

THE STATE OF

# Bitcoin Mining in Ethiopia

PREPARED BY KAL KASSA  
MARCH 13, 2025



## **Legal Disclaimer**

Potential investors should conduct their own due diligence and consult with their financial, legal, and tax advisors before making any investment decision.

# Contents

<i>Executive Letter</i>	02
<i>Vital Numbers</i>	<a href="#"><u>03</u></a>
<i>Bitcoin Mining in Ethiopia</i>	04
<i>Registered Bitcoin Miners</i>	<a href="#"><u>07</u></a>
<i>Registered Data Centers</i>	<a href="#"><u>08</u></a>
<i>Substations and The Grid</i>	09
<i>Regulations and Bureaucracy</i>	10
<i>Case Studies</i>	12
<i>Recommended Sources</i>	13
<i>Events and Conferences</i>	15

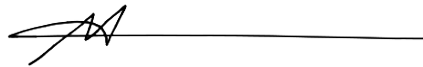
# Executive Letter

Dear Friends,

BitcoinBirr.org, founded in April of 2021, is a learning initiative to publish and distribute bitcoin education. The community's cornerstone is a [free to join Telegram group](#), with all content accessible on GitHub or YouTube. Our website and materials are licensed under "Attribution-NonCommercial-ShareAlike 4.0 International". BitcoinBirr is a registered Limited Liability Company (LLC) based in the State of Texas.

I look forward to welcoming bitcoin miners from around the world to support the renewable energy efforts in Ethiopia. And I look forward to see this industry grow from 600 MW to 1.5 GW over the next year.

Regards,

A handwritten signature in black ink, consisting of a stylized 'Y' and 'K' followed by a horizontal line.

[Yesukal "Kal" Kassa](#)

Founder and Educator, BitcoinBirr.org

# Vital numbers

## USD 3.2 cents/ kWh

The cost of electricity for bitcoin miners in Ethiopia as per 2024 will reach USD 3.6/ kWh cents after taxes. This is significantly less than the average price in other markets, making the cost of production for 1 bitcoin less than USD 10,000.

## USD 5.71/ day

The profit generated by one bitcoin miner (Device: Bitmain AntMiner S19 XP - 140 Th). According to the [NiceHash profitability calculator](#), the income of one server will yield USD 8.02 in revenue with USD 2.31 of electricity costs for a profit of USD 5.71.

## 600 megawatts

The amount of energy in Ethiopia currently being dedicated to secure the Bitcoin network, according to Ato Hiwot Eshetu, Director at the Ethiopia Electric Power (EEP). This demand is expected to grow to 1.5 gigawatt in the short term.

## 1.5 years

The return on investment (ROI) for a bitcoin mining project in Ethiopia. At present 27 companies have registered and 10 are operational. These operational facilities include West Data Group, BitCluster/ BWP, QRB Labs and others.

## USD 55 million

The amount of revenue achieved by Ethiopian Electric Power (EEP) from the sale of electricity to bitcoin miners in the past 10 months. In the next year, EEP expects to earn at least [USD 123 million](#) as more bitcoin miners come online.



# Bitcoin mining in Ethiopia

## AN INTRODUCTION

Bitcoin mining has been approved by the Ethiopian Investment Commission (EIC) and Ministry of Trade for business licenses under the category of “cryptocurrency mining”. Since 2023 more than 25 companies have been approved to do business in Ethiopia. Roughly 11 are operational having collectively imported 200,000 hardware devices and today using more than 600 megawatts of energy across the country. Ethan Vera, Chief Operating Officer (COO) at Luxor Tech, estimates that within a few months the bitcoin mining industry in Ethiopia will be using 1 gigawatt of energy from Ethiopian Electric Power (EEP).

These bitcoin miners are setting up facilities adjacent to substations and utilizing power purchase agreements at 10 to 50 MW for small and medium sized investments, with two facilities currently buying 120 MW (Bitmain, Kilinto) and 150 MW (Canaan, Hawassa) respectively. The vast majority of the owners, operators, and hardware suppliers today are Chinese. With an increasing amount of investment interest has been seen from China, Russia, the United Arab Emirates, Germany, Belgium, the United States, the Netherlands, Canada, Venezuela and Paraguay.

### ENERGY REQUIREMENTS

#### Power Generation

- The ability for a country to generate power and effectively distribute that energy is paramount for a healthy bitcoin mining ecosystem.

#### Optimal Substation Capacity Planning

- A bitcoin mining facility is often in very close proximity to a substation, often adjacent to EEPs property and sharing access roads.

#### Transformers and Power Distribution Units

- Next to bitcoin mining hardware, transformers and other electrical equipment are a major capital expenditure requiring technical supervision and routine maintenance. A large facility may have dozens of transformers and hundreds of PDUs.

### BITCOIN MINING HARDWARE

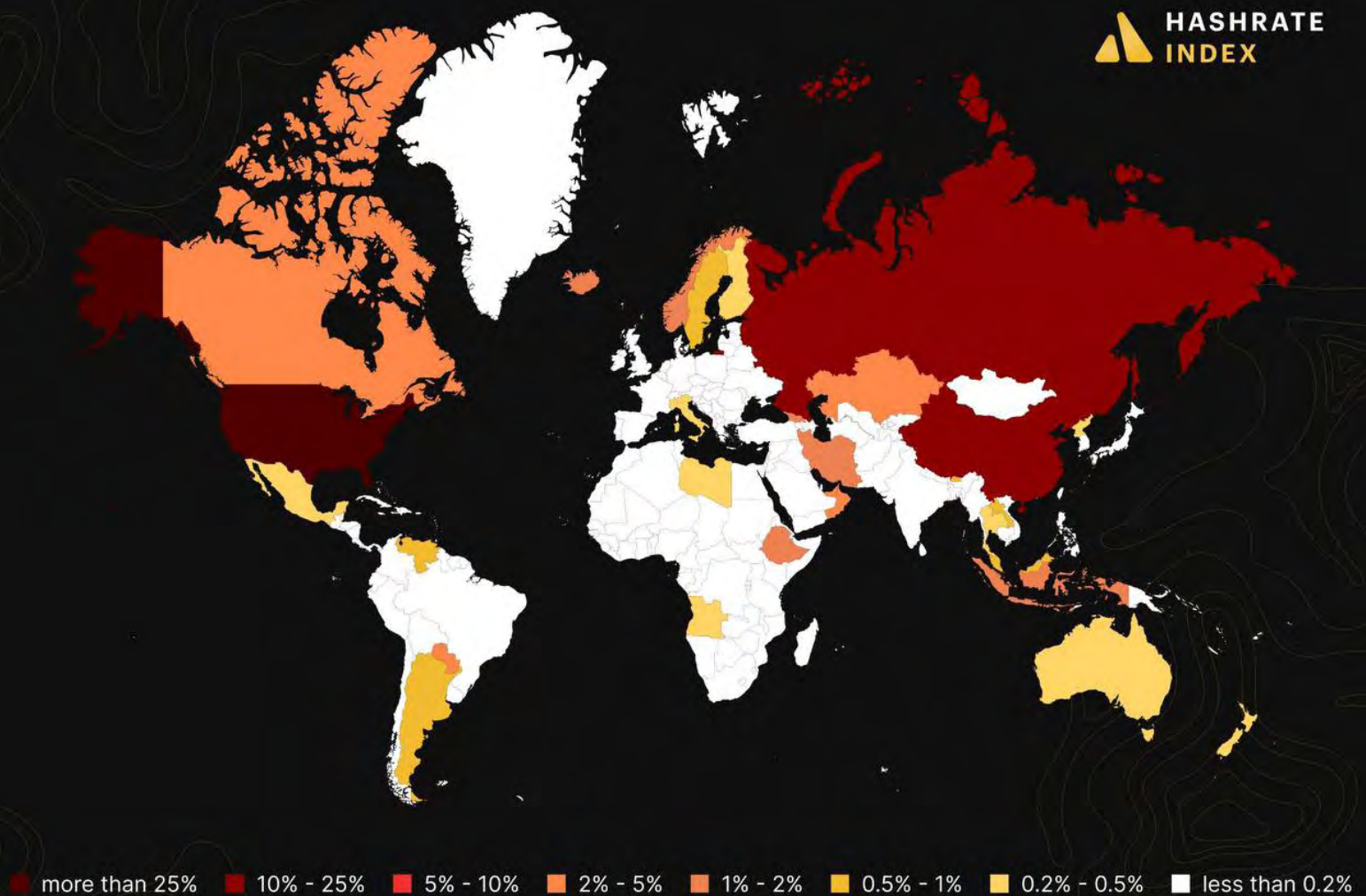
Bitmain is a privately owned company headquartered in Beijing, China that designs application-specific integrated circuit chips for bitcoin mining.

For example, the model “[AntMiner S19 XP \(140Th\)](#)” has daily income of USD 8.02. At EEP energy rates of USD 3.2 cents/ kWh, the daily electricity costs would be USD 2.31 for a profit of USD 5.71. This device can be found on various marketplaces for roughly USD 1,700 each but can also be procured in large quantities directly from China. Other device makers include Canaan and MicroBT, also from China. In addition to air-cooled, water-cooled and immersion are other techniques used in bitcoin mining to cool down the mining equipment (mainly the hardware known as ASICs.)

# Heatmap of global bitcoin mining computing hashrate

## Hashrate Index, January 2025

Hashrate is the number of hashes computed per second by your mining hardware. 2.5% of the global bitcoin mining network is now being secured in Ethiopia.



# Registered Bitcoin Miners

SOURCED FROM THE ETHIOPIAN INVESTMENT COMMISSION (EIC)

1. *ALPHA DATA CENTER PLC*
2. *ASIC TECH DATA SOLUTION PLC*
3. *BTC DATA CENTER SERVICE PLC*
4. *BWP DATA CENTER & CLOUD SERVICE PLC*
5. *CENTURY COMPACT TRANSFORMER AND SWITCHGEAR MANUFACTURING PLC*
6. *COMPUTING ADDIS DATA CENTER PLC*
7. *CORELINK DATA CENTER PLC*
8. *FENFCHI DATA CENTER PLC*
9. *GEEK ZONE DATA CENTER PLC*
10. *GRID TECH ENERGIES PLC*
11. *HAN DONG*
12. *HEBEI XINLI ELECTRICAL EQUIPMENT CO LTD ETHIOPIAN BRANCH*
13. *INNO DATA CENTER PLC*
14. *NEW LAND DATA HOSTING SERVICE PLC*
15. *PENGXING DATA CENTER PLC*
16. *QRB LABS ICT SOLUTION PLC*
17. *SINO STEEL PLC*
18. *SRLH DATA CENTER PLC*
19. *SUNDATA WORLD PLC*
20. *TIAN GONG DATA CENTER SERVICE PLC*
21. *TRIANGLE BIG DATA ONE-MEMBER PLC*
22. *WEST DATA CENTER SERVICE PLC*
23. *XDMT DATA CENTER PLC*
24. *YILIAN TECHNOLOGY CONSULTANCY PLC*
25. *YUAN YU DATA CENTER SERVICE PLC*
26. *YUN HAI DATA CENTER SERVICE PLC*
27. *ZHONG LONG DATA CENTER PLC*

# Registered Data or Cloud Services

SOURCED FROM THE ETHIOPIAN INVESTMENT COMMISSION (EIC)

1. AD DATA CENTER SERVICE PLC
2. AMITOP ICT SOLUTIONS PLC
3. ANHUI ANTAI TECHNOLOGY COMPANY LTD
4. AONE TECHNOLOGY PLC
5. ATEC INVESTMENT PLC
6. AVA LAB DATA CENTER PLC
7. BIT LAND DATA CENTER SERVICE PLC
8. BITCITY DATA CENTER SERVICES PLC
9. BITTON INFORMATION TECHNOLOGY ONE MEMBER PLC
10. BRIDGER DATA SOLUTIONS PLC
11. C DATA CENTER PLC
12. C.B.M SYSTEM INTERGRATORS PLC
13. CGRATE INTERNATIONAL PROPRIETARY LIMITED
14. DESS INC ETHIOPIA BRANCH
15. DRAGONMINER DATA MINING ONEMEMBER PLC
16. ELSEWEDY CABLES ETHIOPIA PLC
17. ETERNAL TECHENOLGY DATA CENTER PLC
18. GENESIS BIT DATA CENTER PLC
19. GINNOVEEICT SOLUTIONS AND SERVICE PLC
20. HASH DATA CENTER ONE MEMBER PLC
21. HEBEI XINLI ELECTRICAL EQUIPMENT CO LTD
22. HUAN YU DATA CENTER SERVICE PLC
23. HUIHAO CHEN
24. JIA ER DATA CENTER PLC
25. JMX GENBI LABS PLC
26. KMD DATA CENTER SERVICE PLC
27. MATICZ DATA CENTER PLC
28. NEW LAND DATA CENTER HOSTING SERVICE PLC
29. PENGXING DATA CENTER PLC
30. PHOENIX CLOUD SERVICES ONE MEMBER PLC
31. RAXIO DATA CENTER PLC
32. REDFOX SOLUTIONS GROUP PLC
33. ROCKLAND OVERSEAS OFF SHORE SAL
34. ROFU DATA CENTER PLC
35. SEEYOO CLOUD DATE PLC
36. SEN SEN DATA CENTER SERVICE PLC
37. THE COMPUTING ADDIS DATA CENTE PLC
38. THREE M ENGINEERING PLC
39. UMINERS ETHIO DATA CENTER PLC
40. WHALE CLOUD TECHNOLOGY PLC
41. WINGU AFRICA DATA CENTER PLC
42. XIAOTONG LI
43. YILIAN TECHNOLOGY SOLUTION PLC
44. YONG ZNG

# Substations and The Grid

## ETHIOPIA'S GROWING TRANSMISSION NETWORK

### ETHIOPIAN ELECTRIC POWER

To support the extensive transmission network, EEP oversees 192 substations throughout Ethiopia. Additionally, there are 22 power generating stations also being overseen by EEP.

The purpose of a substation is to change the electric voltage so that it can be transported over long distances. Critical types include transmission, distribution and converter substations. There are four types of substations based on capacity;

#### Super High Voltage Substations

- > 500 kV

#### High Voltage Substations

- 66kV, 110kV, 220kV, and 500kV

#### Medium Voltage Substations

- 6kV, 10kV, 15kV, 22kV, and 36kV

#### Low Voltage Substations

- 0.2kV and 0.4kV

Lastly, there are also substations based on design and portability. These include; Mobile, Skid-Mounted Portable, and Smart Substations.

### SUBSTATION CONSTRUCTION VENDORS

In September 2022 it was announced that South Korea's [Hyosung Corporation signed an agreement with EEP](#) to carry out the construction of the South Electricity Grid Expansion Project.

A second South Korean company, Byucksan Power Co. Ltd., had also signed an agreement to consult on various works of the project, including the design. In November 2024, [Ethiopian Broadcast Corporation \(EBC\) documented the progress](#) of this USD 178 million project with a loan obtained from Korea Exim Bank.

### ETHIOPIA'S POTENTIAL

Ethiopia has a total identified economically feasible potential of 45 GW of hydropower and 10 GW of wind power. Ethiopia's electricity access for 2022 was 55%, a 0.8% increase from 2021.

# Regulations and Bureaucracy

## THE EIC, EEP, AND INSA

As for bitcoin mining in Ethiopia, there will generally be three offices involved in the establishment, import, and operations needed. These three foundational offices include the Ethiopian Investment Commission (EIC), the Ethiopian Electric Power (EEP), and the Information Network Security Administration (INSA).

### Ethiopian Investment Commission (EIC)

Like many foreign direct investments (FDI), the EIC will be responsible as the government “one-stop window” to support the application, business plan, initial capital investment, articles of association, and related documents for the legal registration of a private limited company (PLC). Additionally, given the aggressive power requirements of these projects, land (roughly 5,000 m<sup>2</sup>) near a substation will be allocated.

Over the past year facilities have been developed in Galan, Kilinto, [Bole Lemi](#), Hawassa and Wolaita Sodo.

### Ethiopian Electric Power (EEP)

More than 80% of a bitcoin miners operational expenses is electricity, so maintaining power-purchase agreements with the EEP will be paramount.

As of today, the electricity prices paid by bitcoin miners is set at a premium rate of USD 3.1 to 3.2 cents per kWh. After taxes, this may reach USD 3.6 to 3.8 cents per kWh.

### Information Network Security Administration (INSA)

Since the emergence of this industry, [INSA has been tasked with the approval of all containers](#) importing bitcoin mining hardware.

These devices consist of an application-specific integrated circuit (ASIC) that is optimized to compute a single function, in this case SHA-256 to utilize the proof-of-work feature that requires brute-force for the miners to earn revenue via a block reward and transaction fees.

Given the sometimes cumbersome shipping, import and customs procedures, some miners less experienced with Ethiopia’s bureaucracy have taken 3 to 4 months to complete a single import from time of procurement. While miners with much more experience with importing into Ethiopia have completed imports in 3 to 6 weeks.



# Case Studies

## FROM THE UNITED STATES, EL SALVADOR, & KAZAKHSTAN

### The United States

At present bitcoin miners in the United States account for more than 40% of the bitcoin network hashrate. Publicly traded companies with facilities in Texas, Georgia, New York, North Dakota and Pennsylvania and other low cost energy markets have taken an early lead.

Additionally, policy makers in the United States are increasingly more favorable to bitcoin, with President Donald Trump recently launching a national Strategic Bitcoin Reserve along with a vision that all future bitcoin should be “mined, minted and made in the United States.” And in May 2024, American publicly-traded bitcoin miner [Marathon partnered with Kenya’s Ministry of Energy and Petroleum](#) to develop the government’s renewable energy projects.

### El Salvador

El Salvador, with leadership from President Nayib Bukele, has adopted bitcoin as legal tender as of June 2021. Since then El Salvador has purchased more than 6,000 bitcoin and has roughly doubled their investment. Additionally [El Salvador has mined 474 bitcoin](#) since September 2021 using geothermal energy from the Tecapa volcano.

### Kazakhstan

Although the above two case studies are positive examples for how bitcoin mining can be used by nations, Kazakhstan is an example of what not to do. Bitcoin miners began arriving in Kazakhstan in 2017, attracted by the country’s cheap electricity prices, electricity surplus and unused industrial buildings from its Soviet-era. By the summer of 2021, this country with a population of just 19 million, had risen to be second in the world for contributing hash rate to the bitcoin network. But by January 2022, after a series of corruption scandals, power shortages, [protests and a growing deficit](#) for their energy grid, the government in [Kazakhstan effectively cut miners off from the national grid](#).

# Recommended Sources

## MISSION DRIVEN & OPEN-SOURCE

### The Little Bitcoin Book

- Educational material translated into [Amharic](#) and [Tigrinya](#)

### Bitcoin 101, 2022

- [Bitcoin presentation](#) and Q&A organized by Flawless Events at Hyatt Regency in Addis Ababa

### Ethiopian PKI Launch, 2024

- The Prime Minister of Ethiopia and INSA launch the Ethiopian National [Public Key Infrastructure \(PKI\)](#)

### Whitepaper, Translation into Amharic

- eCrypto releases [translation of the Bitcoin Whitepaper](#) into the Amharic language

### QRB Labs - Research and Development

- [Technical documents](#) from QRB Labs and GAMA

### Africa Bitcoin Mining Summit (ABMS), 2024

- Green Africa Mining Alliance (GAMA) hosts [the Africa Bitcoin Mining Summit \(ABMS\)](#) '24 at Kuriftu Resort in Entoto Park, Addis Ababa

### The Bitcoin Summit (TBS), 2024

- Kal Kassa of BitcoinBirr hosts [The Bitcoin Summit \(TBS\)](#) '24 at Sheraton Hotel in Addis Ababa

### Commercial Bank of Ethiopia, 2024

- Ethiopian Investment Holdings (EIH) [revamps CBE's boardroom with a bitcoin miner and investor](#) Ato Henok Assefa of Precise Consult

### Bitcoin Magazine, 2025

- ["Recounting Ethiopia's Bitcoin Developments in 2024"](#) published to highlight Ethiopia's efforts in bitcoin mining during the year 2024

### Unlock Ethiopia Potential, 2025

- Robert Luft of Potentia hosts [Unlock Ethiopia Potential](#) at Hyatt Regency Hotel in Addis Ababa

# Recommended Sources

## ADDITIONAL LEARNING CONTENT AND RECENT PUBLICATIONS

Bitcoin Mining Handbook [Brains](#)

Bitcoin Visualizer [BitFeed](#)

Bitcoin Dashboard [Clark Moody](#)

“5 Ways Bitcoin Mining Benefits Ethiopia” [Bitcoin Magazine](#)

“Transforming Ethiopia with Bitcoin Mining” [BitcoinBirr](#)

“Why Africa is crypto’s next frontier” [The Economist](#)

“Ethiopia: An African Paradise For Crypto Miners?” [Bloomberg](#)

“Tour of a Bitcoin Mining Facility in Ethiopia” [West Data Group](#)

“Ethiopia’s Bitcoin Mining Boom” [The Mining Pod](#)

“Why is Ethiopia a Major Hub for Bitcoin Mining?” [BBC Africa](#)

“Africa Produces 3% of Global Bitcoin Hashrate Via Renewables” [Forbes](#)

“Exploring Bitcoin Mining: Ethiopia’s 600MW Capacity Journey” [Africa Bitcoin Conference](#)

“BitCluster in Ethiopia: 120 MW Data Center” [BitCluster](#)

“Bitcoin Mining in Ethiopia”, [VOAA54](#)

“የኢትዮጵያን የታዳሽ ንግድ ሀብት ወደ ዶላር የሚቀይረው የቢትኮይን አሰማሚ”, [VOA Amharic](#)

# Events and Conferences

## UPCOMING EVENTS

### [Mining Disrupt Conference & Expo 2025](#)

Fort Lauderdale, FL (United States)

March 25 - 27, 2025

### [BitBlockBoom 2025](#)

Dallas, TX (United States)

April 3 - 6, 2025

### [Bitcoin Oasis 2025](#)

Dubai, UAE (United Arab Emirates)

April 28 - 29, 2025

### [Bitcoin Ireland Conference 2025](#)

Dublin, Ireland (Ireland)

May 24, 2025

### [Bitcoin 2025](#)

Las Vegas, NV (United States)

May 27 - 29, 2025

### [Bitcoin Asia 2025](#)

Hong Kong (Hong Kong)

August 28 - 29, 2025







[bitcoinbirr.org](https://bitcoinbirr.org)