Bitcoin Mining & Energy

September 18, 2024

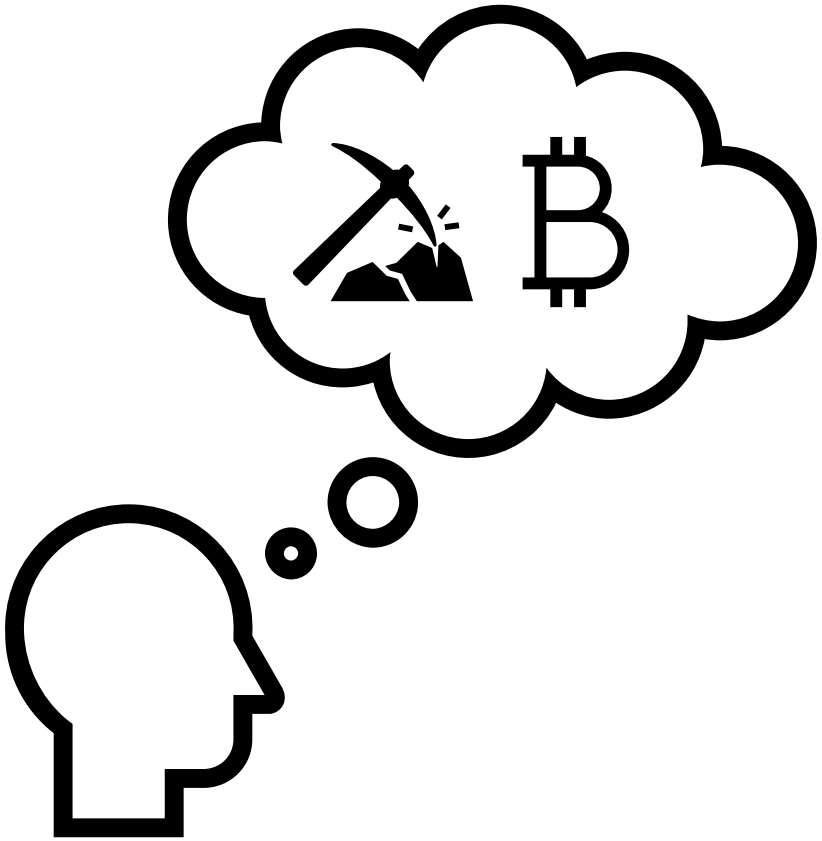
Bart Gnirk

- BSC Cybersecurity Student
- Went down the Bitcoin rabbit hole in 2020
- Founded the Bitcoin Research Club Fall 2023
  - Club President
- Former Helpdesk Security Analyst for Swan Bitcoin
- Started local meetup - Bismarck Bitcoin

What does the BSC Bitcoin Club do?

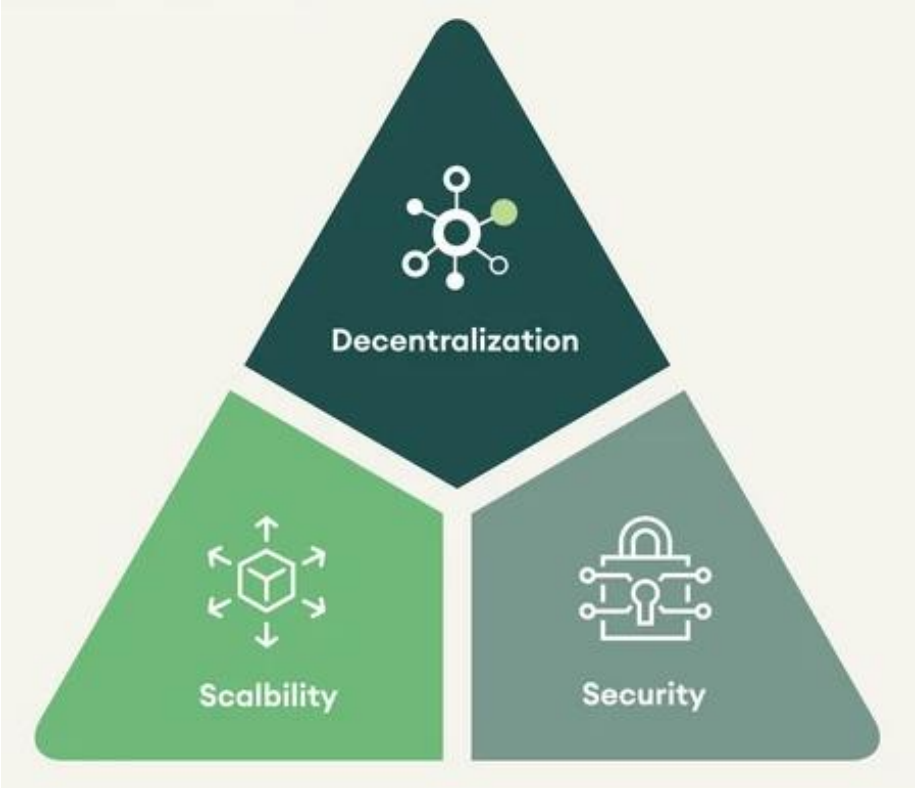
Study Bitcoin!	Bitcoin 101 Presentation	Volunteering
Conference Trip	Club Fair	Stranded Screening
Mystician interview	Financial Literacy week	Bitcoin Students Network

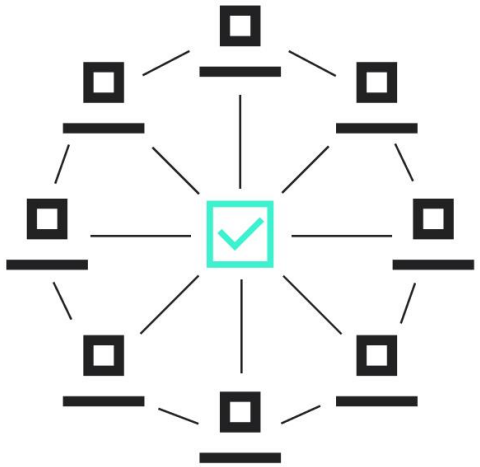
Why does Bitcoin Mining use Energy?



Bitcoin Mining Requires Energy

- Bitcoin mining requires energy for security
- Proof-of-Work algorithm necessitates energy consumption
- Energy trade-off for decentralization and security





Decentralized Consensus

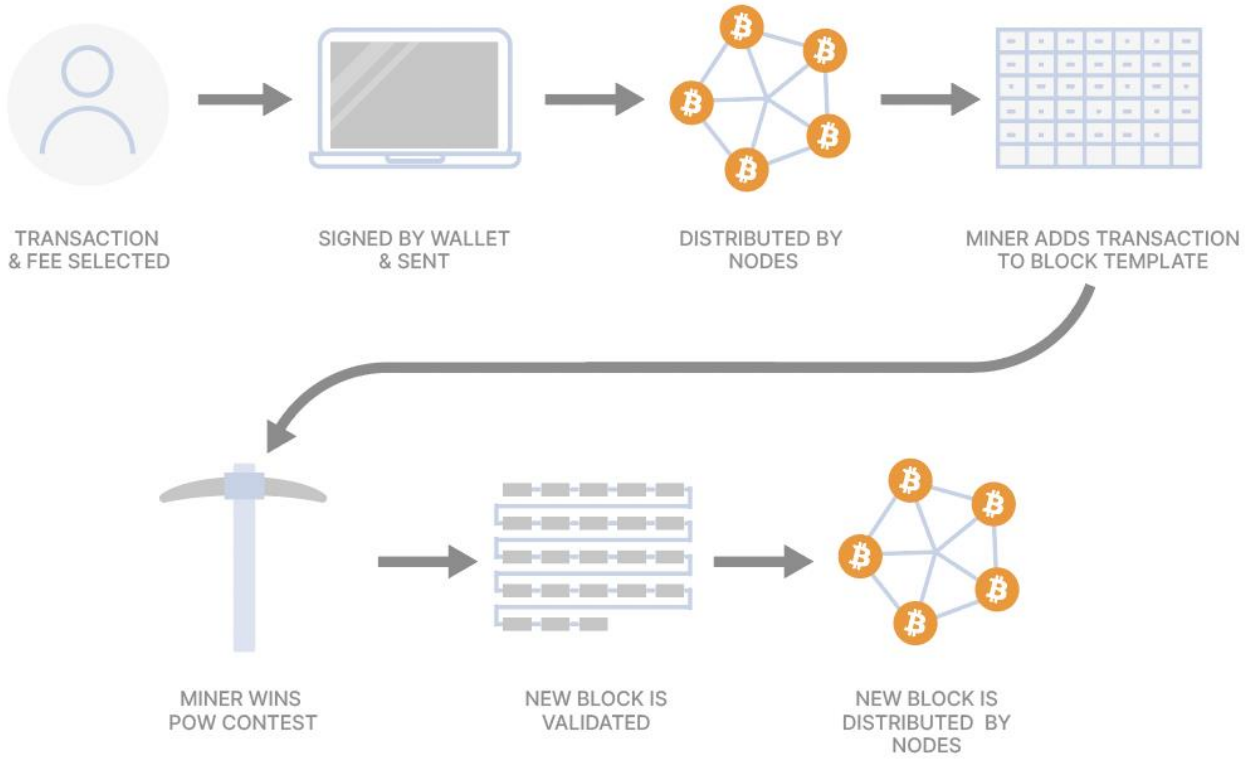
Centralized Consensus

Proof-of-Work

- Miner creates valid block to be compensated
- Network detects rule violations
- No need for trust between participants
  - Consensus Mechanism

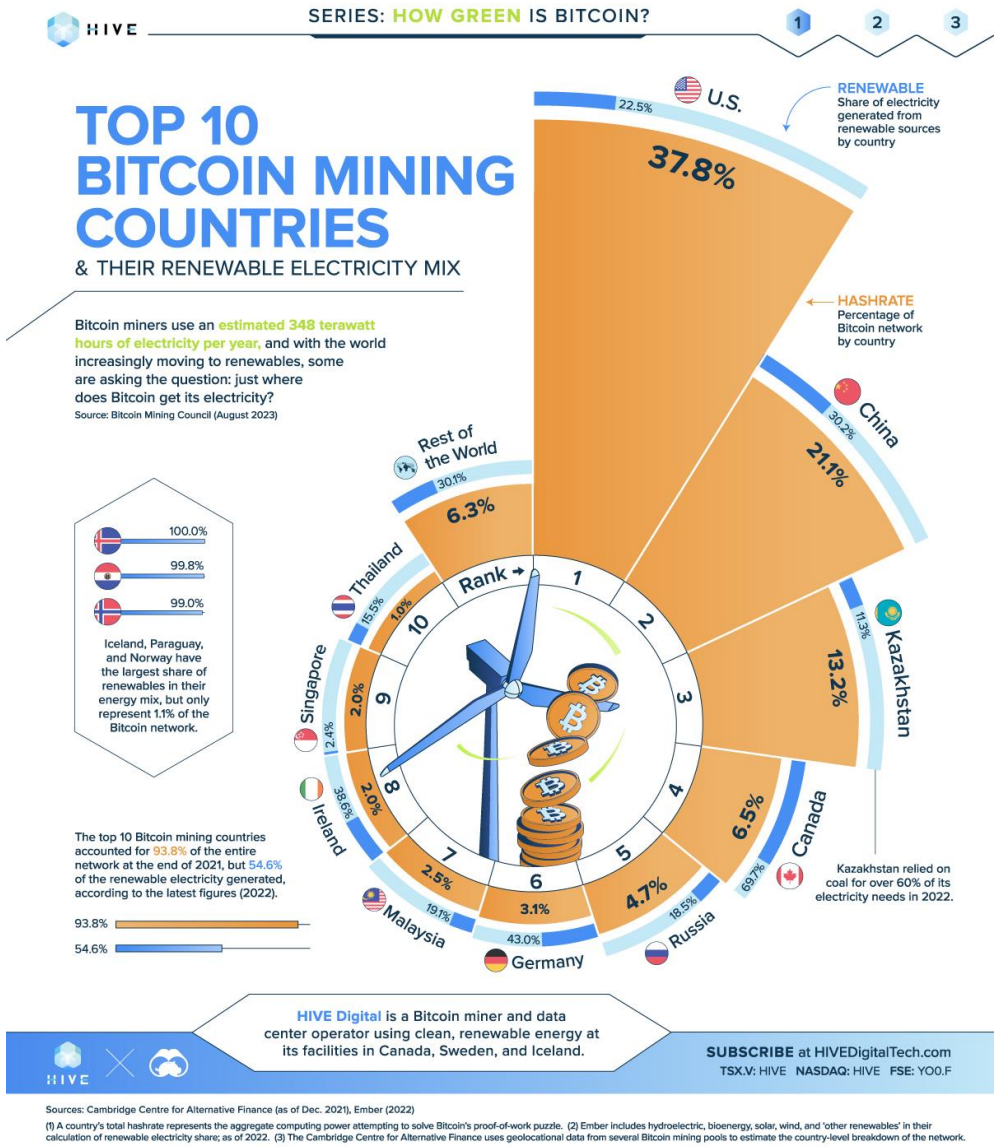
What if Miners try to cheat?

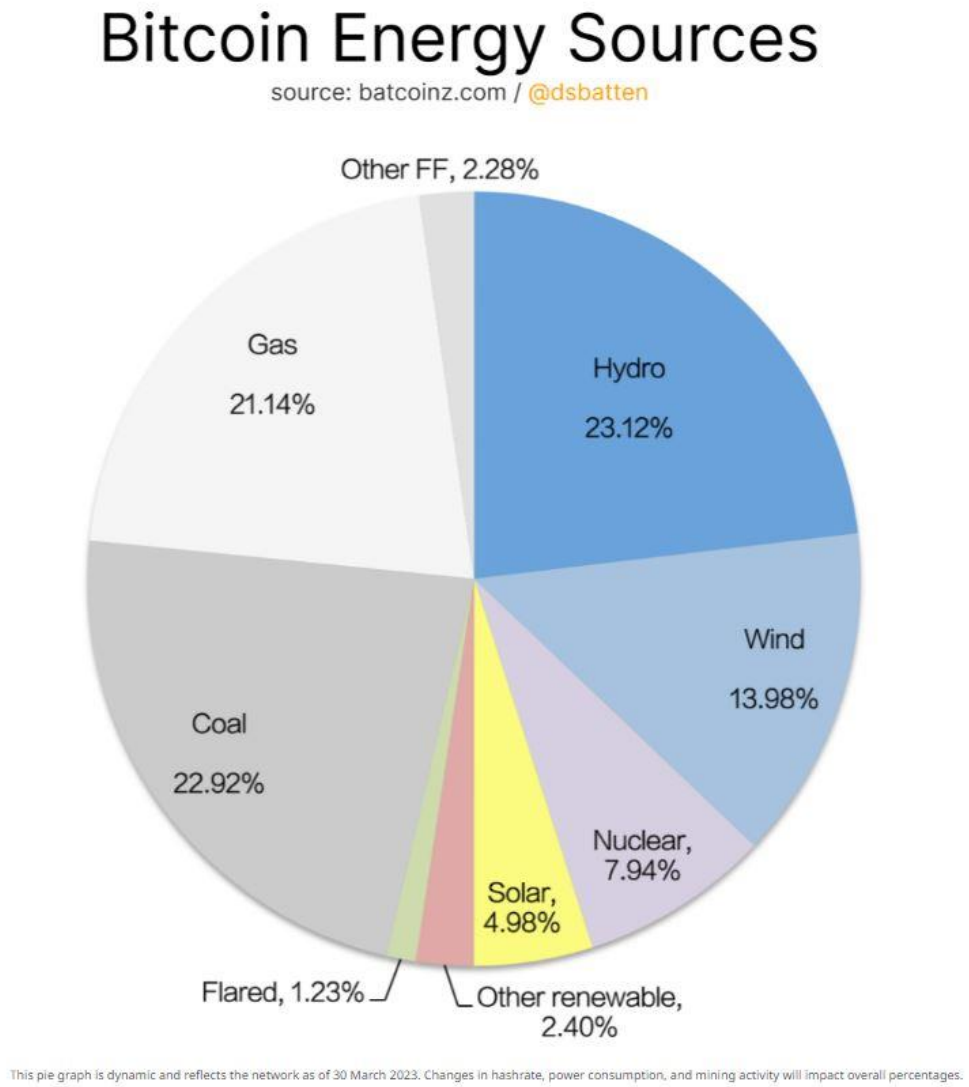
- Nodes detect invalid transactions
- Cheating miners lose reward
- Investment wasted if miner cheats



Renewable Energy

- Bitcoin mining: 58.4% renewable energy (Q1 2022)
- Cheaper renewables in remote locations
- Bitcoin miners have relocation flexibility





Energy Sources for Mining

- Flared-gas
- Landfill methane emissions
- Coal-based energy
- Solar
- Wind
- Hydroelectric
- Geothermal
- Nuclear

Texas paid bitcoin miner Riot $31.7 million to shut down during heat wave in August

PUBLISHED WED, SEP 6 2023•5:08 PM EDT | UPDATED THU, SEP 7 2023•9:58 AM EDT

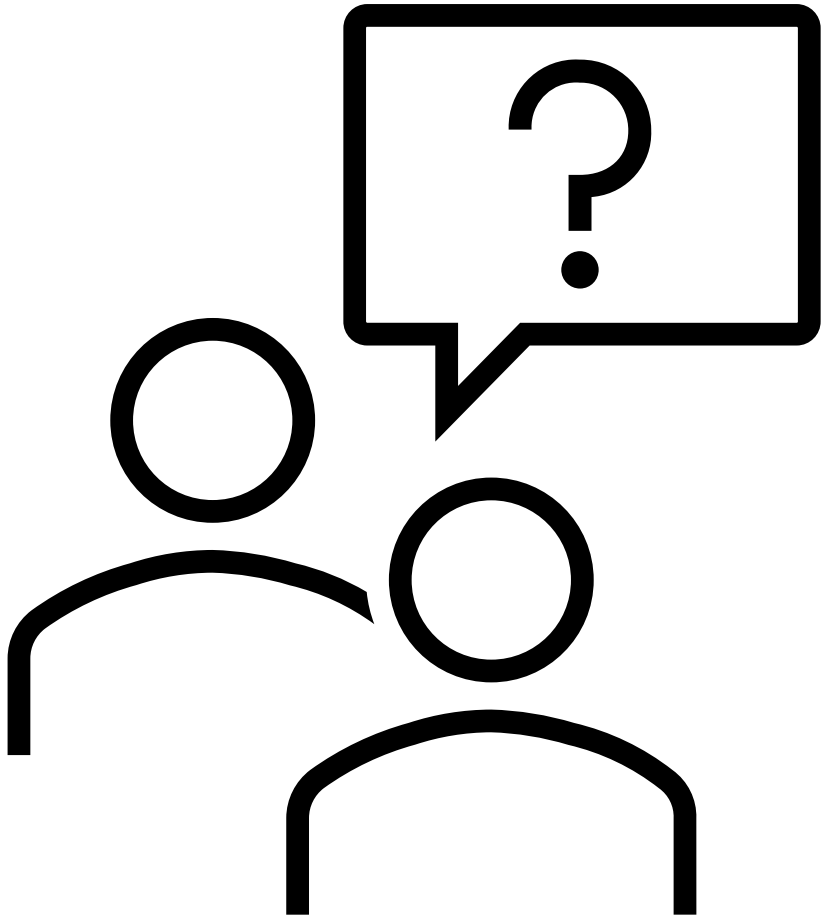
Enhancing Energy Grids

- Boosts energy providers' income
- Strengthens grids for near-max capacity
- Funds upgrades and improves balance sheets
- Solves community energy problems
- Miners can quickly shut off as needed

Key Takeaways

- Bitcoin secures transactions via energy consumption
- Energy cost deters bad actors
- Uses renewable energy and can strengthen grids
- AI and Bitcoin mining: A symbiotic relationship for the digital age

Questions



Monthly Bitcoin Meetup

BISMARCK

BITCOIN

BITCOIN LIGHTBULB MOMENT

Thank you!

Bitcoin Research Club
Mining for Knowledge