

# Bitcoin Mining

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**In News:** The annual carbon footprint of Bitcoins is almost equivalent to that of Mumbai, or to put it to a global perspective, as high as the carbon footprint of Slovakia.

## Bitcoin Mining

- By mining, you can earn cryptocurrency without having to put down money for it.
- Bitcoin miners receive Bitcoin as a reward for completing “blocks” of verified transactions which are added to the blockchain.
- Mining rewards are paid to the miner who discovers a solution to a complex hashing puzzle first, and the probability that a participant will be the one to discover the solution is related to the portion of the total mining power on the network.
- You need either a GPU (graphics processing unit) or an application-specific integrated circuit (ASIC) in order to set up a mining rig.

## Relation between creating Bitcoins and Electricity

- Bitcoins are created by “mining” coins, for which high-tech computers are used for long hours to do complex calculations.
- The more coins there are in the market, the longer it takes to “mine” a new one and in the process, more electricity is consumed.
- In 2017, the Bitcoin network consumed 30 terawatt hours (TWh) of electricity a year.
- According to de Vries’s estimates, the network currently uses more than twice as much energy: between 78TWh and 101TWh, or about the same as Norway. As such, each bitcoin transaction roughly requires an average 300kg of carbon dioxide – which is equivalent to the carbon

footprint produced by 750,000 credit cards swiped.

## Calculating the Carbon Footprint

- The major problem with mining Bitcoin is not its massive energy-consumption nature, it is the fact that most of the mining facilities are located in regions that rely heavily on coal-based power.
- However, in 2017, a study by Garrick Hileman and Michel Rauchs identified these facilities and calculated consumption of 232 megawatts a year.
- As per the estimates of De Vries, roughly 60% of the costs of bitcoin mining is the price of the electricity used.
- In January, the price of a Bitcoin stood at \$42,000 and at this rate, miners would be earning around \$15 billion annually.
- The paper cites an assumption of 480-500g of carbon dioxide produced for every kWh consumed. That would mean a total energy consumption of 184TWh would result in a carbon footprint of 90.2 million metric tons of CO<sub>2</sub>, which is roughly comparable to the carbon emissions produced by London.