

# MINING FOR VIRTUAL GOLD

Tech-savvy investors obsess about fluctuations in cryptocurrency markets; consumers school themselves on all the newly minted coinage; and fintech firms fear the arrival of heavy-handed regulation that could stifle innovation. But where does all the cryptocurrency come from in the first place? Crypto mining receives relatively little attention, but the sector would be nothing without this energy-hungry process

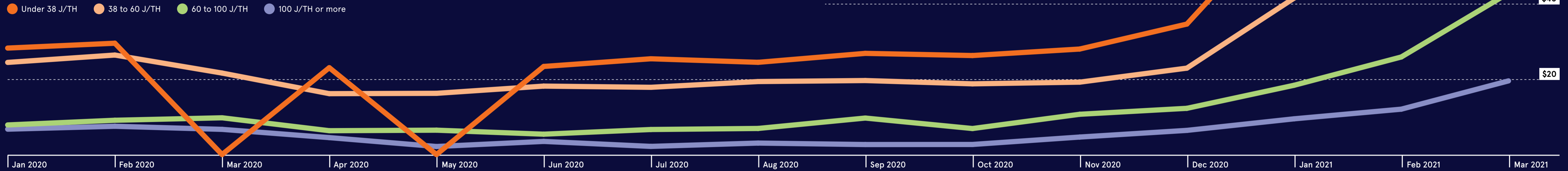
## What is a terahash?

In crypto mining, computers attempt to solve mathematical problems by continually trying new numbers (called nonces) in an equation. Computers win mining rewards by finding a nonce that, when plugged into the equation, gives an answer that matches an answer presented at the outset. A hash is the term for one calculation using a random nonce to find the correct answer. A terahash is 1 trillion of these calculations.

### CRYPTO MINING IS BECOMING MORE COSTLY

Price of customised computer hardware used to mine cryptocurrencies (\$ per terahash) at various power efficiency settings (joules per terahash)

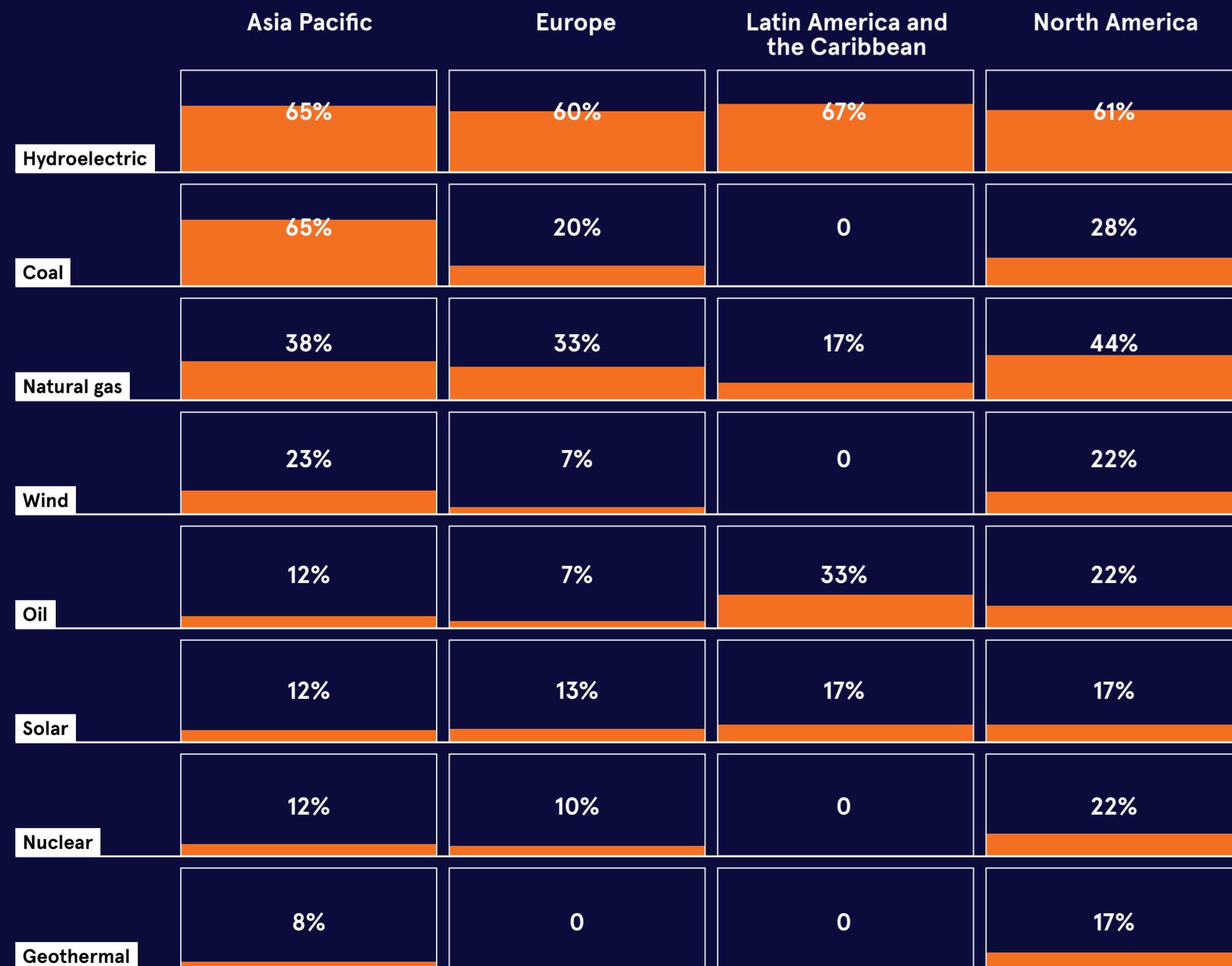
Hashrate Index, 2021



### HYDROELECTRICITY POWERS MOST CRYPTO MINING AROUND THE WORLD

Distribution of crypto hasher energy sources in 2020, by region

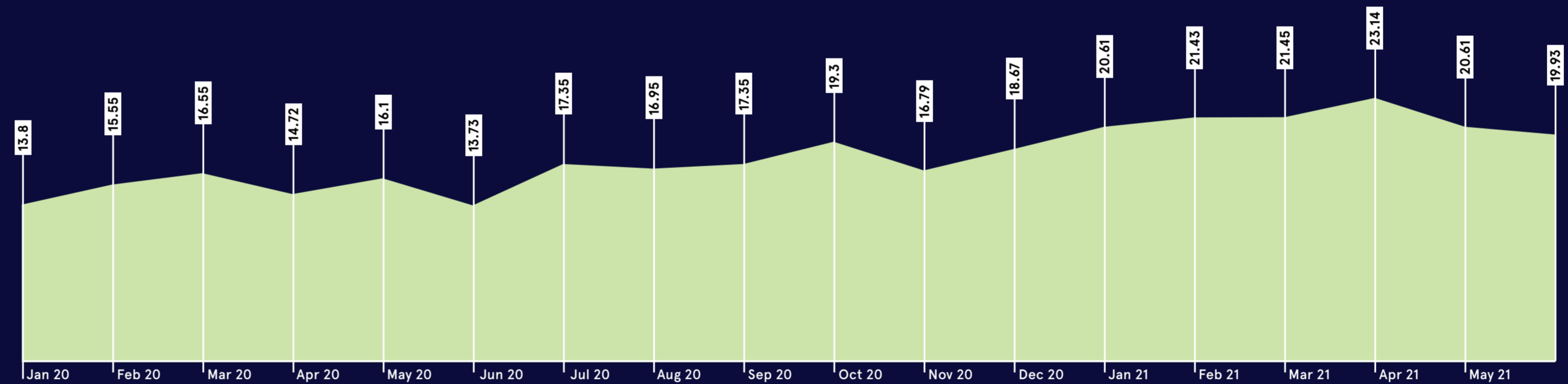
Cambridge Judge Business School, 2020



### THE HIGHER THE 'DIFFICULTY', THE MORE COMPUTING POWER IT TAKES TO MINE

Amount of processing power applied to mining new bitcoins (terahash)

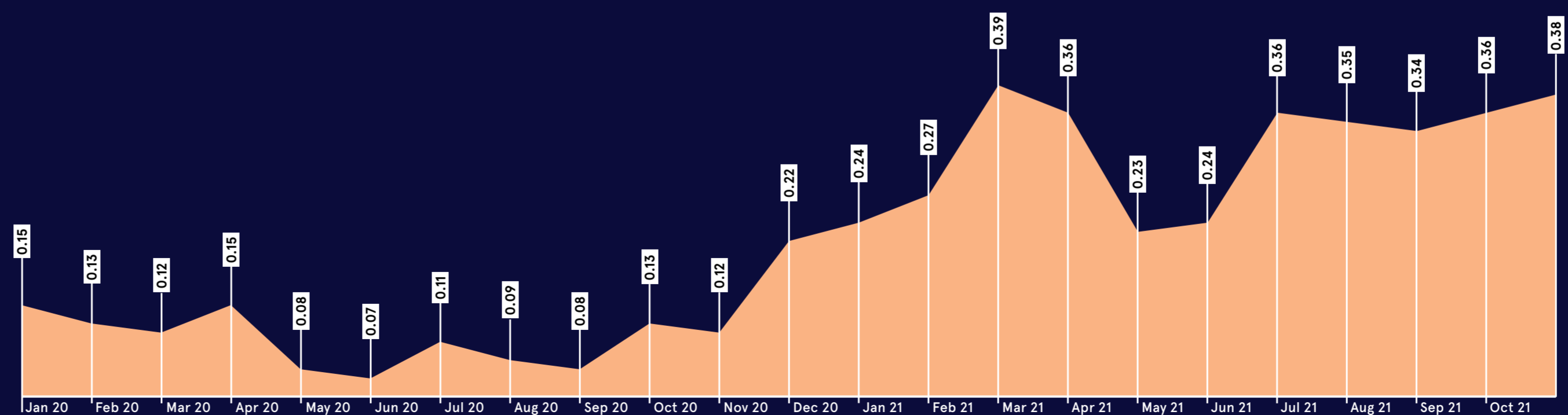
BTC.com, 2021



### THE PROFITABILITY OF MINING DEPENDS ON TRANSACTION FEES, HARDWARE EFFICIENCY AND ENERGY CONSUMPTION

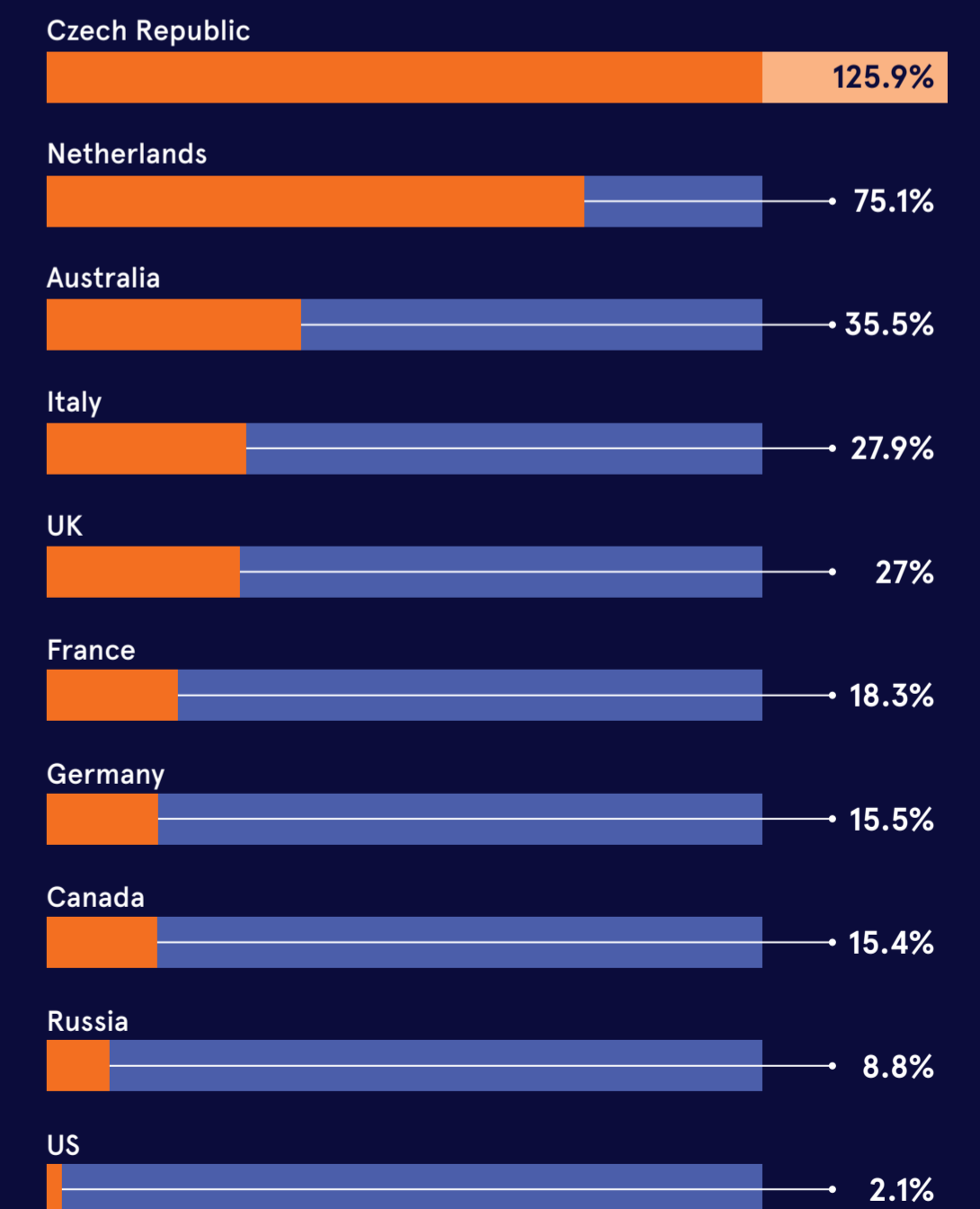
Mining profitability of bitcoin for one terahash (\$ per day)

BitInfoCharts, 2021



### THE ENERGY USED BY BITCOIN COULD LITERALLY POWER A NATION

Energy consumption of bitcoin compared with energy consumption in selected countries in March 2021



Digiconomist, 2021