

## BTC Price Cycles and Mining

Navigating the Halving and Mining's Future Landscape



## Bitcoin's 4<sup>th</sup> Halving

Every 210,000 blocks (~4 years), the Bitcoin network automatically reduces the rate of supply growth by half, resulting in a predictable monetary policy that will eventually culminate with a total of 21m coins. This monetary policy is etched into the Bitcoin software's source code and enforced by the consensus of thousands of Bitcoin software operators around the world. The policy is immutable, never to be changed as long as Bitcoin exists.

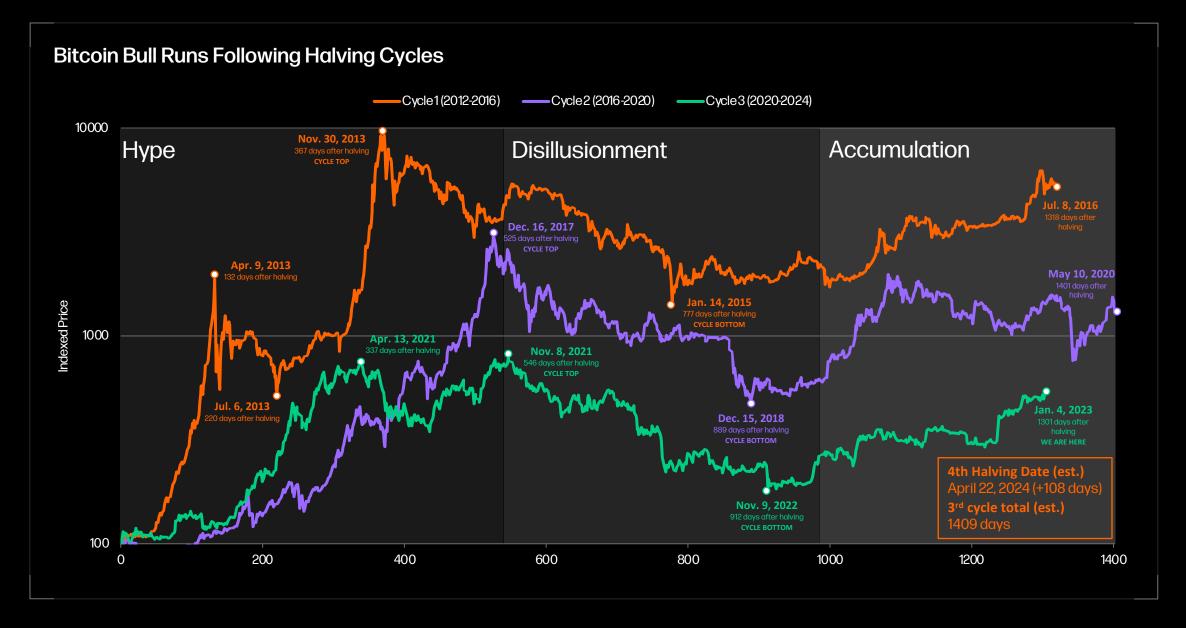
Halvings have historically framed bitcoin's four-year price cycles, with halving dates marking the beginning of a fresh cycle. Price has followed similar intrahalving cycle patterns classified by periods of hype, disillusionment, and accumulation.

Bitcoin's fourth halving will reduce the block reward (the amount of BTC allocated to miners for finding new blocks) from 6.25 BTC/block to 3.125 BTC/block. This halving period will see bitcoin's inflation rate drop below 1% and its supply increase by 656,250 BTC to 20,343,750 BTC (96.88% of sovereign supply).

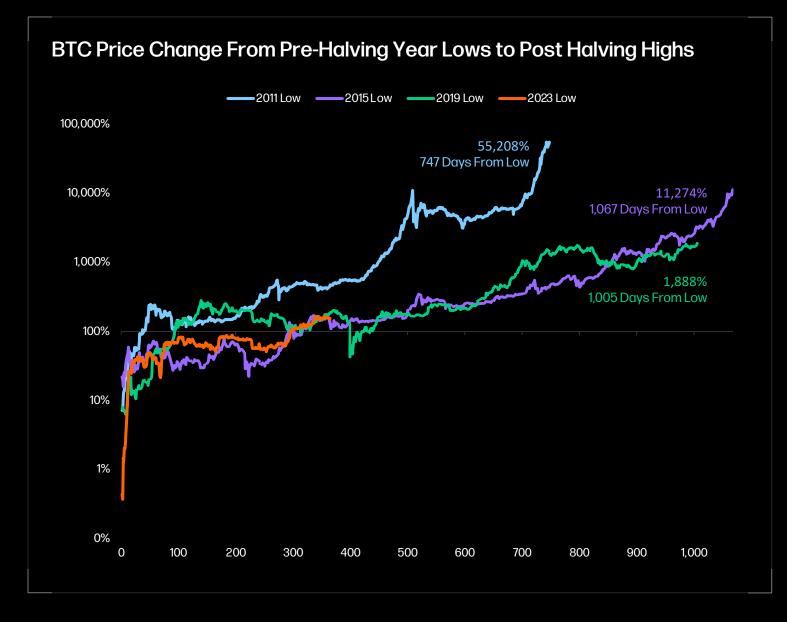
## Bitcoin Halving Supply and Model

210000         2         25         10500000         5250000         15750000         15750000         50.00%         7           420000         3         125         15750000         2625000         18375000         18375000         1667%         8           630000         4         6.25         18375000         1312500         19687500         7.14%         9           840000         5         3.125         19687500         656250         20343750         20343750         3.33%         9           1050000         6         1.5625         20343750         328125         20671875         161%         9           1260000         7         0.78125         20671875         164062.5         20345938         20335937.5         0.79%         9           1470000         8         0.390625         20355937.5         8203125         20917968.8         0.39%         6           1680000         9         0.1953125         20917968.8         41016625         20569884         20988844         0.20%         9           2100000         11         0.0488281         20997492.2         10.10%         9         210000         12         0.0241414         209897461         5126	Block	Reward Era	BTC/block	Start BTC	BTC Added	Supply	End BTC	BTC Increase	End BTC % of Limit
420000         3         12.5         15750000         2625000         18375000         16.67%         8           630000         4         6.25         18375000         1312500         19687500         714%         9           840000         5         3.125         19687500         666250         20343750         20343750         333%         9           1050000         6         1.5625         20343750         328125         20671875         20671875         1.61%         9           1260000         7         0.78125         20671875         1640625         208359375         0.79%         9           1470000         8         0.390625         20835937.5         8203125         20917968.8         0.39%         5           1680000         9         0.1953125         20917968.8         41016.625         20958984.4         0.20%         9           1890000         10         0.0976563         20958984.4         20507.813         20979492         20979492.2         0.10%         9           2300000         11         0.0488281         209749492.2         10253.905         20994873         20994873         0.02%         9           2300000         13	0	1	50	0	10500000	0	10500000	infinite	50.00%
630000         4         6.25         18375000         1312500         19687500         7.14%         9.840000         5         3.125         19687500         656250         20343750         20343750         3.33%         9           1050000         6         1.5625         20343750         328125         20671875         20671875         1.61%         9           1260000         7         0.78125         20671875         164062.5         20835931.5         0.79%         9           1470000         8         0.390625         20835937.5         82031.25         20917969         20917968.8         0.39%         9           1880000         9         0.1953125         20917968.8         41015.625         20958984         20959884.4         0.20%         9           2100000         11         0.0488281         209379492.2         1008         9         20100%         9         20100%         9         20100%         9         20100%         12         0.0244141         20987461         5126.9526         20994873         20994873         0.02%         9           2520000         13         0.012207         20994873.2         266.34763         20997436.5         0.01%         9         29	210000	2	25	10500000	5250000	15750000	15750000	50.00%	75.00%
840000         5         3.125         19687500         656250         20343750         20343750         3.33%         9           1050000         6         1.5625         20343750         328125         20671875         161%         9           1260000         7         0.78125         20671875         164062.5         20835937.5         20835937.5         0.79%         9           1470000         8         0.390625         20835937.5         8203125         20917969         20917968.8         0.39%         9           1680000         9         0.1953125         20917968.8         41015.625         20958984         20958984.4         0.20%         9           1890000         10         0.0976563         20958984.4         20507813         20979492.2         0.10%         9           2100000         11         0.0488281         20979492.2         10253.05         20989746         209897461         0.05%         9           2310000         12         0.0244141         209897461         5126.9526         20994873         20997436.5         0.01%         9           2520000         13         0.012207         20994873         2563.4763         20997437         20997436.5 <td< td=""><td>420000</td><td>3</td><td>12.5</td><td>15750000</td><td>2625000</td><td>18375000</td><td>18375000</td><td>16.67%</td><td>87.50%</td></td<>	420000	3	12.5	15750000	2625000	18375000	18375000	16.67%	87.50%
1050000         6         1.5625         20343750         328125         20671875         20671875         1.61%         9           1260000         7         0.78125         20671875         164062.5         20835937.5         0.79%         9           1470000         8         0.390625         20835937.5         82031.25         20917968.8         0.39%         6           1880000         9         0.1953125         20917968.8         41015.625         20958984         20958984.4         0.20%         9           1890000         10         0.0976563         20958984.4         20507.813         20979492         20979492.2         0.10%         9           2100000         11         0.0488281         20979492.2         10263.905         209897461         0.05%         9           2310000         12         0.0244141         209897431         25626         20994873         20994873         0.098718.0         0.00%         9           2730000         14         0.0061035         20997436.5         1281.7371         20998718         20999718.3         0.01%         9           2940000         15         0.0030518         20999769.6         160.2153         20999859         209998718.3 <td>630000</td> <td>4</td> <td>6.25</td> <td>18375000</td> <td>1312500</td> <td>19687500</td> <td>19687500</td> <td>7.14%</td> <td>93.75%</td>	630000	4	6.25	18375000	1312500	19687500	19687500	7.14%	93.75%
1260000         7         0.78125         20671875         164062.5         20835938         20835937.5         0.79%         9           1470000         8         0.390625         20835937.5         820312.5         20917968.8         0.39%         9           1680000         9         0.1953125         20917968.8         41015.625         20958984.4         20598984.4         0.20%         9           1890000         10         0.0976563         20958984.4         20579492.2         20979492.2         0.10%         9           2100000         11         0.0488281         20979492.2         10253.905         20989746         209897461         0.05%         9           2310000         12         0.0244141         209897461.5126.9526         20994873         20994873         0.02%         9           2520000         13         0.012207         20994873         2563.4763         20997437.5         209994873.3         0.00%         9           2730000         14         0.0061035         209974365.5         1281.7371         20999718.3         20998718.3         0.00%         10           3150000         16         0.0015259         20999871.3         320.4327         20999851.0         0.00% <td>840000</td> <td>5</td> <td>3.125</td> <td>19687500</td> <td>656250</td> <td>20343750</td> <td>20343750</td> <td>3.33%</td> <td>96.88%</td>	840000	5	3.125	19687500	656250	20343750	20343750	3.33%	96.88%
1470000         8         0.390625         20835937.5         82031.25         20917969         20917968.8         0.39%         5           1880000         9         0.1953125         20917968.8         41015.625         20958984.4         0.20%         9           1890000         10         0.0976563         20958984.4         20507.813         20979492.2         201000%         9           2100000         11         0.0488281         20979492.2         10253.905         20989746.1         0.05%         9           2310000         12         0.0244141         20989746.1         5126.9526         20994873         20994873         0.02%         9           2520000         13         0.012207         20994873         2563.4763         20997437         20997436.5         0.01%         9           2730000         14         0.0061055         20994878.3         640.8675         20999318         20999318.3         0.01%         9           2940000         15         0.0030518         20999859.1         320.4327         20999879.6         0.00%         10           3360000         17         0.0007629         20999959.1         320.4327         209998839.8         0.00%         10	1050000	6	1.5625	20343750	328125	20671875	20671875	1.61%	98.44%
1680000         9         0.1953125         20917968.8         41015.625         20958984.4         2020%         9           1890000         10         0.0976563         20958984.4         20507.813         20979492.2         20979492.2         0.10%         9           2100000         11         0.0488281         20979492.2         10253.905         20989746.1         0.05%         9           2310000         12         0.0244141         20989746.1         5126.9526         20994873         20994873         0.02%         9           2520000         13         0.012207         20994873         2563.4763         20997436.5         0.01%         9           2730000         14         0.0061035         20997436.5         1281.7371         20998718.3         0.01%         9           2940000         15         0.0030518         20998718.3         640.8675         20999359         20999359.1         0.00%         10           3150000         16         0.0015259         209993679.6         160.2153         20999840         20999983.8         0.00%         10           350000         17         0.0007629         20999679.6         160.2153         20999840         20999993.8         0.00%	1260000	7	0.78125	20671875	164062.5	20835938	20835937.5	0.79%	99.22%
1890000         10         0.0976563         20958984.4         20507.813         20979492.2         20979492.2         0.10%         9           2100000         11         0.0488281         20979492.2         10253.905         20989746         20989746.1         0.05%         9           2310000         12         0.0244141         20889746.1         5126.9526         20994873         20994873         0.02%         9           2520000         13         0.012207         20994873         2563.4763         20997436.5         0.01%         9           2730000         14         0.0061035         20997436.5         1281.7371         20998718.3         0.01%         9           2940000         15         0.0030518         209998718.3         640.8675         20999359         20999359.1         0.00%         10           3150000         16         0.0016259         20999359.1         320.4327         20999840         20999839.8         0.00%         10           3570000         18         0.0003815         20999839.8         80.1066         209999920         20999939.9         0.00%         10           3780000         19         0.001907         20999995.9         40.0533         20999998.0	1470000	8	0.390625	20835937.5	82031.25	20917969	20917968.8	0.39%	99.61%
2100000         11         0.0488281         20979492.2         10253.905         20989746         20989746.1         0.05%         9           2310000         12         0.0244141         20989746.1         5126.9526         20994873         20994873         0.02%         9           2520000         13         0.012207         20994873         2563.4763         20997437         20997436.5         0.01%         9           2730000         14         0.0061035         20997456.5         1281.7371         20998718.3         0.01%         9           2940000         15         0.0030518         20998718.3         640.8675         20999359.1         0.00%         10           3150000         16         0.0015259         20999359.1         320.4327         20999680         209999679.6         0.00%         10           3570000         18         0.0003515         20999839.8         80.1066         209999840         20999839.8         0.00%         10           3780000         19         0.001907         20999991.9         40.0533         20999980         2099995.9         0.00%         10           3990000         20         9.536E-05         20999999.1         10.0128         20999999.0	1680000	9	0.1953125	20917968.8	41015.625	20958984	20958984.4	0.20%	99.80%
2310000         12         0.0244141         20989746.1         5126.9526         20994873         20994873         0.02%         9           2520000         13         0.012207         20994873         2563.4763         20997437         20997436.5         0.01%         9           2730000         14         0.0061035         20997436.5         1281.7371         20998718         20998718.3         0.01%         9           2940000         15         0.0030518         20998718.3         640.8675         20999359.1         0.00%         10           3150000         16         0.0015259         20999359.1         320.4327         20999880         2099979.6         0.00%         10           3360000         17         0.0007629         2099997.6         160.2153         20999840         20999983.8         0.00%         10           3570000         18         0.0003815         20999839.8         80.1066         209999920         20999919.9         0.00%         10           3770000         19         0.001907         20999919.9         40.0533         20999980         2099995.9         0.00%         10           3990000         20         9.536E-05         20999995         20.0256	1890000	10	0.0976563	20958984.4	20507.813	20979492	20979492.2	0.10%	99.90%
2520000         13         0.012207         20994873         2563.4763         20997437         20997436.5         0.01%         9           2730000         14         0.0061035         20997436.5         1281.7371         20998718         20998718.3         0.01%         9           2940000         15         0.0030518         20998718.3         640.8675         20999359         20999359.1         0.00%         10           3150000         16         0.0015259         20999359.1         320.4327         20999680         20999679.6         0.00%         10           3360000         17         0.0007629         20999679.6         160.2153         20999839.8         0.00%         10           3570000         18         0.0003815         20999983.8         80.1066         209999920         20999919.9         0.00%         10           3780000         19         0.001907         20999919.9         40.0533         209999960         20999998.0         0.00%         10           4200000         20         9.536E-05         20999999.9         20.0256         20999980         20999998.0         0.00%         10           4410000         21         4.768E-05         20999998.1         10.0128	2100000	11	0.0488281	20979492.2	10253.905	20989746	20989746.1	0.05%	99.95%
2730000         14         0.0061035         20997436.5         1281.7371         20998718         20998718.3         0.01%         9           2940000         15         0.0030518         20998718.3         640.8675         20999359         20999359.1         0.00%         10           3150000         16         0.0015259         20999359.1         320.4327         20999680         20999679.6         0.00%         10           3360000         17         0.0007629         20999679.6         160.2153         20999840         20999939.8         0.00%         10           3570000         18         0.0003815         20999839.8         80.1066         20999920         20999919.9         0.00%         10           3780000         19         0.0001907         20999919.9         40.0533         20999980         20999980         0.00%         10           4200000         21         4.768E-05         20999999.9         20.0256         20999980         20999990         0.00%         10           4410000         22         2.384E-05         20999999.0         5.064         20999995         20999995         0.00%         10           4830000         24         5.96E-06         20999997.5	2310000	12	0.0244141	20989746.1	5126.9526	20994873	20994873	0.02%	99.98%
2940000         15         0.0030518         20998718.3         640.8675         20999359         20999359.1         0.00%         10           3150000         16         0.0015259         20999359.1         320.4327         20999680         20999679.6         0.00%         10           3360000         17         0.0007629         20999679.6         160.2153         20999840         20999839.8         0.00%         10           3570000         18         0.0003815         20999839.8         80.1066         20999920         20999919.9         0.00%         10           3780000         19         0.0001907         20999919.9         40.0533         20999960         20999980         0.00%         10           3990000         20         9.536E-05         209999980         10.0128         20999980         20999990         0.00%         10           4200000         21         4.768E-05         209999990         5.0064         20999995         20999995         0.00%         10           4830000         22         2.384E-05         20999995         2.5032         20999997         20999999.5         0.00%         10           5040000         25         2.98E-06         20999997.5         1.251	2520000	13	0.012207	20994873	2563.4763	20997437	20997436.5	0.01%	99.99%
3150000         16         0.0015259         20999359.1         320.4327         20999680         20999679.6         0.00%         10           3360000         17         0.0007629         20999679.6         160.2153         20999840         20999839.8         0.00%         10           3570000         18         0.0003815         20999919.9         40.0533         20999960         20999959.9         0.00%         10           3780000         19         0.0001907         20999919.9         40.0533         20999980         20999980         0.00%         10           3990000         20         9.536E-05         209999980         10.0128         20999990         20999990         0.00%         10           4200000         21         4.768E-05         20999990         5.0064         20999995         20999995         0.00%         10           4620000         23         1.192E-05         20999995         2.5032         20999999         20999998.7         0.00%         10           4830000         24         5.96E-06         20999997.5         1.2516         20999999         20999998.7         0.00%         10           5250000         26         1.49E-06         20999999.4         0.3129 <td>2730000</td> <td>14</td> <td>0.0061035</td> <td>20997436.5</td> <td>1281.7371</td> <td>20998718</td> <td>20998718.3</td> <td>0.01%</td> <td>99.99%</td>	2730000	14	0.0061035	20997436.5	1281.7371	20998718	20998718.3	0.01%	99.99%
3360000         17         0.0007629         20999679.6         160.2153         20999840         20999839.8         0.00%         10           3570000         18         0.0003815         20999839.8         80.1066         20999920         20999919.9         0.00%         10           3780000         19         0.0001907         20999919.9         40.0533         20999960         20999959.9         0.00%         10           3990000         20         9.536E-05         20999998.0         10.0128         20999990         20999990         0.00%         10           4200000         21         4.768E-05         20999990         5.0064         20999995         20999995         0.00%         10           4410000         22         2.384E-05         209999995         2.5032         20999997         20999999.5         0.00%         10           4620000         23         1.192E-05         20999999.5         2.5032         20999999.7         20999999.7         0.00%         10           5040000         24         5.96E-06         20999999.7         0.6258         20999999.9         20999999.7         0.00%         10           5250000         26         1.49E-06         20999999.7         0.1	2940000	15	0.0030518	20998718.3	640.8675	20999359	20999359.1	0.00%	100.00%
3570000         18         0.0003815         20999839.8         80.1066         20999920         20999919.9         0.00%         10           3780000         19         0.0001907         20999919.9         40.0533         20999960         20999959.9         0.00%         10           3990000         20         9.536E-05         20999999.9         20.0256         20999980         20999980         0.00%         10           4200000         21         4.768E-05         20999990         10.0128         20999990         20999999         0.00%         10           4410000         22         2.384E-05         20999999         5.0064         20999995         20999995         0.00%         10           4620000         23         1.192E-05         20999995         2.5032         20999999         20999998.7         0.00%         10           4830000         24         5.96E-06         20999999.5         1.2516         20999999         20999999.7         0.00%         10           5250000         26         1.49E-06         20999999.4         0.3129         21000000         20999999.8         0.00%         10           5670000         28         3.7E-07         20999999.9         0.0378	3150000	16	0.0015259	20999359.1	320.4327	20999680	20999679.6	0.00%	100.00%
3780000         19         0.0001907         20999919.9         40.0533         20999960         20999959.9         0.00%         10           3990000         20         9.536E-05         20999959.9         20.0256         20999980         20999980         0.00%         10           4200000         21         4.768E-05         20999980         10.0128         20999990         20999990         0.00%         10           4410000         22         2.384E-05         20999999         5.0064         20999995         20999995         0.00%         10           4620000         23         1.192E-05         20999995         2.5032         20999997         20999998.7         0.00%         10           4830000         24         5.96E-06         20999998.7         1.2516         20999999         20999998.7         0.00%         10           5040000         25         2.98E-06         20999998.7         0.6258         20999999.9         20999999.7         0.00%         10           5250000         26         1.49E-06         20999999.7         0.1554         21000000         20999999.8         0.00%         10           5670000         28         3.7E-07         20999999.9         0.0378	3360000	17	0.0007629	20999679.6	160.2153	20999840	20999839.8	0.00%	100.00%
3990000         20         9.536E-05         20999959.9         20.0256         20999980         20999980         0.00%         10           4200000         21         4.768E-05         20999980         10.0128         20999990         20999990         0.00%         10           4410000         22         2.384E-05         20999990         5.0064         20999995         20999995         0.00%         10           4620000         23         1.192E-05         20999995         2.5032         20999997         20999997.5         0.00%         10           4830000         24         5.96E-06         20999997.5         1.2516         20999999.2         20999999.4         0.00%         10           5040000         25         2.98E-06         20999999.4         0.3129         21000000         20999999.7         0.00%         10           5250000         26         1.49E-06         20999999.7         0.1554         21000000         20999999.8         0.00%         10           5670000         28         3.7E-07         20999999.8         0.0777         21000000         20999999.9         0.00%         10           5880000         29         1.8E-07         20999999.9         0.0378	3570000	18	0.0003815	20999839.8	80.1066	20999920	20999919.9	0.00%	100.00%
4200000       21       4.768E-05       20999980       10.0128       20999990       20999990       0.00%       10         4410000       22       2.384E-05       20999990       5.0064       20999995       20999995       0.00%       10         4620000       23       1.192E-05       20999995       2.5032       20999997       20999997.5       0.00%       10         4830000       24       5.96E-06       20999997.5       1.2516       20999999       20999998.7       0.00%       10         5040000       25       2.98E-06       20999999.7       0.6258       20999999       20999999.7       0.00%       10         5250000       26       1.49E-06       20999999.4       0.3129       21000000       20999999.8       0.00%       10         5460000       27       7.4E-07       20999999.7       0.1554       21000000       20999999.8       0.00%       10         5670000       28       3.7E-07       20999999.9       0.0378       21000000       20999999.9       0.00%       10         5880000       29       1.8E-07       20999999.9       0.0189       21000000       20999999.9       0.00%       10         6090000       30	3780000	19	0.0001907	20999919.9	40.0533	20999960	20999959.9	0.00%	100.00%
4410000         22         2.384E-05         20999990         5.0064         20999995         20999995         0.00%         10           4620000         23         1.192E-05         20999995         2.5032         20999997         20999997.5         0.00%         10           4830000         24         5.96E-06         20999997.5         1.2516         20999999         20999998.7         0.00%         10           5040000         25         2.98E-06         20999999.4         0.3129         21000000         20999999.7         0.00%         10           5250000         26         1.49E-06         20999999.4         0.3129         21000000         20999999.8         0.00%         10           5460000         27         7.4E-07         20999999.7         0.1554         21000000         20999999.8         0.00%         10           5670000         28         3.7E-07         20999999.8         0.0777         21000000         20999999.9         0.00%         10           5880000         29         1.8E-07         20999999.9         0.0378         21000000         20999999.9         0.00%         10           6090000         30         9E-08         20999999.9         0.0189 <t< td=""><td>3990000</td><td>20</td><td>9.536E-05</td><td>20999959.9</td><td>20.0256</td><td>20999980</td><td>20999980</td><td>0.00%</td><td>100.00%</td></t<>	3990000	20	9.536E-05	20999959.9	20.0256	20999980	20999980	0.00%	100.00%
4620000         23         1.192E-05         20999995         2.5032         20999997         20999997.5         0.00%         100           4830000         24         5.96E-06         20999997.5         1.2516         20999999         20999998.7         0.00%         100           5040000         25         2.98E-06         20999999.4         0.6258         20999999         20999999.4         0.00%         100           5250000         26         1.49E-06         20999999.4         0.3129         21000000         20999999.7         0.00%         100           5460000         27         7.4E-07         20999999.7         0.1554         21000000         20999999.8         0.00%         100           5670000         28         3.7E-07         20999999.8         0.0777         21000000         20999999.9         0.00%         100           5880000         29         1.8E-07         20999999.9         0.0189         21000000         20999999.9         0.00%         100           6090000         30         9E-08         20999999.9         0.0189         21000000         21000000         0.00%         100           6300000         31         4E-08         21000000         0.0084	4200000	21	4.768E-05	20999980	10.0128	20999990	20999990	0.00%	100.00%
4830000       24       5.96E-06       20999997.5       1.2516       20999999       20999998.7       0.00%       10         5040000       25       2.98E-06       20999998.7       0.6258       20999999       20999999.4       0.00%       10         5250000       26       1.49E-06       20999999.4       0.3129       21000000       20999999.7       0.00%       10         5460000       27       7.4E-07       20999999.7       0.1554       21000000       20999999.8       0.00%       10         5670000       28       3.7E-07       20999999.8       0.0777       21000000       20999999.9       0.00%       10         5880000       29       1.8E-07       20999999.9       0.0378       21000000       20999999.9       0.00%       10         6090000       30       9E-08       20999999.9       0.0189       21000000       21000000       0.00%       10         6300000       31       4E-08       21000000       0.0084       21000000       21000000       0.00%       10	4410000	22	2.384E-05	20999990	5.0064	20999995	20999995	0.00%	100.00%
5040000         25         2.98E-06         20999998.7         0.6258         20999999         20999999.4         0.00%         10           5250000         26         1.49E-06         20999999.4         0.3129         21000000         20999999.7         0.00%         10           5460000         27         7.4E-07         20999999.7         0.1554         21000000         20999999.8         0.00%         10           5670000         28         3.7E-07         20999999.8         0.0777         21000000         20999999.9         0.00%         10           5880000         29         1.8E-07         20999999.9         0.0189         21000000         20999999.9         0.00%         10           6090000         30         9E-08         20999999.9         0.0189         21000000         21000000         0.00%         10           6300000         31         4E-08         21000000         0.0084         21000000         21000000         0.00%         10	4620000	23	1.192E-05	20999995	2.5032	20999997	20999997.5	0.00%	100.00%
5250000         26         1.49E-06         20999999.4         0.3129         21000000         20999999.7         0.00%         100           5460000         27         7.4E-07         20999999.7         0.1554         21000000         20999999.8         0.00%         100           5670000         28         3.7E-07         20999999.8         0.0777         21000000         20999999.9         0.00%         100           5880000         29         1.8E-07         20999999.9         0.0378         21000000         20999999.9         0.00%         100           6090000         30         9E-08         20999999.9         0.0189         21000000         21000000         0.00%         100           6300000         31         4E-08         21000000         0.0084         21000000         21000000         0.00%         100	4830000	24	5.96E-06	20999997.5	1.2516	20999999	20999998.7	0.00%	100.00%
5460000         27         7.4E-07         20999999.7         0.1554         21000000         20999999.8         0.00%         10           5670000         28         3.7E-07         20999999.8         0.0777         21000000         20999999.9         0.00%         10           5880000         29         1.8E-07         20999999.9         0.0378         21000000         20999999.9         0.00%         10           6090000         30         9E-08         20999999.9         0.0189         21000000         21000000         0.00%         10           6300000         31         4E-08         21000000         0.0084         21000000         21000000         0.00%         10	5040000	25	2.98E-06	20999998.7	0.6258	20999999	20999999.4	0.00%	100.00%
5670000         28         3.7E-07         20999999.8         0.0777         21000000         20999999.9         0.00%         10           5880000         29         1.8E-07         20999999.9         0.0378         21000000         20999999.9         0.00%         10           6090000         30         9E-08         20999999.9         0.0189         21000000         21000000         0.00%         10           6300000         31         4E-08         21000000         0.0084         21000000         21000000         0.00%         10	5250000	26	1.49E-06	20999999.4	0.3129	21000000	20999999.7	0.00%	100.00%
5880000         29         1.8E-07         209999999.9         0.0378         21000000         209999999.9         0.00%         10           6090000         30         9E-08         20999999.9         0.0189         21000000         21000000         0.00%         10           6300000         31         4E-08         21000000         0.0084         21000000         21000000         0.00%         10	5460000	27	7.4E-07	20999999.7	0.1554	21000000	20999999.8	0.00%	100.00%
6090000         30         9E-08         209999999.9         0.0189         21000000         21000000         0.00%         10           6300000         31         4E-08         21000000         0.0084         21000000         21000000         0.00%         10	5670000	28	3.7E-07	20999999.8	0.0777	21000000	20999999.9	0.00%	100.00%
6300000 31 4E-08 21000000 0.0084 21000000 21000000 0.00% 10	5880000	29	1.8E-07	20999999.9	0.0378	21000000	20999999.9	0.00%	100.00%
	6090000	30	9E-08	20999999.9	0.0189	21000000	21000000	0.00%	100.00%
6510000 32 2F-08 21000000 0.0042 21000000 21000000 0.00% 10	6300000	31	4E-08	21000000	0.0084	21000000	21000000	0.00%	100.00%
0510000 0E 2E 00 21000000 0.0042 21000000 21000000 0.00%	6510000	32	2E-08	21000000	0.0042	21000000	21000000	0.00%	100.00%
6720000 33 1E-08 21000000 0.0021 21000000 21000000 0.00% 10	6720000	33	1E-08	21000000	0.0021	21000000	21000000	0.00%	100.00%
6930000 34 0 21000000 0 21000000 21000000 0.00% 10	6930000	34	0	21000000	0	21000000	21000000	0.00%	100.00%





Data: Coin Metrics, Galaxy Research
As of Jan 4, 2024



The current halving cycle is ending, with the fourth halving anticipated to happen in mid to late April 2024. BTC performance is behaving like that of the past 2 cycles.

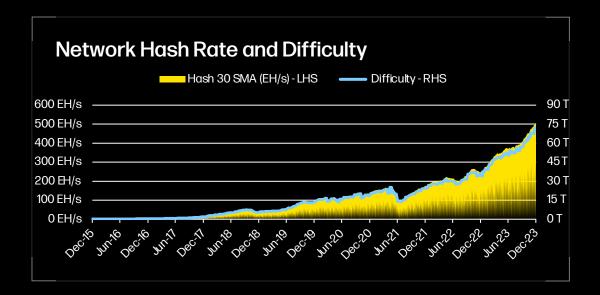
Using the pre-halving year low as a basis, the current price action observed in BTC is on pace with 2015 moving into the 2016 halving and 2019 moving into the 2020 halving.

At 364 days since the 2023 low, BTC price has rebounded 154%. This compares to 151% from the 2015 low and 186% from the 2019 low at the same time.

The previous 3 halving dates have come between 376 and 542 days after the low was notched.

2012 Halving: 376 days after the 2011 low 2016 Halving: 542 days after the 2015 low, 2020 Halving: 459 days after the 2019 low.

The 2024 halving is anticipated to take place 467 days after the 2023 low, putting it within 75 days of the 2016 halving date from the low and within 8 days of the 2020 halving from the low.



At the end of 2023 hash rate was trending around all-time highs of 505 Exahashes (EH/s). This is a signal that miners are pushing to get as much hash online before their rewards are reduced after the mid-April 2024 halving. Hash rate increased 103% from 248.5 EH/s to 505.3 EH/s in 2023. Adding 286 EH/s of raw hash power, the network added more hash rate in 2023 than the previous six years combined.

The network's elevated hash rate coincides with all-time highs in mining difficulty, or the number of hashes required to find a Bitcoin block. The greater the difficulty the more resources are required to mine BTC and the fiercer the competition between miners is. At the conclusion of 2023, the network required 72 trillion hashes of power to find a single block. This compares to 35.4 trillion hashes at the start of 2023.



Rising difficulty and hash rate that make mining more resource intensive and competitive present challenges for miners in the year ahead. This is expressed through hash price, which is a measure of miner revenue per unit of hash rate they have online per day, and the fees paid to miners.

Despite block reward remaining the same and fees paid by users clearing the 2021 peak (noted by heightened fee to block reward ratio), miners are earning 76% less revenue today than they were in October 2021 per unit of hash power they have online. This can be partially attributed to 36% decline in BTC price since then but is magnified by the growing competition between miners as new hash has come online.

The halving will further reduce possible miner income by 3.125 BTC per block, or 450 BTC per day. This can exacerbate the economic challenges faced by miners which can lead to some miners closing their doors. The consolidation, however, can bring mining difficulty to a more sustainable level that economically benefits the miners who stay online.