EXHIBIT · FORM 10-K · ITEM 1A RISK FACTORS

What the Bitcoin miners' filings say about the halving

20 Bitcoin miners (one former) are in this scan — a stated roster, not every Bitcoin miner. 19 have filed an annual report, and all 19 disclose the same risk: the block subsidy halves on a schedule, transaction fees have not replaced it, and if that does not change the incentive to mine falls — and with it the revenue of the companies that do the mining. This is the complete record, in their own words.

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miners with a 10-K that disclose it

0.64%

fees, share of miner revenue, last 12 months

50%

fees needed at the next halving to hold today's budget

552

days to block 1,050,000 · projected 30 Mar 2028

https://miner-risk-factor.pages.dev/

verified 2026-09-25 · data through 2026-09-11

01 The finding

Every Bitcoin miner that files with the SEC must tell its investors what could go wrong with the business it operates. 19 of the 20 companies in this scan have filed an annual report on Form 10-K, and **every one of them discloses the same structural risk**: Bitcoin's block subsidy is cut in half on a fixed schedule, transaction fees have not grown to replace it, and if that does not change, mining stops being worth doing. Unlike a fund, a miner is describing its own revenue line.

They are not speculating about a distant possibility. The next halving occurs at block `1,050,000`, projected **30 Mar 2028** — about 552 days from the date on this report — when the reward per block falls from 3.125 BTC to 1.5625 BTC. At 76,540 dollars per bitcoin that is **$119,594 per block** removed from mining revenue.

Over the last twelve months, transaction fees supplied **0.64%** of what miners were paid. The subsidy supplied the other 99.36%. Put in units a reader can hold: of every 24 hours of Bitcoin's security budget, fees pay for about **9 minutes**, and the subsidy pays for the remaining 23 h 51 m.

For total miner revenue to survive the halving unchanged, at a constant bitcoin price, fees would have to reach **50% of revenue — roughly 78 times their current share**. The best single month in Bitcoin's recorded history was 22.9%, in December 2017. No issuer quoted in this report asserts that this gap will close. Several state plainly what happens if it does not.

The four numbers

0.64% fees today, 12-month mean	**50%** fees needed after the halving	**78×** the gap between them
$35.5M paid for security per day		

02 The roster

Which companies are in this report, and which are not. A company is included when it has filed a Form 10-K containing the disclosure. This is a hand-listed universe, resolved company by company against EDGAR — not a screen, and not the output of a full-text search. It is therefore a stated roster and not a census: other Bitcoin miners file Form 10-K and are not in it, and their absence here is not a finding about them.

TICKER	REGISTRANT	FILING	STATUS
MARA	MARA Holdings, Inc.	10-K · 2026-03-02	✓ discloses it
RIOT	Riot Platforms, Inc.	10-K · 2026-03-02	✓ discloses it
CORZ	Core Scientific, Inc.	10-K · 2026-03-02	✓ discloses it
CIFR	Cipher Digital Inc.	10-K · 2026-02-24	✓ discloses it
BITF	Bitfarms Ltd.	10-K · 2026-03-31	✓ discloses it
CLSK	CleanSpark, Inc.	10-K · 2025-11-25	✓ discloses it
HUT	Hut 8 Corp.	10-K · 2026-02-25	✓ discloses it
ABTC	American Bitcoin Corp.	10-K · 2026-03-27	✓ discloses it
SLNH	Soluna Holdings, Inc.	10-K · 2026-03-30	✓ discloses it
HIVE	HIVE Digital Technologies Ltd.	10-K · 2026-06-02	✓ discloses it
DGXX	Digi Power X Inc.	10-K · 2026-03-31	✓ discloses it
VIP	Greenidge Generation Holdings Inc.	10-K · 2026-03-31	✓ discloses it
BGDE	Mawson Infrastructure Group Inc.	10-K · 2026-03-31	✓ discloses it
PWCM	LM Funding America, Inc.	10-K · 2026-03-31	✓ discloses it
DRK	Sphere 3D Corp.	10-K · 2026-03-27	✓ discloses it
INVU	Investview, Inc.	10-K · 2026-03-31	✓ discloses it
OLB	The OLB Group, Inc.	10-K · 2026-04-01	✓ discloses it
MGTI	MGT Capital Investments, Inc.	10-K · 2026-03-17	✓ discloses it
WULF	TeraWulf Inc.	10-K · 2026-02-27	✓ discloses it
BTDR	Bitdeer	no 10-K	foreign private issuer — files 20-F, no 10-K

In the universe, not among the filers. Bitdeer Technologies Group (BTDR) is a foreign private issuer: it files Form 20-F and Form 6-K and has never filed a Form 10-K, so there is no Item 1A to quote. It is counted in the 20 and is not one of the filers.

03 The filings, verbatim

Each passage below is reproduced exactly as filed, with the sentence that names the risk highlighted. Nothing is paraphrased. The full EDGAR address of each document is printed beneath its quote, together with the paragraph index and the SHA-256 of the document, so any reader can fetch the original and confirm both the wording and the file. EDGAR adds one bot-detection <script src> tag, carrying a rotating token, to every download; the hash printed here is of the document with that tag removed, so it reproduces whenever the file is fetched.

The excerpts are the filings' own English and are never translated — they are the evidence. Beneath each one, the highlighted sentence is given in this edition's language.

MARA Holdings, Inc.

MARA
Form 10-K · filed 2026-03-02
Item 1A Risk Factors

The scheduled reduction of Bitcoin mining rewards due to halving events may decrease our revenue and could force us to cease mining operations.

MARA · CIK 1507605 · https://www.sec.gov/Archives/edgar/data/1507605/000150760526000007/mara-20251231.htm
¶270 · document sha-256 57e485abf150197569e00a0b

RIOT PLATFORMS

Riot Platforms, Inc.

RIOT
Form 10-K · filed 2026-03-02
Item 1A Risk Factors

… will instead rely solely on transaction fees associated with the blocks they validate. Historically, transaction fees have represented a relatively small portion of total mining revenue. Although transaction fees have increased at various times due to network usage and reduced new-bitcoin issuance, we cannot predict whether such fees will increase, or remain at levels, sufficient to offset the decline in block rewards over time. If transaction fees do not rise to levels that support profitable mining operations, or if the economic incentives to mine otherwise diminish, our ability to generate revenue from Bitcoin Mining could be materially and adversely affected. …

RIOT · CIK 1167419 · https://www.sec.gov/Archives/edgar/data/1167419/000110465926022322/riot-20251231x10k.htm
¶230 · document sha-256 f452387f7c3f17f6197816b5

CORE SCIENTIFIC

Core Scientific, Inc.

CORZ
Form 10-K · filed 2026-03-02
Item 1A Risk Factors

The “halving” of rewards available on the Bitcoin network, or the reduction of rewards on other networks, has had and in the future could have a negative impact on our ability to generate revenue as our customers may not have an adequate incentive to continue mining and customers may cease mining operations altogether, which could have a material adverse effect on our business, financial condition and results of operations.

CORZ · CIK 1839341 · https://www.sec.gov/Archives/edgar/data/1839341/000162828026013305/core-20251231.htm
¶628 · document sha-256 6e82a29fd6e902f7a0ee6e71

Cipher Digital

Cipher Digital Inc.

CIFR
Form 10-K · filed 2026-02-24
Item 1A Risk Factors

... adverse legal or regulatory developments affecting bitcoin, mining operations, or access to the Bitcoin network. In particular, bitcoin halving events reduce block rewards by 50% approximately every four years, which, absent a corresponding increase in bitcoin prices or reductions in operating costs, materially reduces mining revenue and profitability.

CIFR · CIK 1819989 · https://www.sec.gov/Archives/edgar/data/1819989/000181998926000009/cifr-20251231.htm
¶298 · document sha-256 8116bbe1eaa8c2ef7732cb27

Bitfarms

Bitfarms Ltd.

BITF
Form 10-K · filed 2026-03-31
Item 1A Risk Factors

Periodic Bitcoin halving events reduce Mining rewards and could render our Mining operations unprofitable for sustained periods, which could have a material adverse effect on our business.

BITF · CIK 1812477 · https://www.sec.gov/Archives/edgar/data/1812477/000121390026037514/ea0282809-10k_bitfarms.htm
¶372 · document sha-256 a301d38091cdd75376d44fad

CLEANSPARK

CleanSpark, Inc.

CLSK
Form 10-K · filed 2025-11-25
Item 1A Risk Factors

... there is no guarantee that any such price change will be favorable or would compensate for the reduction in mining reward. If a corresponding and proportionate increase in the price of bitcoin does not follow these anticipated halving events, the revenue from our mining operations would decrease, and we may not have an adequate incentive to continue mining and may cease mining operations altogether, which may adversely affect an investment in us.

CLSK · CIK 827876 · https://www.sec.gov/Archives/edgar/data/827876/000119312525297510/clsk-20250930.htm
¶229 · document sha-256 3b6f0719c319f0f566c45732

HUT 8

Hut 8 Corp.

HUT
Form 10-K · filed 2026-02-25
Item 1A Risk Factors

... operations, mainly through American Bitcoin, would see a corresponding decrease, which would have a material adverse effect on our and American Bitcoin’s business, financial condition, and results of operations. If the award of Bitcoin rewards for solving blocks and transaction fees are not sufficiently high, we and American Bitcoin may not have an adequate incentive to continue mining and may decrease or cease our ASIC compute operations.

> *Counsel-drafted boilerplate: ABTC file variants of this same passage.*

HUT · CIK 1964789 · https://www.sec.gov/Archives/edgar/data/1964789/000110465926019392/hut-20251231x10k.htm
¶348 · document sha-256 54cb25e6bd319da158b2febd

AMERICAN BTC

American Bitcoin Corp.

ABTC
Form 10-K · filed 2026-03-27
Item 1A Risk Factors

As the number of Bitcoin awarded for solving a block in a blockchain decreases, our ability to achieve profitability becomes more difficult. While the Bitcoin price has had a history of price fluctuations around the halving of our rewards, there is no guarantee that in future periods when a halving occurs the price change will be favorable or would compensate for the reduction ...

Counsel-drafted boilerplate: HUT file variants of this same passage.

ABTC · CIK 1755953 · https://www.sec.gov/Archives/edgar/data/1755953/000119312526127278/abtc-20251231.htm
¶183 · document sha-256 7541a04edb53ebfb61f91a9f

SOLUNA

Soluna Holdings, Inc.

SLNH
Form 10-K · filed 2026-03-30
Item 1A Risk Factors

If the price of Bitcoin does not increase proportionally—or if mining difficulty does not decrease—halvings may reduce our mining revenue and profitability. This may also impact our hosted customers, whose ability to cover operating costs depends on the value of rewards earned. Over time, the Bitcoin network is expected to rely more on transaction fees instead of block rewards. However, if those ...

SLNH · CIK 64463 · https://www.sec.gov/Archives/edgar/data/64463/000162828026021847/slnh-20251231.htm
¶355 · document sha-256 a77c6ca0c4fed4cafc29e7c4

HIVE DIGITAL TECHNOLOGIES LTD

HIVE Digital Technologies Ltd.

HIVE
Form 10-K · filed 2026-06-02
Item 1A Risk Factors

... after a halving event, it is unlikely that the network Difficulty rate and price after the halving event would remain at the prevailing level prior to the halving event, when Bitcoin rewards per block are halved; this may offset some of the impact of the halving event. Nevertheless, there is a risk that a future halving event may render the Company unprofitable and unable to continue as a going concern.

HIVE · CIK 1720424 · https://www.sec.gov/Archives/edgar/data/1720424/000106299326002973/form10k.htm
¶366 · document sha-256 a38b24d030854b3db94008ad

DIGIPOWER X

Digi Power X Inc.

DGXX
Form 10-K · filed 2026-03-31
Item 1A Risk Factors

Based on the fundamentals of bitcoin mining and historical data on bitcoin prices and the network difficulty rate after a halving event, it is unlikely that the network difficulty rate and price would remain at the current level when the bitcoin rewards per block are halved, which could offset some of the impact of a halving event. Nevertheless, there is a risk that a future halving event may render the Corporation’s bitcoin mining operations to be unprofitable and may adversely impact its ability to continue as a going concern.

DGXX · CIK 1854368 · https://www.sec.gov/Archives/edgar/data/1854368/000121390026037677/ea0283764-10k_digipower.htm
¶242 · document sha-256 c41589e3c4e86fbc73d0eb29

Greenidge Generation Holdings Inc.

VIP
Form 10-K · filed 2026-03-31
Item 1A Risk Factors

... that reduces the block reward by 50% approximately every four years. The most recent halving occurred on April 19, 2024, reducing the block reward from 6.25 bitcoin to 3.125 bitcoin per block. The next halving is expected to occur in Spring 2028, further reducing the reward to 1.5625 bitcoin per block. Each successive halving reduces our revenue per block solved, and unless offset by increases in the price of bitcoin or transaction fees, could materially reduce our mining profitability. Decreased use and demand for bitcoin rewards may adversely affect our incentive to expend processing power to solve ...

VIP · CIK 1844971 · https://www.sec.gov/Archives/edgar/data/1844971/000184497126000011/gree-20251231.htm
¶414 · document sha-256 78302fd0266dbccf35205a82

Mawson Infrastructure Group Inc.

BGDE
Form 10-K · filed 2026-03-31
Item 1A Risk Factors

... networks are based on open-source protocols that evolve through decentralized development. Network participants may adopt changes to software, consensus rules, or economic parameters through protocol upgrades or forks. Such changes may impact transaction processing, fee dynamics, and miner incentives. As block rewards decline over time, mining economics are expected to become increasingly dependent on transaction fees, which are inherently variable. Any material changes affecting mining profitability could reduce demand for our colocation services or impact pricing. Since we do not control the development or governance of these networks, any such changes ...

BGDE · CIK 1218683 · https://www.sec.gov/Archives/edgar/data/1218683/000121390026037417/ea0281617-10k_mawson.htm
¶241 · document sha-256 e10a6c865d1d042c62cdaaac

LM Funding America, Inc.

PWCM
Form 10-K · filed 2026-03-31
Item 1A Risk Factors

... events, there is no guarantee that the price change will be favorable or would compensate for the reduction in mining reward. If a corresponding and proportionate increase in the price of Bitcoin does not follow these anticipated halving events, the revenue from our mining operations would decrease, and we may not have an adequate incentive to continue mining and may cease mining operations altogether, which may adversely affect an investment in us.

PWCM · CIK 1640384 · https://www.sec.gov/Archives/edgar/data/1640384/000119312526133333/lmfa-20251231.htm
¶295 · document sha-256 c5f8a6114f3f5d8e9f13e855

Sphere 3D Corp.

DRK
Form 10-K · filed 2026-03-27
Item 1A Risk Factors

... have historically increased around these halving events, there is no guarantee that the price change will be favorable or would compensate for the reduction in mining rewards. If a corresponding and proportionate increase in the price of Bitcoin does not follow the upcoming or future halving events, the revenue we earn from our Bitcoin mining operations would see a decrease, which could have a material adverse effect on our results of operations and financial condition.

DRK · CIK 1591956 · https://www.sec.gov/Archives/edgar/data/1591956/000159195626000004/any-20251231.htm
¶205 · document sha-256 83b10cb5f7a2902d5466482a

Investview

Investview, Inc.

INVU
Form 10-K · filed 2026-03-31
Item 1A Risk Factors

… our mining operations would see a corresponding decrease, which would have a material adverse effect on our business and operations. To illustrate, even if the price of Bitcoin remains at its price as of today, all other factors being equal (including the same number of miners and a stable hash rate), our revenue would decrease substantially upon the next Halving.

INVU · CIK 862651 · https://www.sec.gov/Archives/edgar/data/862651/000149315226014042/form10-k.htm
¶170 · document sha-256 1f0baf3024175fb06bbccf5a

OLB Group

The OLB Group, Inc.

OLB
Form 10-K · filed 2026-04-01
Item 1A Risk Factors

The Bitcoin network features a large and growing number of miners competing for limited mining rewards. This competition intensifies with each participant added to the network. The competitive environment is exacerbated by the fact that the Bitcoin protocol halves mining rewards approximately every four years, reducing the potential earnings for miners and increasing the importance of operational efficiency. This requires us to continuously invest in new mining equipment to earn consistent Bitcoin mining rewards.

OLB · CIK 1314196 · https://www.sec.gov/Archives/edgar/data/1314196/000121390026037906/ea0282959-10k_olbgroup.htm
¶277 · document sha-256 89614b31436f121014278b4b

MGT Capital Investments, Inc.

MGTI
Form 10-K · filed 2026-03-17
Item 1A Risk Factors

… be no assurance that the price of Bitcoin will sufficiently increase to justify the increasingly high costs of mining for Bitcoin given the Halving feature. If a corresponding and proportionate increase in the trading price of these cryptocurrencies does not follow these anticipated Halving events, the revenue we earn from our mining operations will see a corresponding decrease, which would have a material adverse effect on our business and operations. To illustrate, even if the price of Bitcoin remains at its price as of today, all other factors being equal (including the same number of miners and a stable hash rate) …

MGTI · CIK 1001601 · https://www.sec.gov/Archives/edgar/data/1001601/000149315226010453/form10-k.htm
¶72 · document sha-256 db87d1c1d00369a3f37e58e8

TeraWulf Inc.

WULF
Form 10-K · filed 2026-02-27
Item 1A Risk Factors

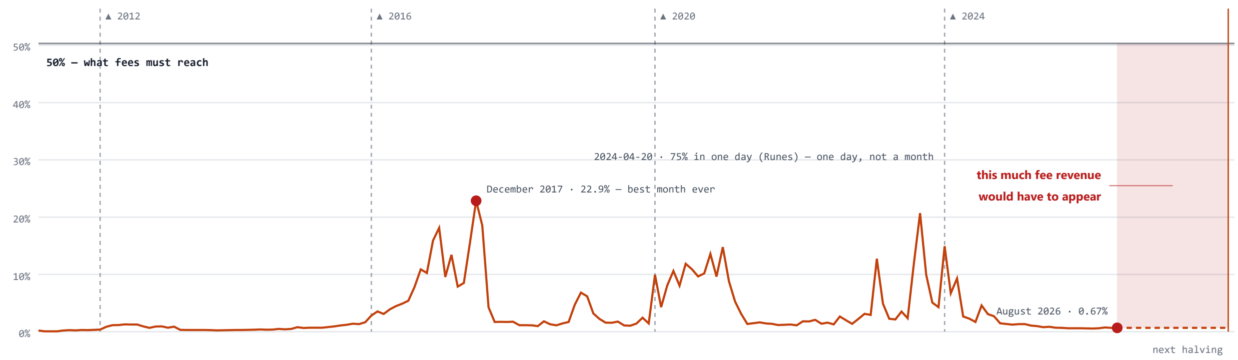
The number of new bitcoin awarded for solving a block is cut in half at mathematically predetermined intervals, known as “halving”. The next halving for the bitcoin blockchain is currently anticipated to occur in April 2028. While bitcoin prices have historically increased around these halving events, there is no guarantee that the price change will be favorable or would compensate for the reduction in mining rewards.

If a corresponding and proportionate increase in the price of bitcoin does not follow future halving events, the revenue we earn from our bitcoin mining operations would see a decrease, which could have a material adverse effect on our results …

WULF · CIK 1083301 · https://www.sec.gov/Archives/edgar/data/1083301/000108330126000031/wulf-20251231.htm
¶223 · document sha-256 2d688783463cb00e0d9530c0

04 What the filings are describing

The chart plots transaction fees as a share of total miner revenue — fees divided by fees plus subsidy, in bitcoin terms — as a monthly average of daily values since 2012. The four dashed rules are the past halvings. The shaded band is the shortfall: the distance between where fees are now and where they would have to be at the next halving for miner revenue to stay where it is today.



Fees are drawn flat from today to the halving because nothing in the series implies a climb; the band is therefore the size of the problem, not a forecast of it. A higher bitcoin price can substitute for a higher fee share — none of the filings quoted here assumes one.

The arithmetic

Let miner revenue per block be `R = F + S`, where F is fees and S is the subsidy. Today F is 0.64% of R. After the halving the subsidy pays S/2, so to hold R constant fees must supply `F + S/2` — which, as a share of the unchanged revenue, is `0.64 + (100 - 0.64) / 2 = 50.32%`. That is 78.4 times today's fee share. The identity holds in bitcoin terms and assumes a constant price; it is arithmetic, not a projection.

Reference figures

22.9%
best month ever · December 2017

0.67%
last full month · 2026-08 · 24/31

0.82%
security budget as a share of market value

9.77
minutes per block, trailing 14 days

05 How this report was made

On 2026-09-23 the most recent Form 10-K for each company was retrieved from EDGAR. Every paragraph matching a subsidy / halving / miner-incentive pattern was archived verbatim together with its byte offset and the SHA-256 of the source document. The quotes in section 03 are drawn from that archive and re-checked byte-for-byte against it on every rebuild: a quote that does not match its archived paragraph cannot be published, and the build fails instead. Fee figures are recomputed from a daily series on every rebuild. The countdown derives from the live chain tip and the trailing 14-day block interval. That interval currently runs a little under ten minutes, so the projected date falls a fortnight earlier than the "April 2028" several of the filings quoted here give: on the protocol's nominal ten-minute target the same block lands in mid-April. Neither date is a forecast of the calendar — the block number is the fixed thing.

How the universe was chosen, and why it is stated rather than discovered

This report's roster is hand-listed rather than discovered, because discovery could not produce it at all:

- A full-text sweep of EDGAR keeps only registrants whose name contains "bitcoin". Not one of these miners files under such a name, so the sweep that found the ETFs returns none of them. Every company here was resolved by ticker against EDGAR's company file and its own submissions history.
- Two resolutions a careless re-run would get wrong. `BITF` is absent from EDGAR's ticker file: Bitfarms filed Form 40-F as a foreign private issuer through FY2024 and became a domestic filer only with the Form 10-K quoted here. And `CORZ`'s most recent annual filing is a Form 10-K/A — but a partial one, carrying no Item 1A at all, so the risk factors are quoted from the Form 10-K it amends.

On shared drafting

Two of these filings are relatives. Hut 8 operates American Bitcoin's mining fleet, and the two companies file near-identical language about the same machines. This report notes that relationship rather than presenting 19 companies as 19 independent judgements. The consensus is real, but a reader is entitled to know which sentences are relatives.

Limits

- Fee share is measured in bitcoin terms. A rising bitcoin price can hold the dollar value of the security budget while the fee share stays flat; none of the quoted filings assumes that it will.
- Figures are as of 2026-09-11 and the report is stamped 2026-09-25. A later edition will differ.
- The quotes are excerpts. Each is linked to its full document so the surrounding context can be read.
- The trailing-year fee share is an average over the days the series actually carries: 358 of 365 calendar days. The gaps are days with no published fee observation, not days with zero fees.

06 Sources and notices

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Nothing in this report is investment advice, a recommendation to buy or sell any security or digital asset, or a statement about the merits of any company. It concerns one disclosed risk factor common to a category of filings.

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Chain data: the block interval and the build-time height are derived from the same daily series as the fee figures — the height from its cumulative issuance, carried forward at the trailing 14-day block rate. The web edition replaces that figure with a live tip fetched from public Bitcoin APIs; this printed one is the derived value. Fee and subsidy series computed from daily network totals. Derived tip at build: 968,637; blocks remaining to the halving: 81,363.

What the Bitcoin miners' filings say about the halving · https://miner-risk-factor.pages.dev/ · verified 2026-09-25