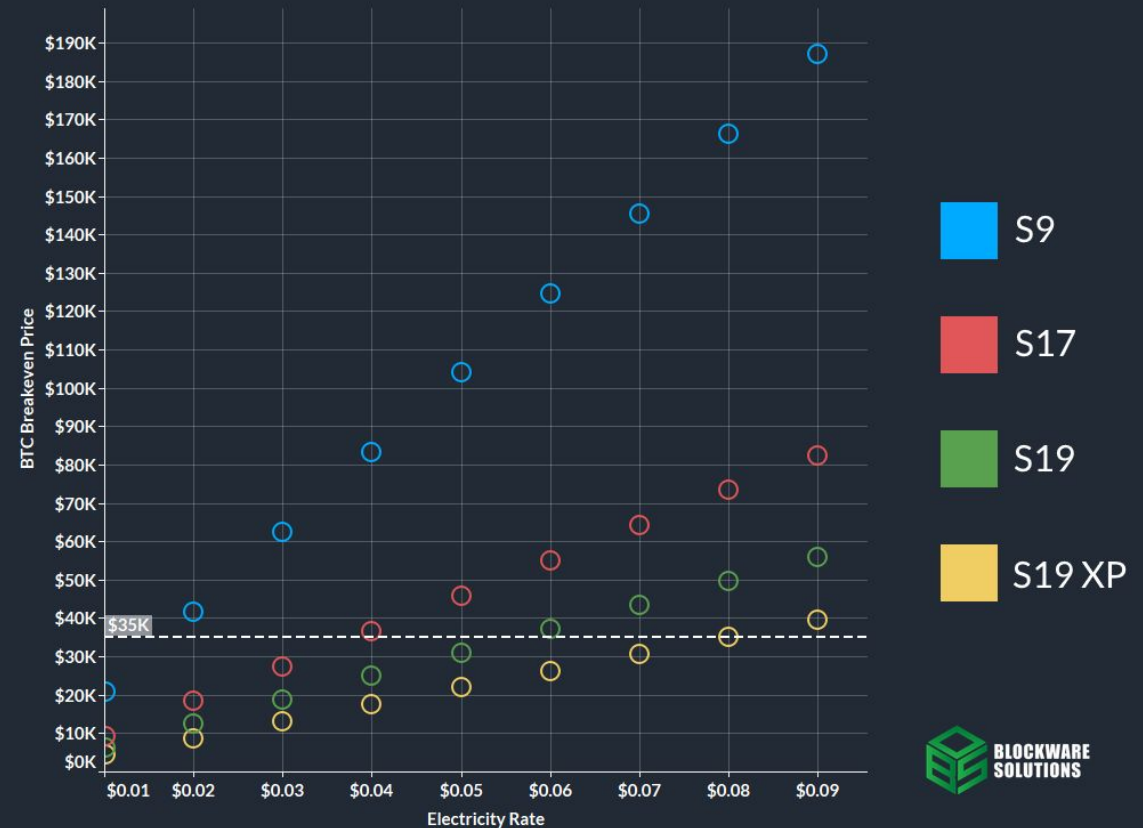
The chart to the right illustrates what the network may look like in the immediate aftermath of the halving, prior to capitulation from unprofitable miners.

Unless BTC price appreciates quickly, the extreme margin compression will begin to force inefficient miners offline.

During this time, weak miners will be selling all of the BTC they mine in an attempt to survive before exhausting their treasury and ultimately shutting down.

ASIC Breakeven Prices, Post 2024-Halving

Based on Difficulty of 420 EH/s



*Includes Whatsminer & Avalon Equivalents

Based on a previous Blockware Intelligence Report using public miner investor relations resources, Coinshares Research, and Blockware Research.



Post-Halving Mining Dynamics



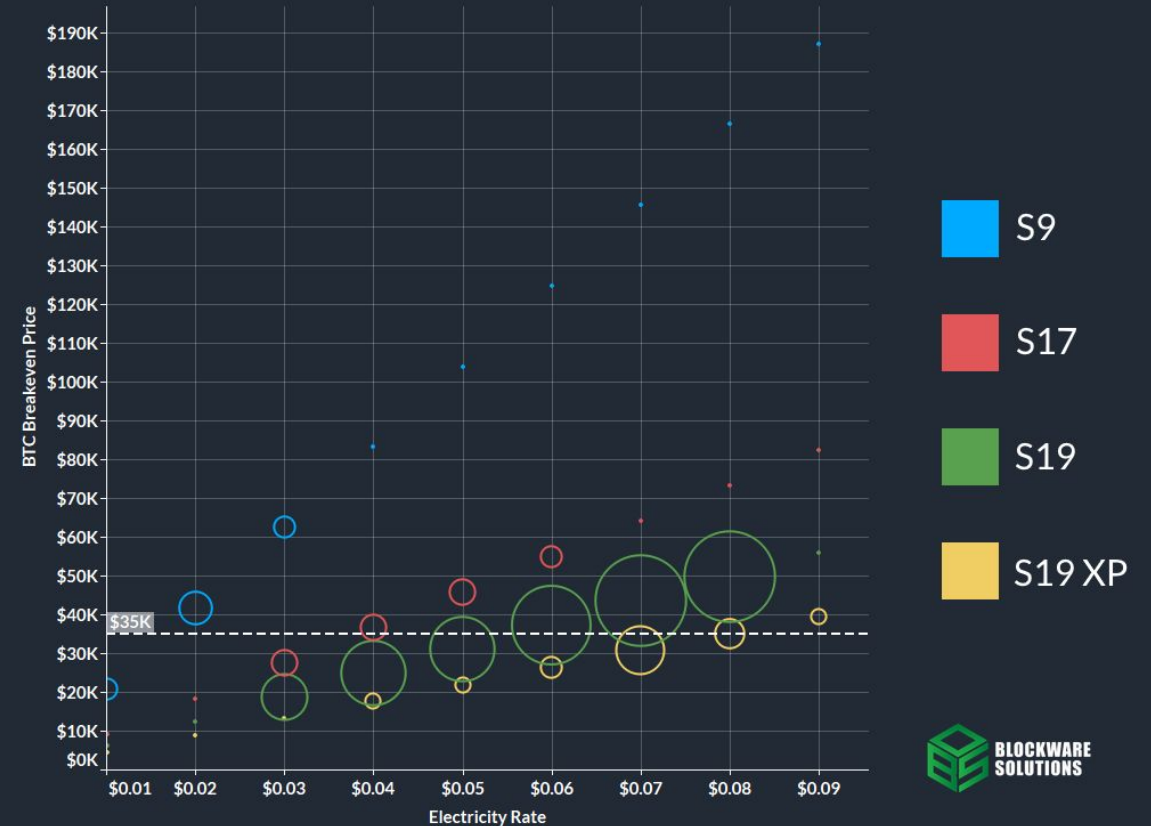
Post-Halving

The halving will likely disrupt the largest portion of the network: S19s with 6¢, 7¢, or 8¢ kWh power rates. With a block subsidy of 3.125, their breakeven prices will jump to \$37k, \$43k, and \$49k, respectively.

The capitulation of this cohort will likely occur over multiple difficulty adjustment periods as inefficient miners hang on for as long as they can.

ASIC Breakeven Prices, Post 2024-Halving

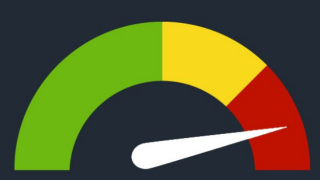
Based on Difficulty of 420 EH/s



*Includes Whatsminer & Avalon Equivalents

* Size Adjusted for % of Total Network Hashrate

Based on a previous Blockware Intelligence Report using public miner investor relations resources, Coinshares Research, and Blockware Research.



Post-Miner Capitulation

Post-Capitulation

As the inefficient miners capitulate, mining difficulty adjusts down and the most efficient miners get rewarded with more BTC.

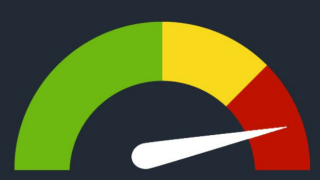
After the weak miners have been removed from the network the margins improve for the remaining miners which reduces sell pressure.

June 2024 Post-Halving Capitulation										
Layer	Electricity Rate (kWh)	S9 % of Network	S17 % of Network	S19 % of Network	S19XP % of Network	Total % of Network	S9 Shutoff BTC Breakeven Price	S17 Shutoff BTC Breakeven Price	S19 Shutoff BTC Breakeven Price	S19XP Shutoff BTC Breakeven Price
1	\$0.010	1.4%	0.0%	0.0%	0.0%	1.4%	\$15,383.03	\$6,781.09	\$4,596.07	\$3,239.85
2	\$0.020	SHUTOFF	0.0%	0.0%	0.0%	0.0%	\$30,766.06	\$13,562.18	\$9,192.15	\$6,479.71
3	\$0.030	SHUTOFF	2.0%	6.8%	0.0%	8.8%	\$46,149.09	\$20,343.27	\$13,788.22	\$9,719.56
4	\$0.040	SHUTOFF	2.0%	13.5%	0.7%	16.2%	\$61,532.12	\$27,124.36	\$18,384.29	\$12,959.42
5	\$0.050	SHUTOFF	SHUTOFF	13.5%	0.7%	14.2%	\$76,915.15	\$33,905.45	\$22,980.36	\$16,199.27
6	\$0.060	SHUTOFF	SHUTOFF	20.3%	1.4%	21.6%	\$92,298.18	\$40,686.55	\$27,576.44	\$19,439.13
7	\$0.070	SHUTOFF	SHUTOFF	27.0%	7.4%	34.5%	\$107,681.21	\$47,467.64	\$32,172.51	\$22,678.98
8	\$0.080	SHUTOFF	SHUTOFF	SHUTOFF	2.7%	2.7%	\$123,064.24	\$54,248.73	\$36,768.58	\$25,918.84
9	\$0.090	SHUTOFF	SHUTOFF	SHUTOFF	0.7%	0.7%	\$138,447.27	\$61,029.82	\$41,364.65	\$29,158.69
Total		1.4%	4.1%	81.1%	13.5%	100.0%				

*Includes Whatsminer & Avalon Equivalents

24% of hashrate could come offline by June 2024. Hashprice (\$/TH) would be \$0.056 after the halving induced miner capitulation.

Based on a previous Blockware Intelligence Report using public miner investor relations resources, Coinshares Research, and Blockware Research.



Post-Miner Capitulation

ASIC Breakeven Prices, Post 2024-Halving

Based on Difficulty of 319 EH/s

Post-Capitulation

Following the capitulation of inefficient miners, difficulty will adjust down, lowering the breakeven prices for surviving miners who will become even more profitable.

During this time, opportunities will present themselves as mid-generation mining rigs will likely be heavily discounted as miners seek to upgrade to the newest, most profitable ASICs.

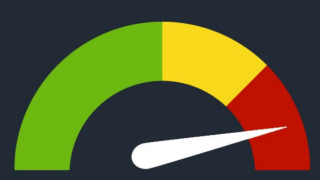
For those seeking a low CapEx entry into Bitcoin mining, purchasing in the aftermath of the halving, before the bull market, has been a winning strategy historically.



*Includes Whatsminer & Avalon Equivalents



Based on a previous Blockware Intelligence Report using public miner investor relations resources, Coinshares Research, and Blockware Research.



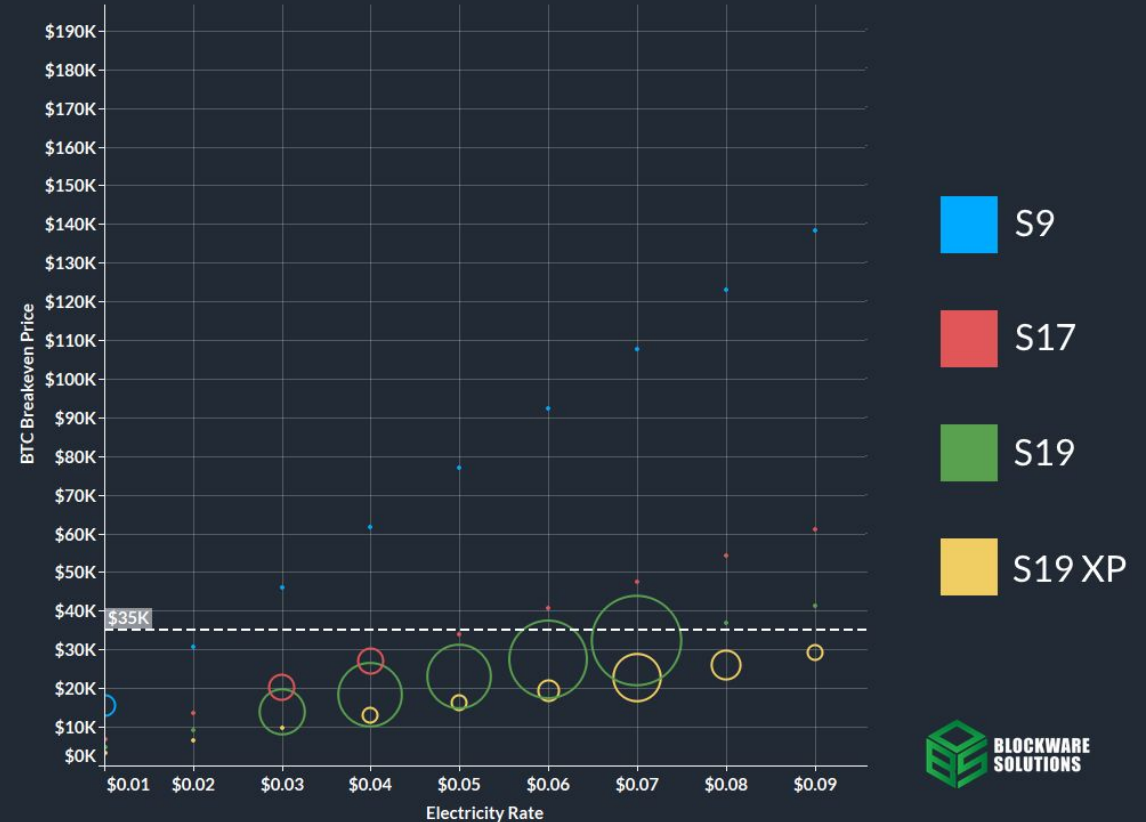
Post-Miner Capitulation

ASIC Breakeven Prices, Post 2024-Halving *Based on Difficulty of 319 EH/s*

Post-Capitulation

Following the capitulation-induced drop in mining difficulty, S19s at a 7 cent rate will become (barely) profitable again. 8 cent S19s will be just out of reach with a breakeven of ~\$37k.

The most likely scenario is a series of highly volatile difficulty adjustments, both up and down, as the market searches for an equilibrium under a 3.125 block subsidy.



*Includes Whatsminer & Avalon Equivalents
* Size Adjusted for % of Total Network Hashrate

Based on a previous Blockware Intelligence Report using public miner investor relations resources, Coinshares Research, and Blockware Research.



\$2B+ of Annual Sell Pressure Removed Post-Halving

Sell Pressure Removed

Assuming a \$35,000 BTC price after the halving, the USD value of Bitcoin mined per year could drop from \$11.5B to \$5.7B.

That is 164,250 BTC less mined every year, more than Microstrategy's entire Bitcoin treasury.

New Bitcoin Released Acting as Potential Sell Pressure Pre-Halving

Bitcoin Price of \$35,000	BTC	USD
Bitcoin Released per Day	900	\$ 31,500,000.00
Bitcoin Released per Month	27,000	\$ 945,000,000.00
Bitcoin Released per Year	328,500	\$ 11,497,500,000.00

New Bitcoin Released Acting as Potential Sell Pressure Post-Halving

Bitcoin Price of \$35,000	BTC	USD
Bitcoin Released per Day	450	\$ 15,750,000.00
Bitcoin Released per Month	13,500	\$ 472,500,000.00
Bitcoin Released per Year	164,250	\$ 5,748,750,000.00

Based on previous a Blockware Intelligence Report using public miner investor relations resources, Coinshares Research, and Blockware Research.



\$2B+ of Annual Sell Pressure Removed Post-Halving

Sell Pressure Removed

After the inefficient miners capitulate, the profit margin increases for surviving miners which further reduces sell pressure.

Based on the post-capitalization hashrate estimate, this would result in \$2.3B reduction in annual sell pressure from miners.

Pre-Halving	
Total BTC Sold to Cover OpEx per Month	15,849
USD Value of BTC Sold per Month	\$ 547,416,000.00
USD Profit per Month	\$ 397,584,000.00
Minimum Sell Pressure from Miners	57.9%

Post-Halving	
Total BTC Sold to Cover OpEx per Month	10,111
USD Value of BTC Sold per Month	\$ 349,226,181.82
USD Profit per Month	\$ 123,273,818.18
Minimum Sell Pressure from Miners	73.9%

Post-Halving 3 Months	
Daily Sell Pressure Removed	\$ 6,606,327.27
Monthly Sell Pressure Removed	\$ 198,189,818.18
Yearly Sell Pressure Removed	\$ 2,378,277,818.18

Based on previous a Blockware Intelligence Report using public miner investor relations resources, Coinshares Research, and Blockware Research.



Bitcoin Cycle Stages

High Volatility of Bitcoin Cycles

Bitcoin's extreme volatility is a side effect of its halving shocks and rapid global adoption, resulting in four distinct stages within each halving cycle.

- Stage 1: Halving
- Stage 2: Bull Market
- Stage 3: Bear Market
- Stage 4: Recovery

While Bitcoin is often criticized for its extreme volatility, on a long enough time horizon its volatility is solely to the upside.

Nobody who has ever bought Bitcoin and held it for more than 5 years is down on their purchase.



"Bitcoin's volatility derives from the fact that its supply is utterly inflexible and not responsive to demand changes, because it is programmed to grow at a predetermined rate"

- Saifedean Ammous



Bitcoin Historical Cycle Performance

Approaching 2024

After falling almost 70% during this past bear cycle, Bitcoin is already up 71% during this recovery period in 2023.

Bitcoin is approaching its fourth halving event. It will likely be a catalyst for its next parabolic bull run.

EPOCH	Halving to Peak (Price Change)	Halving to Peak (# of Days)
2009-2011	584x	886
2012-2015	92x	372
2016-2019	30x	403
2020-2024	7.7x	394



Bitcoin Price Growth Per Halving Epoch



Future Halvings may be Larger Catalysts



Diminishing Effects?

Some question the bullishness of halvings as the stock of existing BTC grows relative to the amount of new Bitcoin being mined.

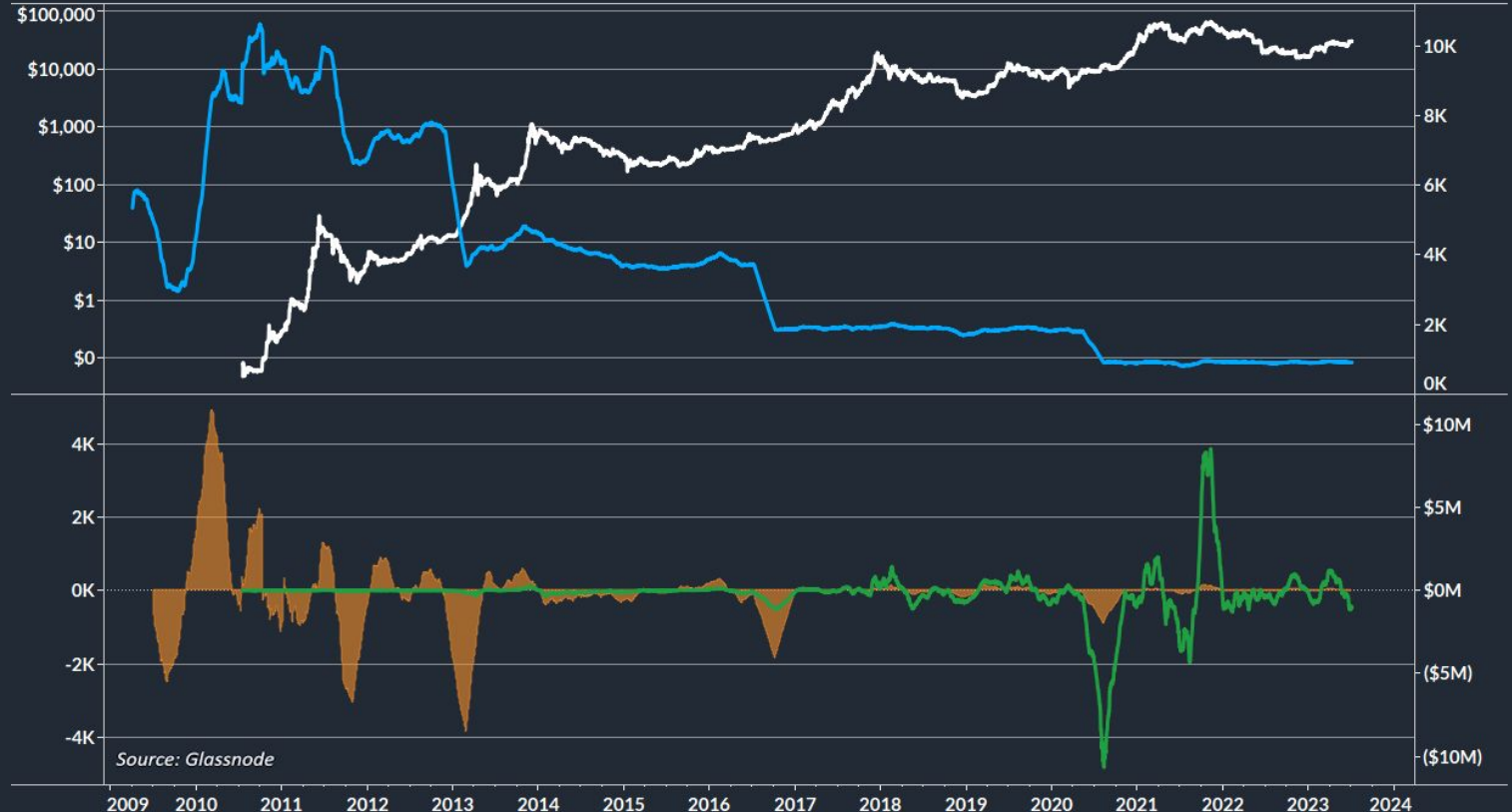
This is a common perspective, but it may be incorrect. Less than 10% of existing BTC have moved in the last month. A large majority of BTC is held by users unwilling to sell at today's price.

The small amount of BTC that is moving and being traded is what determines today's price. There is a baseline of demand (\$ denominated) from Bitcoiners saving for the future. The reduction in sell pressure becomes more pronounced each halving after Bitcoin more than doubles in price.

This indicates that halving induced reductions in sell pressure could become more extreme and potentially lead to larger bull runs in the future.



BTC: Price, Issuance (90D Moving Avg.),
90D Change Issuance, 90D Change Issuance (Dollarized)



Source: Glassnode

- 2012 - Daily Issuance decreased by ~\$250,000
- 2016 - Daily Issuance decreased by ~\$1,000,000
- 2020 - Daily Issuance decreased by ~\$8,000,000
- 2024 - Daily Issuance decreased by ~\$15,000,000 (projected)

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Running out of Bitcoin



HODL Model

2024 will be the first halving where the supply of BTC available for trade decreased since the previous halving.

During the Spring of 2020, the percentage of outstanding Bitcoin available for trade was at an all time high, indicating that BTC was becoming more abundant. However, this trend has reversed over the last 3.5 years.

As a new bull market begins there will be less BTC available than previous cycles, the first halving this has ever occurred.



BTC: Price, All-Time Highs, % Supply Available

Source: @TheRationalRoot, Glassnode



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Running out of Bitcoin



Exchange Balances vs Future Supply

There is currently ~19,426,000 BTC in circulation. That leaves ~1,574,000 BTC remaining to enter circulation via the block subsidy awarded to miners.

During the 2020-2024 epoch ~676 BTC have been taken off exchanges each day. Should exchange balances continue to decrease at this pace, the amount of BTC available on exchanges will be less than the supply available via mining by the early 2030's.

This presents an interesting paradox - despite the block subsidy halvings, mining will likely continue to be the best way to accumulate large amounts of BTC in the future.



BTC: Price, Future Supply From Mining, Exchange Balances (Forecast), Halvings

Source: Glassnode



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Bitcoin Price and Hashrate Projection 2024-2028



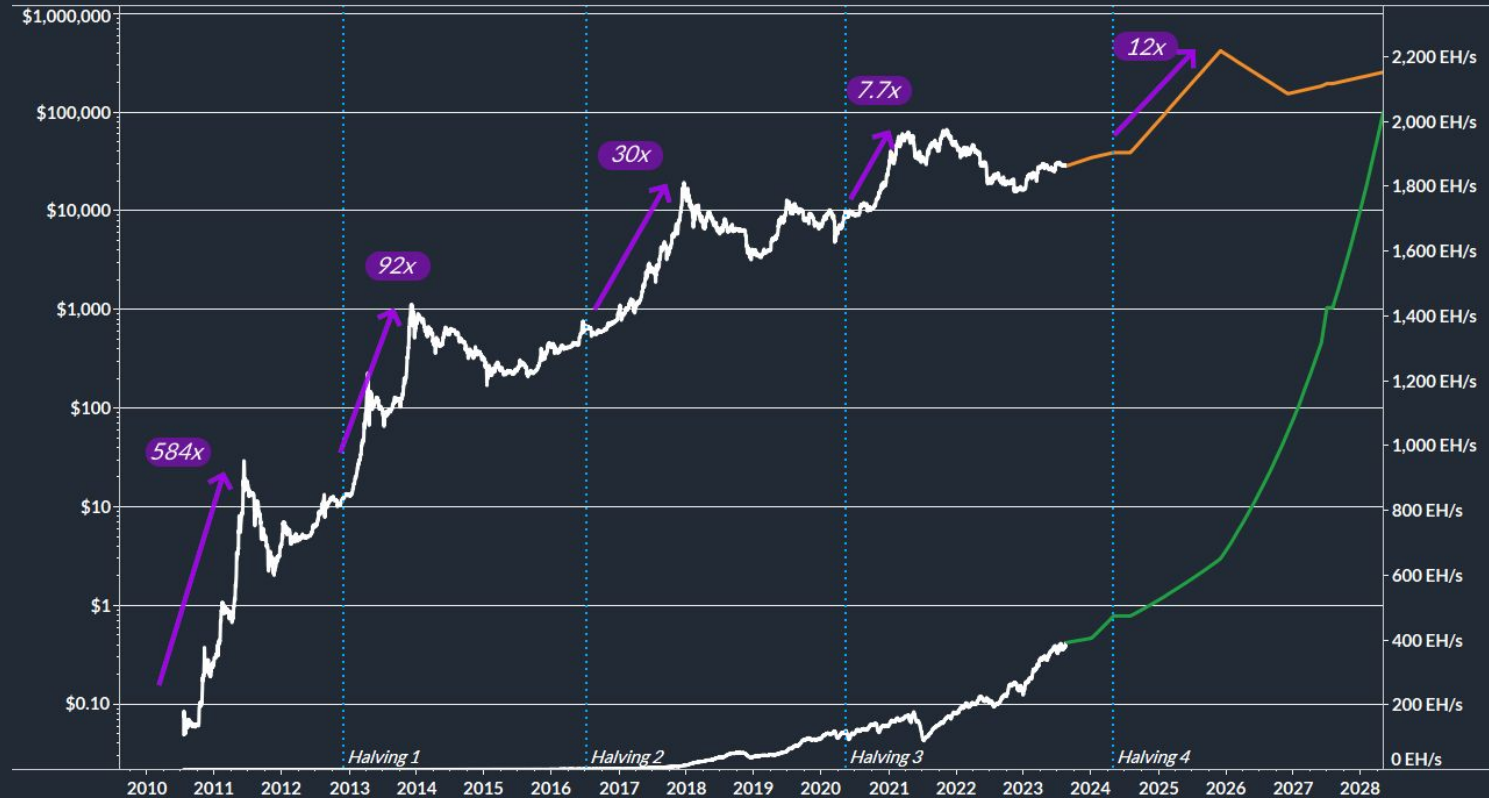
Price and Hashrate Projection

Assuming a price of \$35,000 at the date of the halving, a \$400,000 cycle top would break the trend of diminishing returns; a reasonable expectation due to the \$2B halving supply shock and increasing scarcity of liquid BTC supply on exchanges.

EPOCH	Halving to Peak (Price Change)	Halving to Peak (# of Days)
2009-2011	584x	886
2012-2015	92x	372
2016-2019	30x	403
2020-2024	7.7x	394
2024-2028	12x	500



BTC: Price (Forecast), Hashrate (Forecast)





Bitcoin 2024-28 Cycle Top

\$400,000+ BTC

Bitcoin Price and Hashrate Projection 2024-2028



Bitcoin vs Gold

\$400,000 per BTC would put the market cap of Bitcoin just beneath parity with gold.

Given the bullish catalysts induced by the halving, we believe this is a fair estimate for the top of the coming Bitcoin cycle.



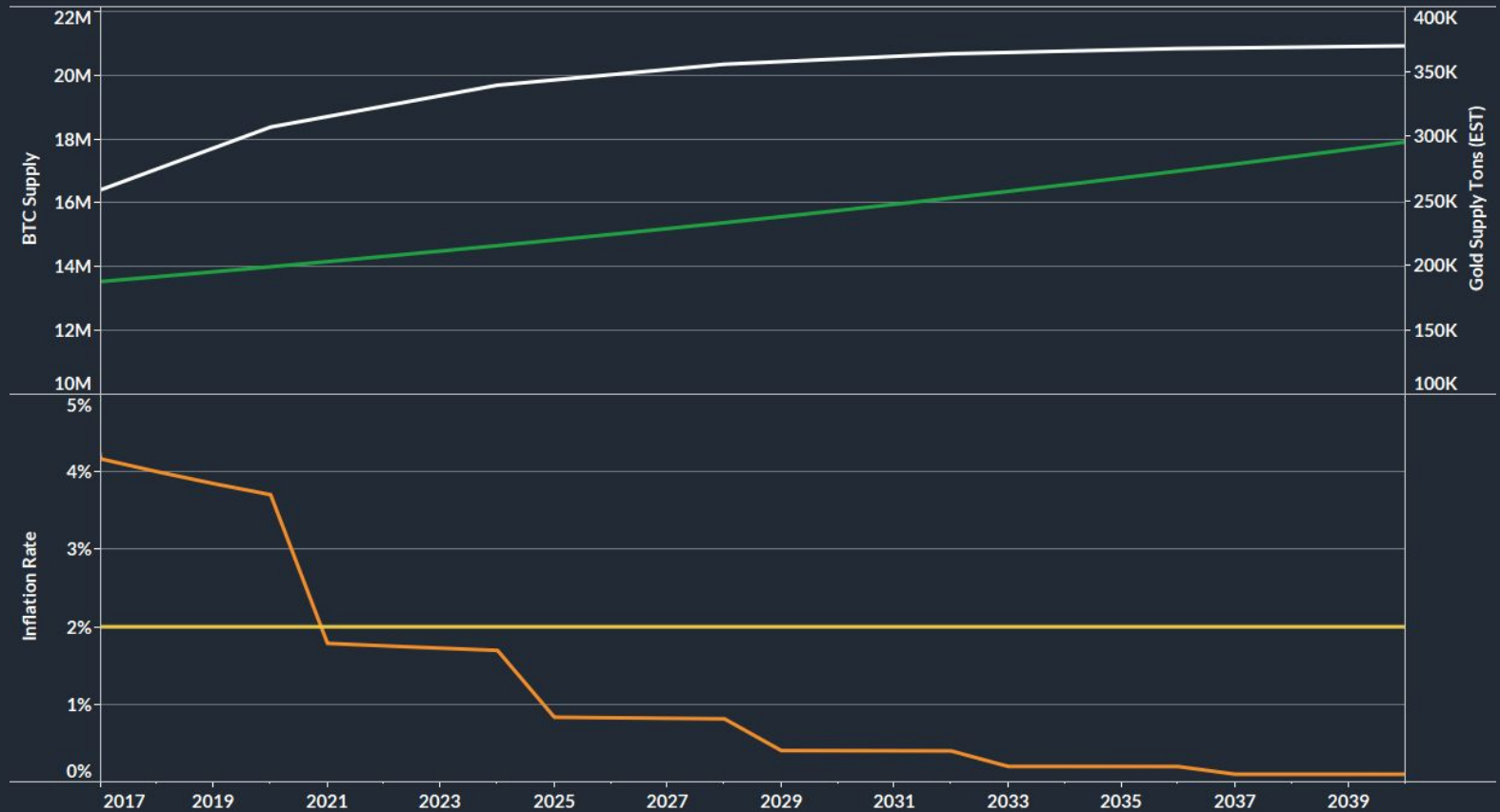
~\$8.4 Trillion Market Cap



~\$12 Trillion Market Cap



BTC Circulating Supply, BTC Inflation Rate, Gold Estimated Circulating Supply, Gold Inflation Rate



Outperform Holding During the Next Bull Run



New Generation Mining Rigs

There are two major trends that have fundamentally altered the market dynamics of the Bitcoin mining industry.

1. Bitcoin ASIC efficiency improvements for new generation machines are slowing drastically. This means the next-gen hardware does not immediately make the previous-gen hardware obsolete, allowing today's hardware to retain its value for a longer period of time.
2. Bitcoin's network hashrate and the number of rigs hashing continue to grow over time which has caused a large secondary trading market for rigs to emerge. This means there is now more liquidity for used mining rigs, enabling mining rigs to be purchased and sold at a later date.



ASICs are Assets

ASICs are commoditizing, which means today's hardware is likely to retain its value for a longer period of time.



Rig Marketplace

There is now more liquidity for used mining rigs, enabling mining rigs to be purchased and sold at a later date.



■ Hash Rate (14D Moving Average)
■ Price

Bitcoin: Mean Hash Rate (14D Moving Average)



Source: Glassnode

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Outperform Holding During the Next Bull Run



ASIC Commoditization

The slowing growth rate of rig efficiency (J/TH) is due to chip producers reaching the thermodynamically viable limit with current technology. The premier Bitcoin ASIC, the S19XP, has an efficiency of 21.5 J/TH and uses 5 nm transistors, which are incredibly small.

If the next-generation ASIC becomes 100 times more efficient, it would quickly render previous ASICs obsolete, forcing miners to upgrade to remain competitive and recoup their investment.

On the other hand, the next generation ASICs not being significantly more efficient means that **today's rigs can remain competitive for longer, preserving their market value and future cash flows.**

Hardware Type	Hardware Name	Date	J/Th
CPU	ARM Cortex A9	3-Jan-09	877,193
GPU	ATI 5870M	23-Sep-09	264,550
FPGA	X6500 FPGA Miner	29-Aug-11	4,300
ASIC - Avalon B1	AvalonMiner B1	1-Jan-13	9,351
ASIC - Jupiter	KnCMiner Jupiter	5-Oct-13	1,484
ASIC - U1	Antminer U1	1-Dec-13	1,250
ASIC - BF864C55	Bitfury BF864C55	3-Mar-14	500
ASIC - RockerBox	RockerBox	22-Jul-14	316
ASIC - BE3000	ASICMinerBe300	16-Sep-14	187
ASIC - BM13850	BM1385	19-Sep-15	181
ASIC - PickAxe0	PickAxe	23-Jul-15	140
ASIC - S9	Antminer S9-11.5	1-Jun-16	98
ASIC - R4	Antminer R4	1-Feb-17	97
ASIC - Ebit 10	Ebang Ebit 10	15-Feb-18	92
ASIC - S15	Antminer S15	9-Apr-18	59
ASIC - S17	Antminer S17	9-Apr-19	40
ASIC - S19	Antminer S19 Pro	23-Mar-20	29.5
ASIC - S19 XP	Antminer S19 XP	1-Jul-22	21

~700x

~13x

~4.6x



Source: Bitcoin Mining Council

The ability to produce ASIC models multiples more efficient in a short period of time is gone. The S19XP will likely be a competitive machine for years to come.



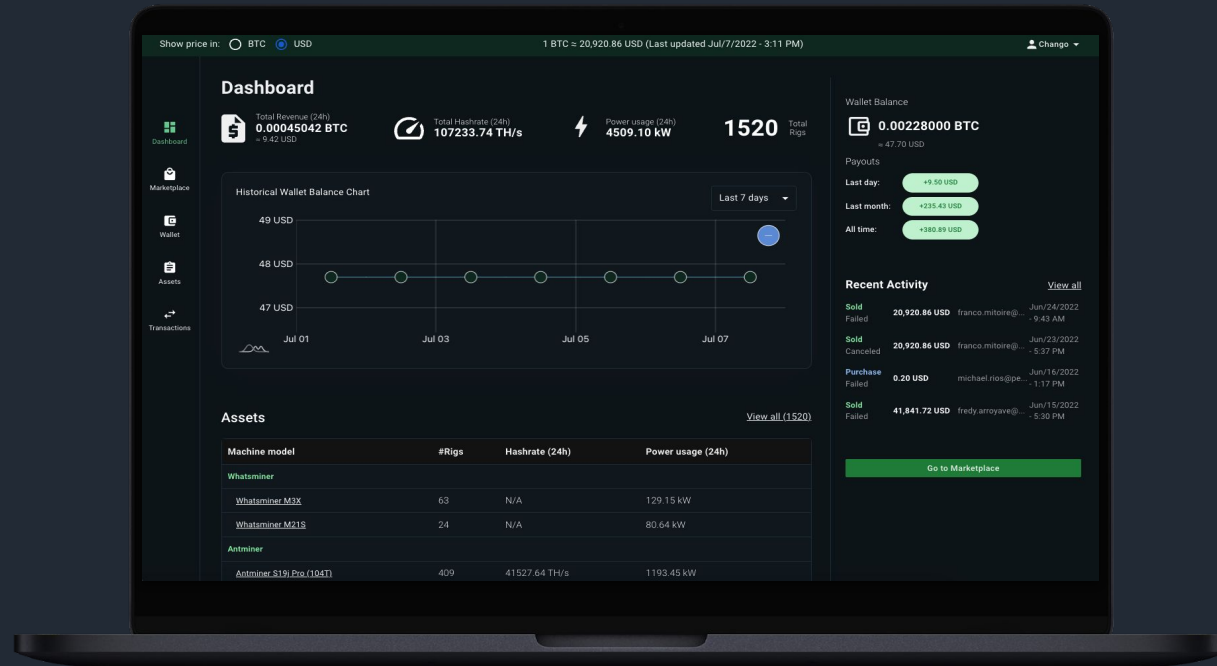
Why Mine in 2023

Start Mining Bitcoin while Rigs are Cheap

- In Bitcoin mining, the goal is to mine BTC faster than your hardware depreciates. Presently, machines retain their value longer and even increase in value as Bitcoin price appreciates, making it an attractive asset class for those looking to accumulate Bitcoin.
- As the Bitcoin industry continues to recover from the 2022 bear market, we expect the demand for new and used hardware to continue to increase as well.
- Mining rig prices have decreased considerably since their 2021 peak, and purchasing new generation hardware now, while it's discounted, enables market participants to capitalize on the next Bitcoin bull run as they accumulate more Bitcoin and the value of their rig increase over the coming years.



Buy ASICs on the Blockware Marketplace



Self service marketplace for miners

Buy and sell hosted Bitcoin ASICs

View order book of asks and bids

Real time performance data

Auditable energy, hashrate and BTC rewards

Immediate transfer of rig hashrate to buyer's wallet

Bitcoin native powered by Lightning Network

All transactions are in BTC

marketplace.blockwaresolutions.com



BLOCKWARE SOLUTIONS™

✉ Sales@blockwaresolutions.com

✉ blockwaresolutions.com/contact

Blockware Solutions LLC
3800 N. Lamar Blvd.,
Suite 200
Austin, TX 78756

www.blockwaresolutions.com

