Bitcoin Mining Consumes less Electricity than Fridges and TVs in the U.S.

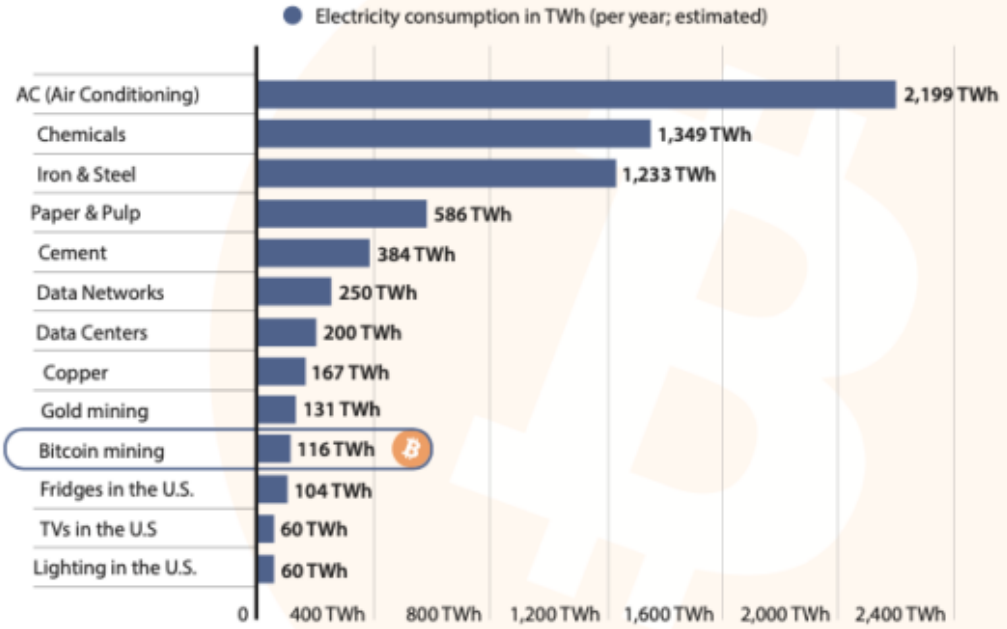
February 1, 2023. Kris Lucas

Bitcoin Mining Energy Consumption

Details: BitStacker collected data from Cambridge Center of Alternative Finance on bitcoin energy consumption relative to other uses of electricity. The numbers are estimates based on multiple sources, and checked by BitStackers research team on 30th of January, 2023.

Sources: ccaf.io, bitstacker.com

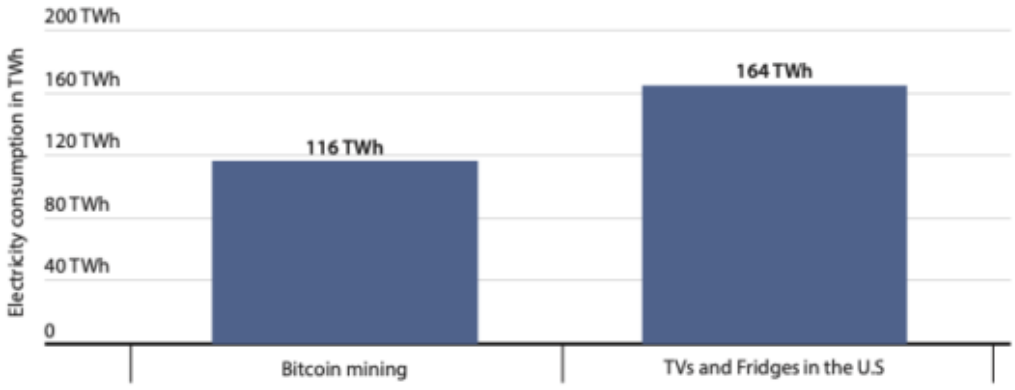
Estimated Global Yearly Electricity Consumption by Industry & Equipment



***Supplementary note:** Energy intensity estimates of gold mining on a global scale are difficult to verify and can vary considerably. This figure is based on an older estimate from 2006 which may not be representative of the state of the gold mining industry today. It nevertheless provides a useful input for modelling a simple baseline scenario that assumes little infrastructural upgrades in gold mines over the last decade.

TVs & fridges in the U.S. consume more electricity than Bitcoin mining

(Estimated yearly consumption in TWh)



TVs & Fridges Use More Energy Than Bitcoin Mining

American's spend over 40% more electricity on TVs and fridges compared to bitcoin mining.

AC Amongst the Biggest Consumption of Electricity

Air conditioning is amongst the biggest electicity consumptions in the US, being over 19 times higher than bitcoin mining.

A recent report has found that the mining of Bitcoin consumes less electricity than that of all of the refrigerators and televisions in the U.S.

The report produced by BitStacker also found that Bitcoin mining consumes up to 19x less energy than air conditioning, as well as industrial activities such as the production of chemicals, iron and steel, and paper and pulp.

The study was based on estimates provided by the Cambridge Centre for Alternative Finance. It covers the total electricity consumption in TWh per year for a variety of industries and equipment, and shows that Bitcoin mining is not as energy-intensive as a range of household products and industrial activities.

Bitcoin mining was estimated Bitcoin mining was estimated to have consumed 116 TWh per year which is a mere fraction of air conditioning that consumed 2,199 in TWh over the same period. Air conditioning was the most energy-intensive category of industry or equipment in the report.

The energy consumption of refrigerators in the US accounted for 104 TWh with televisions in the country accounting for 60 TWh. While both of these figures are less than that of Bitcoin's energy usage, they add up to be more than the total of the electricity consumed when mining the cryptocurrency.

Bitcoin Energy Consumption Compared to Industrial Activities

The mining of Bitcoin was also much less energy-intensive than that over several major industrial activities. The production of chemicals accounted for 1,349 TWh in electricity consumption, which was followed by 1,233 TWh for the production of iron and steel. Other industrial activities covered in the study include paper and pulp which used 586 TWh, and cement which consumed 384 TWh in electricity.

The report also compared Bitcoin mining with the mining of precious metals. Again, Bitcoin's 116 TWh of electricity consumed was less than the 167 TWh used in the production of copper, as well as the 131 TWh for gold mining. The comparison of Bitcoin mining with gold mining is interesting as the cryptocurrency has been touted as being a kind of 'digital gold'. While the study hints at the fact that Bitcoin is less energy- intensive than gold, it should be noted that energy intensity estimates for gold mining on a global scale are notoriously hard to verify. Plus the figure used for gold mining was based on statistics from

2006 which might not represent the true figure of the gold mining industry today.

Impact on the Perceptions of Bitcoin's Energy Usage

Many perceive Bitcoin mining as a particularly energy-intensive activity. The harmful environmental impact has been a major reason as to why the cryptocurrency has received a lot of negative publicity. However, the report shows that Bitcoin mining still consumes less electricity than the 250 TWh used by data networks, and the 200 TWh used by data centers. While Bitcoin mining uses more energy than the 60 TWh of lightning in the US, the report could balance out some of the negative attention that the cryptocurrency has received. It should be noted the difficulties of comparing the energy used for Bitcoin mining with household appliances, and the fact that such comparison studies are open to a degree of subjectivity. But the overall theme is that the mining of Bitcoin consumes just a fraction of the energy used for many activities in daily life.