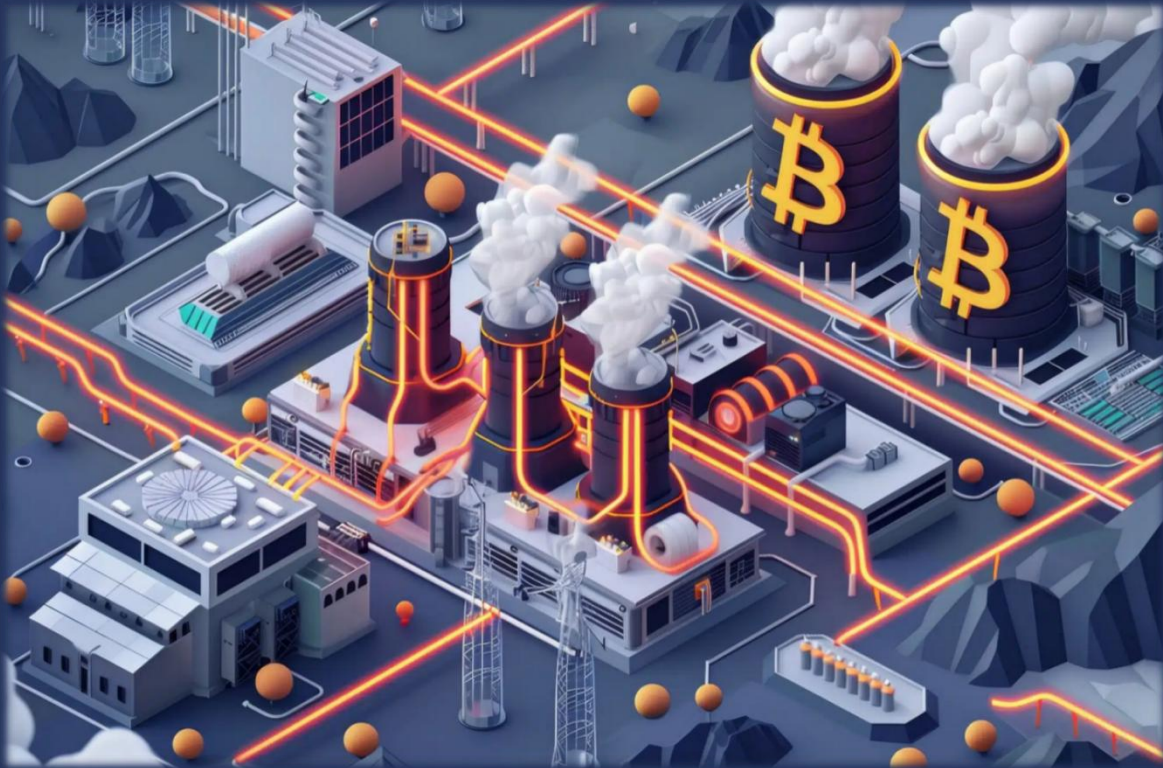




Nottingham  
Business School



# Carbon Footprint of Artificial Intelligence (AI), FinTech and Crypto Industry

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# Learning Outcomes

- Footprints of Artificial Intelligence (AI): Carbon Footprint (CFP), Energy Footprint (EFP), and Water Footprint (WFP)
- Global Electricity Demand and Carbon Footprint of Artificial Intelligence (AI)
- Carbon Footprint of FinTech and Crypto Industry
- **Case Study 1.** Bitcoin: Proof-of-Work (PoW) Blockchain and Carbon Footprint
- **Case Study 2.** Ethereum: Proof-of-Stake (PoS) Blockchain and Carbon Footprint
- **Research Activity 2.** [ Brainstorming: Carbon Footprint of AI, FinTech and Crypto Industry: The Regional and International Levels ]

# Energy Footprint (EFP)

- 1) **Energy Footprint** (EFP) is the total amount of CO<sub>2</sub> and the equivalent amount of other greenhouse gases emitted over the full life cycle of a process or product (POSTnote 268, 2011\*).
- 2) **Energy Footprint** (EFP) is the sum of all areas used to provide non-food and non-feed energy, such as land used for hydropower, cultivated land for energy and fuel crops, and land for forest wood fuel (The Global Footprint Network, GFN, 2009\*\*).

\* Source: Houses of Parliament, 2011, available at

[https://www.parliament.uk/globalassets/documents/post/postpn\\_383-carbon-footprint-electricity-generation.pdf](https://www.parliament.uk/globalassets/documents/post/postpn_383-carbon-footprint-electricity-generation.pdf)

\*\* Source: The Global Footprint Network (GFN), 2009, available at

[https://www.footprintnetwork.org/content/uploads/2019/05/Ecological\\_Footprint\\_Standards\\_2009.pdf](https://www.footprintnetwork.org/content/uploads/2019/05/Ecological_Footprint_Standards_2009.pdf)

# Carbon Footprint (CFP) and Water Footprint (WFP)

- **Carbon Footprint** (CFP) represents the demand for non-renewable energy resources (Palmer and Pete, 1998\*).
- **Water Footprint** (WFP) defined as the total volume of direct and indirect freshwater used, consumed and/or polluted (Hoekstra and Chapagain, 2007\*).

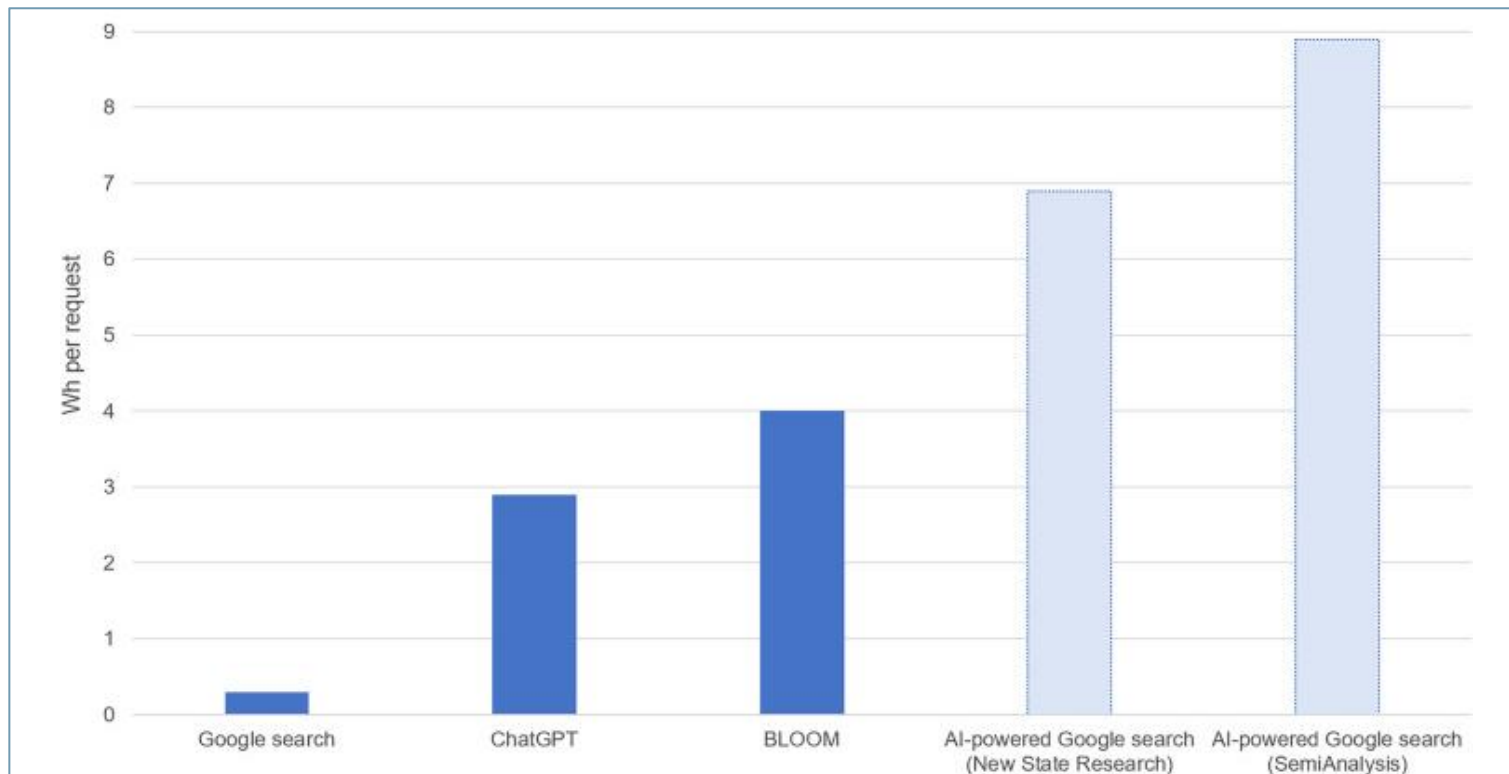


\* Source: Handbook of Process Integration (PI). Minimisation of Energy and Water Use, Waste and Emissions. Woodhead Publishing Series in Energy, 2013, pp. 28-78



# Artificial Intelligence (AI): Energy Consumption

**Fig. 1. Estimated Energy Consumption per request for various AI-powered systems compared to a standard Google search \***

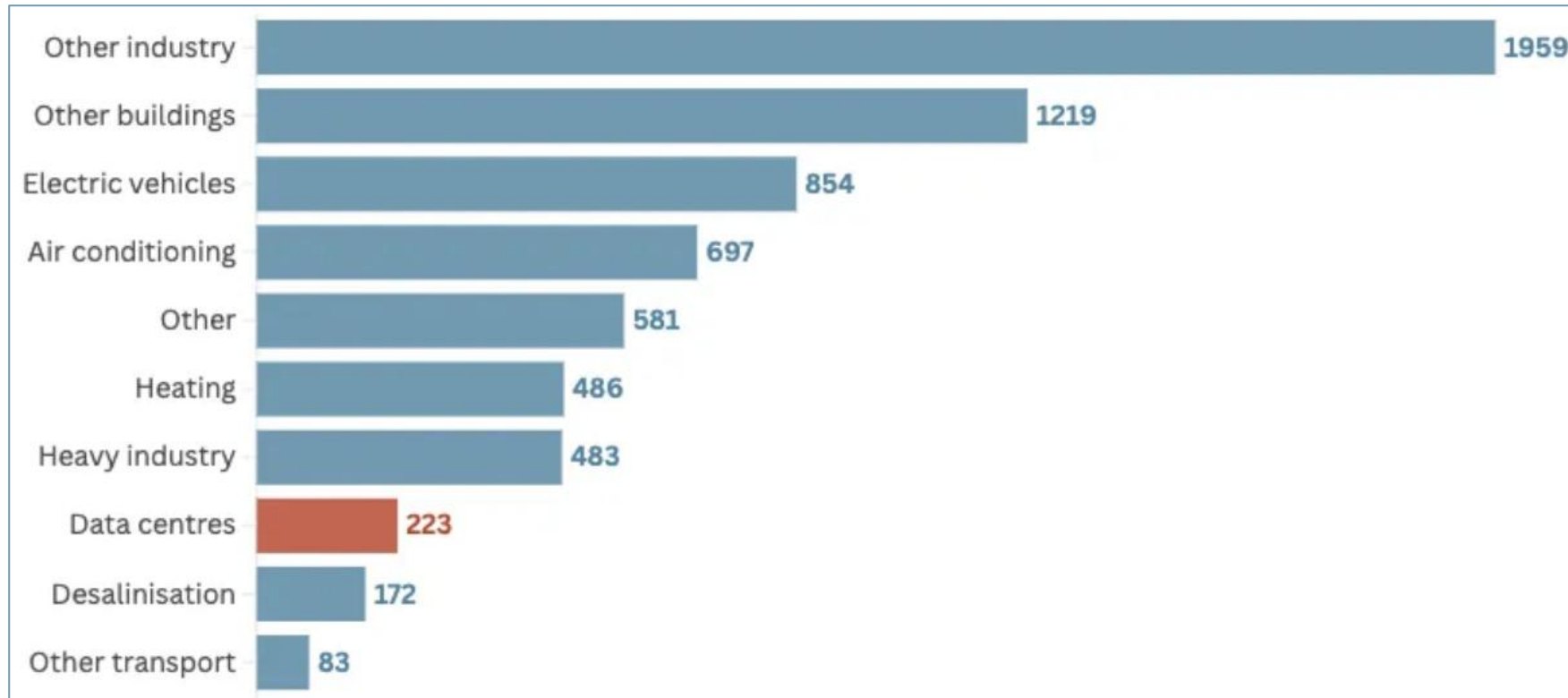


The comparison of the various estimates for the electricity consumption of interacting with an LLM alongside that of a standard Google search.

\* Source: Alex de Vries (2023) 'The growing energy footprint of artificial intelligence'. Joule, 7(10), pp.2191-2194

# Projected Global Electricity Demand: 2023 - 2030

**Fig. 2. Projected Growth in Global Electricity Demand from 2023 to 2030\***

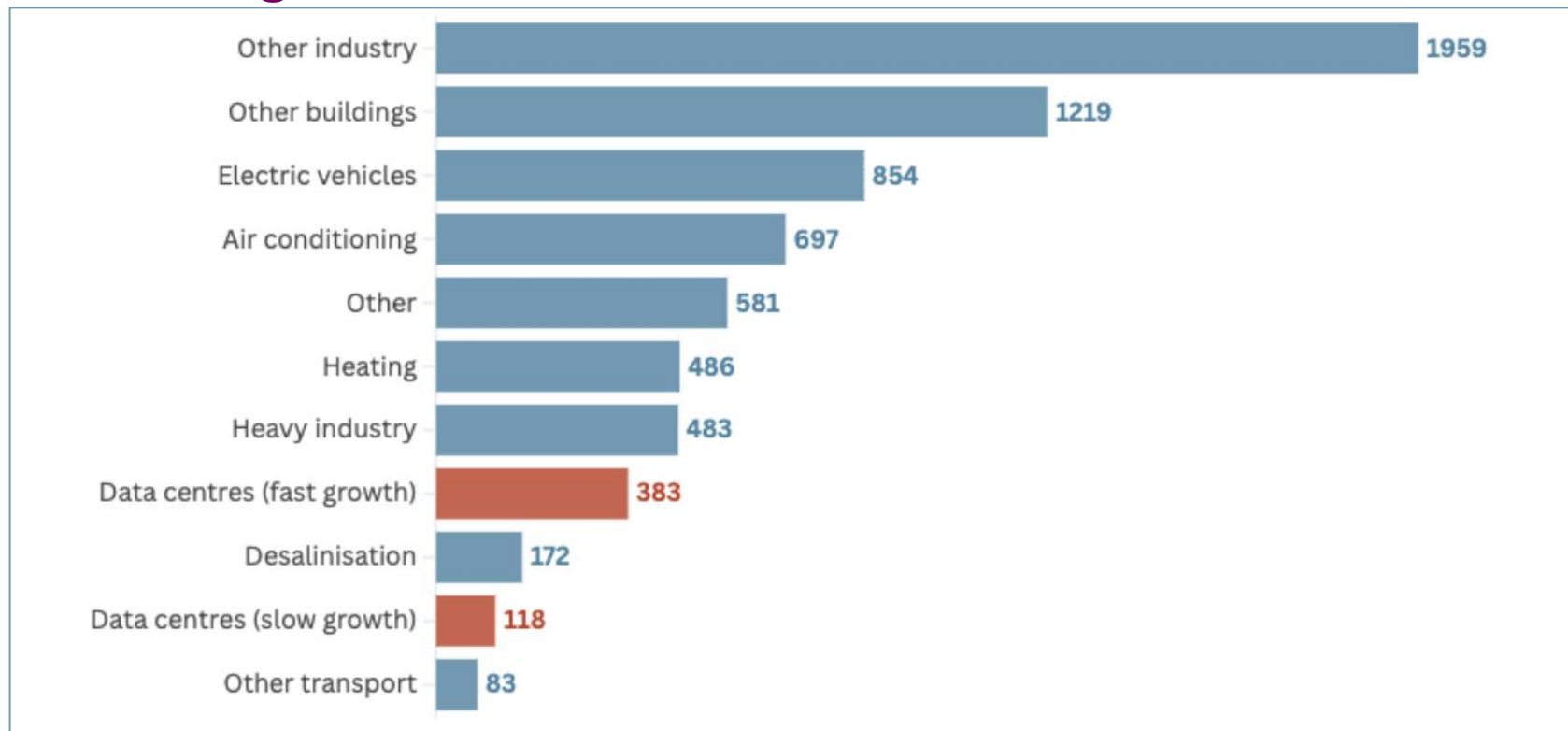


Projections from the International Energy Agency (IEA) based on stated policies. Measured in terawatt-hours (TWh)

\* Source: International Energy Agency (IEA), World Energy Outlook 2024.

# Projected Global Electricity Demand: 2023 - 2030 (2)

**Fig. 3. Projected Growth in Global Electricity Demand from 2023 to 2030, with fast and slow growth scenarios for data centers \***

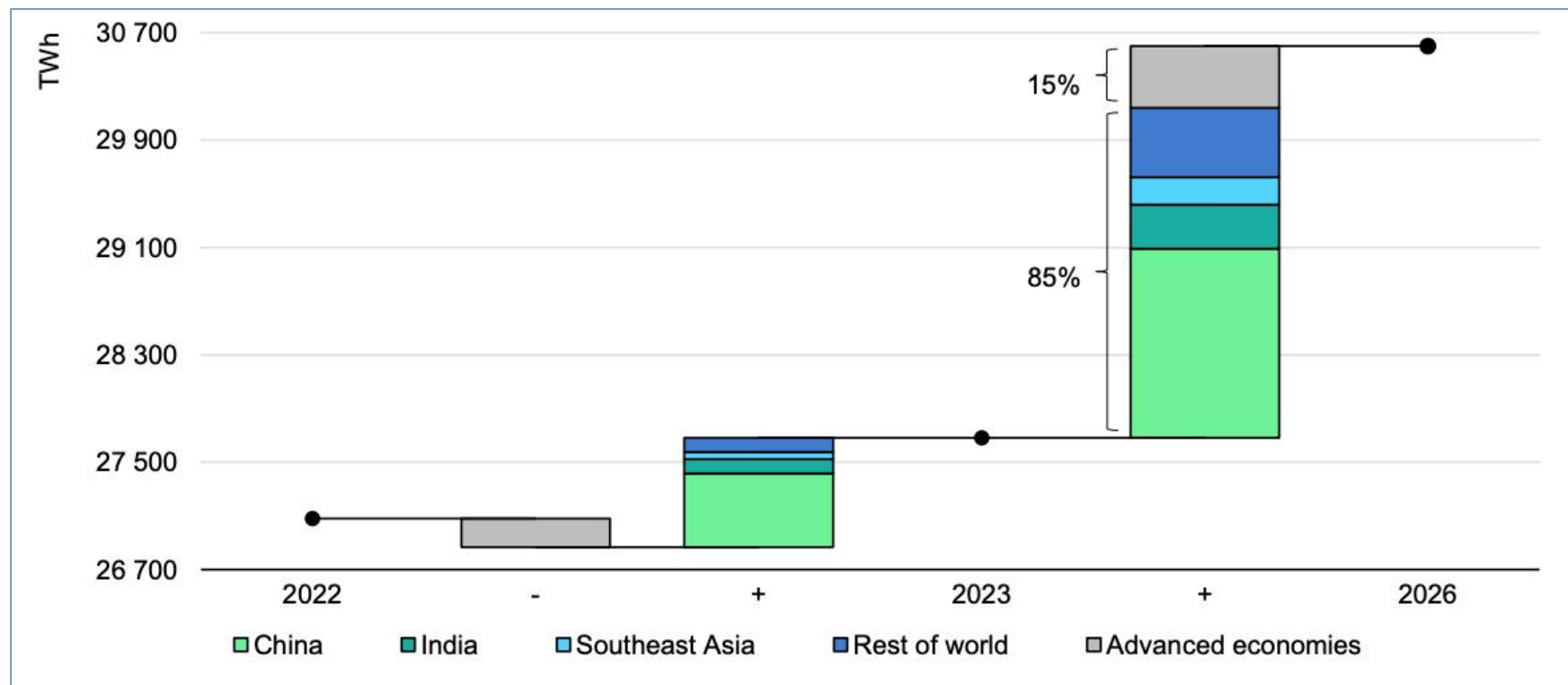


Projections from the International Energy Agency (IEA) based on stated policies. Measured in terawatt-hours (TWh)

\* Source: International Energy Agency (IEA), World Energy Outlook 2024.

# Global Electricity Demand: 2022 - 2026 \*

**Fig. 4. Year-on-Year: Change in Electricity Demand by Region, 2022-2026 \***



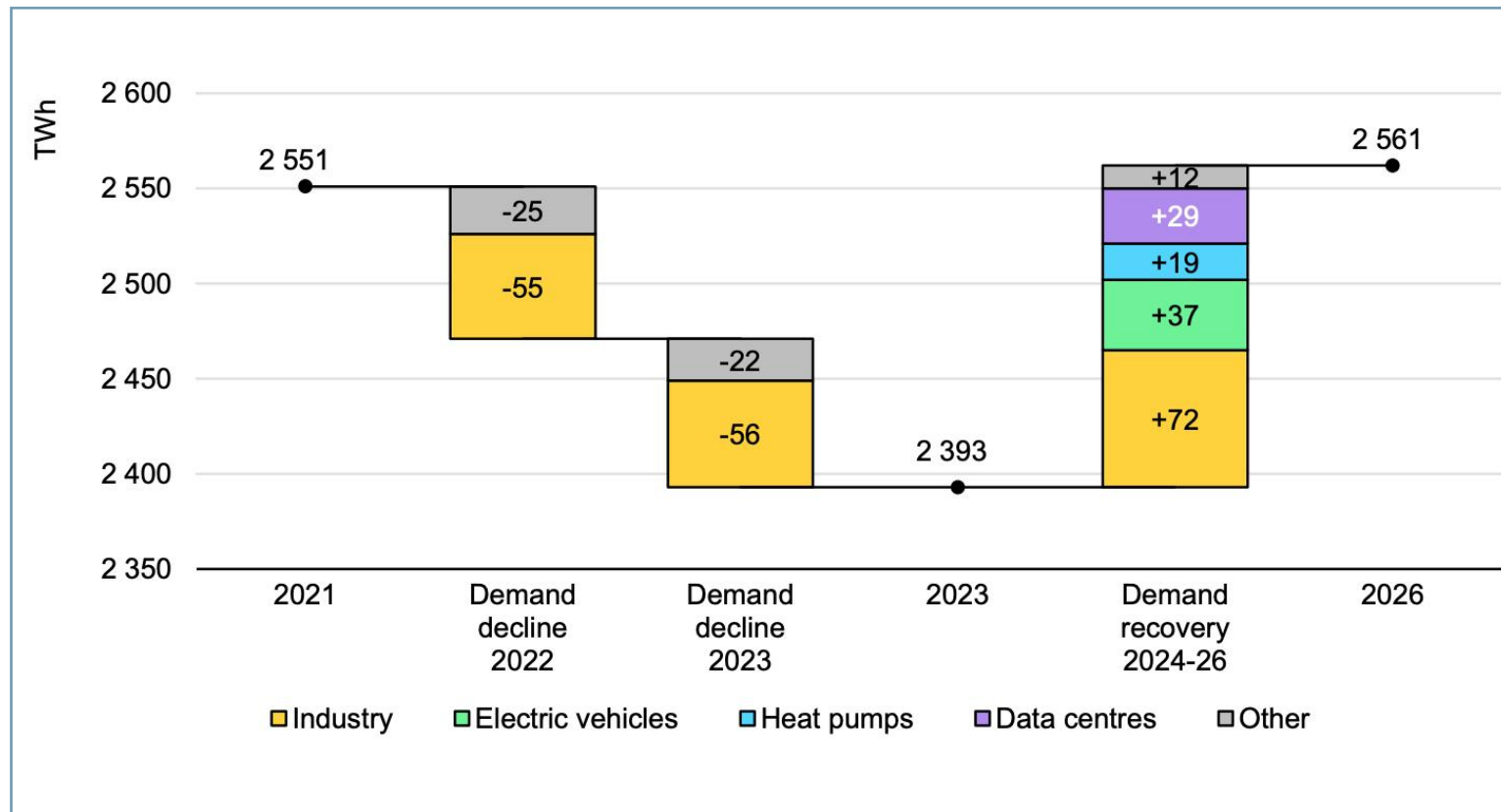
**Notes:** Advanced economies grouping in this chart excludes Mexico and Türkiye.

\* Source: International Energy Agency (IEA), Electricity Report 2024.



# Electricity Demand in the EU: 2021 - 2026 \*

**Fig. 5. Estimated Drivers of Change in Electricity Demand in the EU, 2021-2026 \***

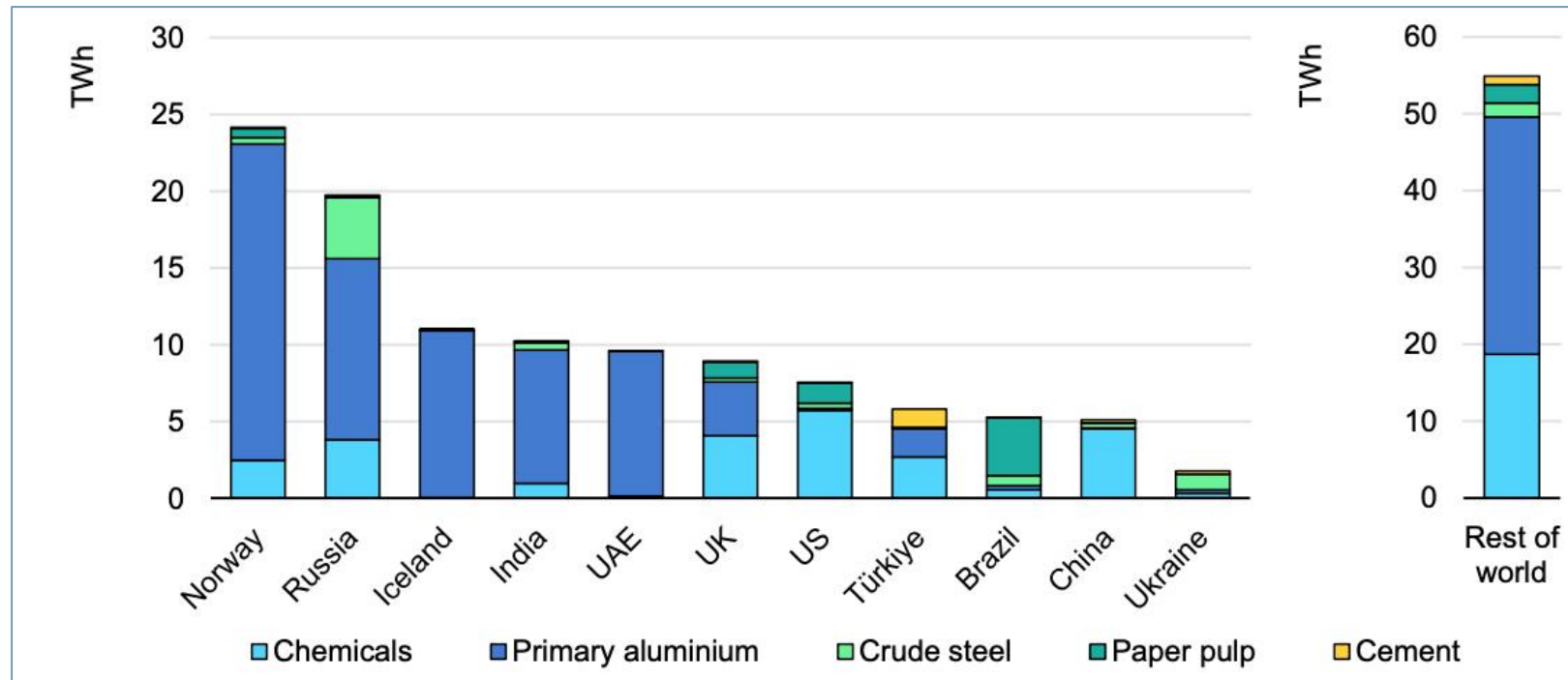


**Notes:** Other includes the combined effect of changes in electricity demand in households, services and other sectors, including increases from EVs, heat pumps and data centres in 2022 and 2023. For 2024-2026 these are shown separately. In 2022, the net impact of weather on demand is estimated to have been a reduction of 13 TWh. In 2023, net weather impact is estimated to have accounted for a reduction of 7 TWh.

\* Source: International Energy Agency (IEA), Electricity Report 2024.

# Electricity Indirect Imports to the EU, 2022 \*

**Fig. 6. Estimated Indirect Imports in the form of energy-intensive goods to the European Union by sector and country of origin, 2022 \***



**Notes:** Indirect electricity imports in the form of energy-intensive goods are calculated as the electricity required to manufacture the imported product in the European Union, based on the electricity intensity of EU production values.

\* Source: International Energy Agency (IEA), Electricity Report 2024; IEA analysis based on data from Eurostat (2023), EU trade since 1999 by SITC.

# Example 1. EU Sanctions on Russia: Energy-Intensive goods \*

Sector	Date of adoption Sanction	Sector Date of adoption Sanction *
Steel	15 March 2022	The European Union adopted Council Regulation (EU) 2022/428 imposing an import ban on iron and steel products originating from Russia (flat-rolled products, bars, rods, wire, tubes, pipes etc.)
	23 June 2022	As part of the eleventh EU sanctions package, importers of iron and steel must prove that inputs used in their goods have not originated in Russia. However, these sanctions are implemented in phases coming into force in September 2023.
Cement	8 April 2022	Imports of cement from Russia are banned as part of a fifth set of economic and individual sanctions

\* Source: International Energy Agency (IEA), Electricity Report 2024.

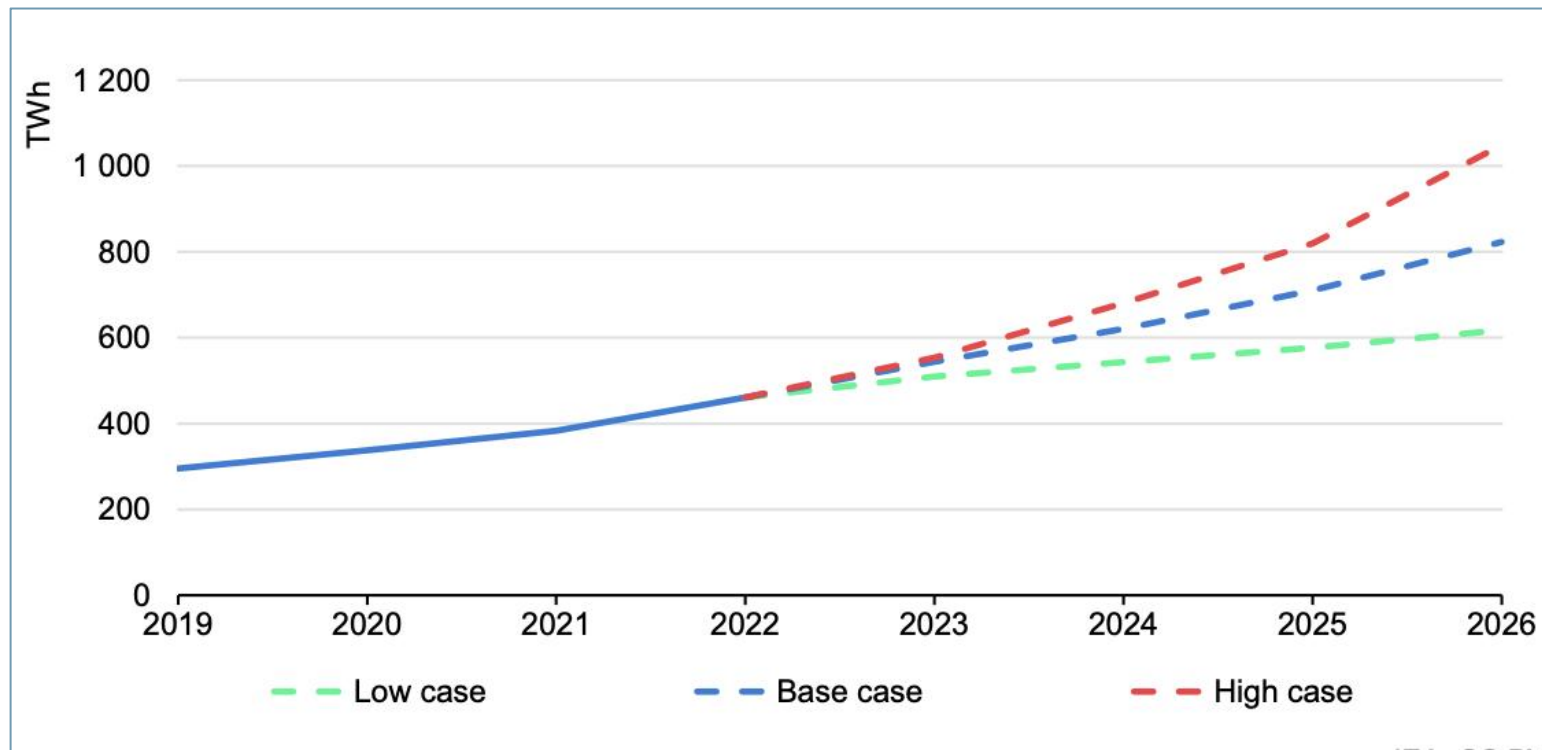
# Example 1. EU Sanctions on Russia: Energy-Intensive goods (2)\*

Sector Date of adoption Sanction	Sector Date of adoption Sanction	Sector Date of adoption Sanction *
Paper pulp	6 October 2022	Plastics, paper and wood pulp imports from Russia are banned as part of an eighth set of economic and individual sanctions.
Chemicals	6 October 2022	Imports of chemical products such as basic petrochemicals, inorganic chemicals, intermediates, plastics, fertilisers and specialties are now banned. These include methanol, phosphates, potash, NPK, nitrates, hydrochloric acid, nitric acid, phosphoric acid, sulfuric acid and others.
Aluminium	8 April 2022	Imports of flat-rolled aluminium products above 0.2 mm such as plates, sheets or strip from Russia are banned as part of the fifth set of sanctions.
	18 December 2023	As part of the twelfth EU sanctions package, imports of aluminium wires, foil, tubes and pipes from Russia were banned.

\* Source: International Energy Agency (IEA), Electricity Report 2024.

# Global Electricity Demand: Data Centers, AI, and Cryptoassets, 2019 - 2026 \*

**Fig. 7. Global Electricity Demand from Data Centres, AI, and Cryptoassets, 2019 - 2026 \***



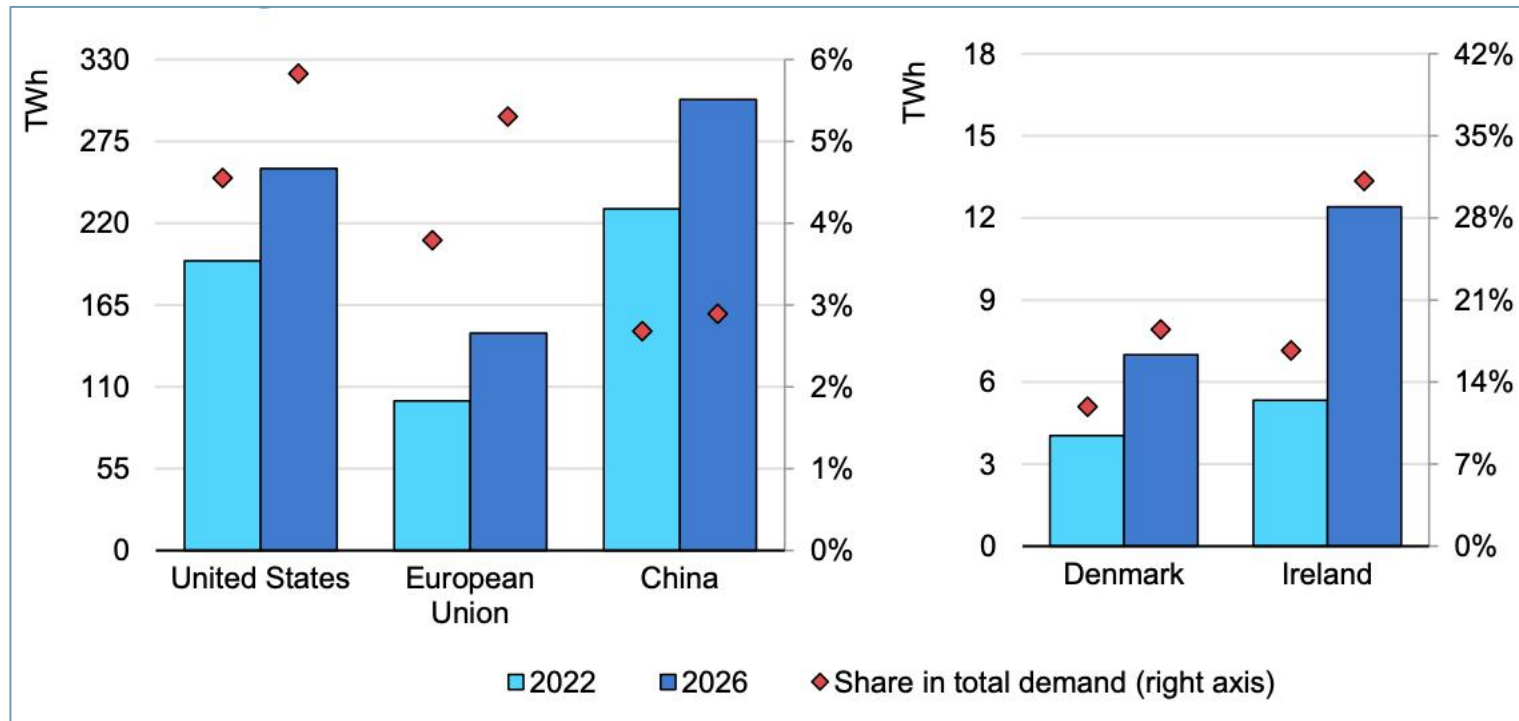
**Notes:** Includes traditional data centres, dedicated AI data centres, and cryptoassets consumption; excludes demand from data transmission networks. The base case scenario has been used in the overall forecast in this report. Low and high case scenarios reflect the uncertainties in the pace of deployment and efficiency gains amid future technological developments.

\* Source: International Energy Agency (IEA), Electricity Report 2024



# Data Centre Electricity Consumption and Total Electricity Demand in 2022 and 2026 \*

**Fig. 8. Estimated Data Centre Electricity Consumption and its share in Total electricity demand in selected regions in 2022 and 2026 \***

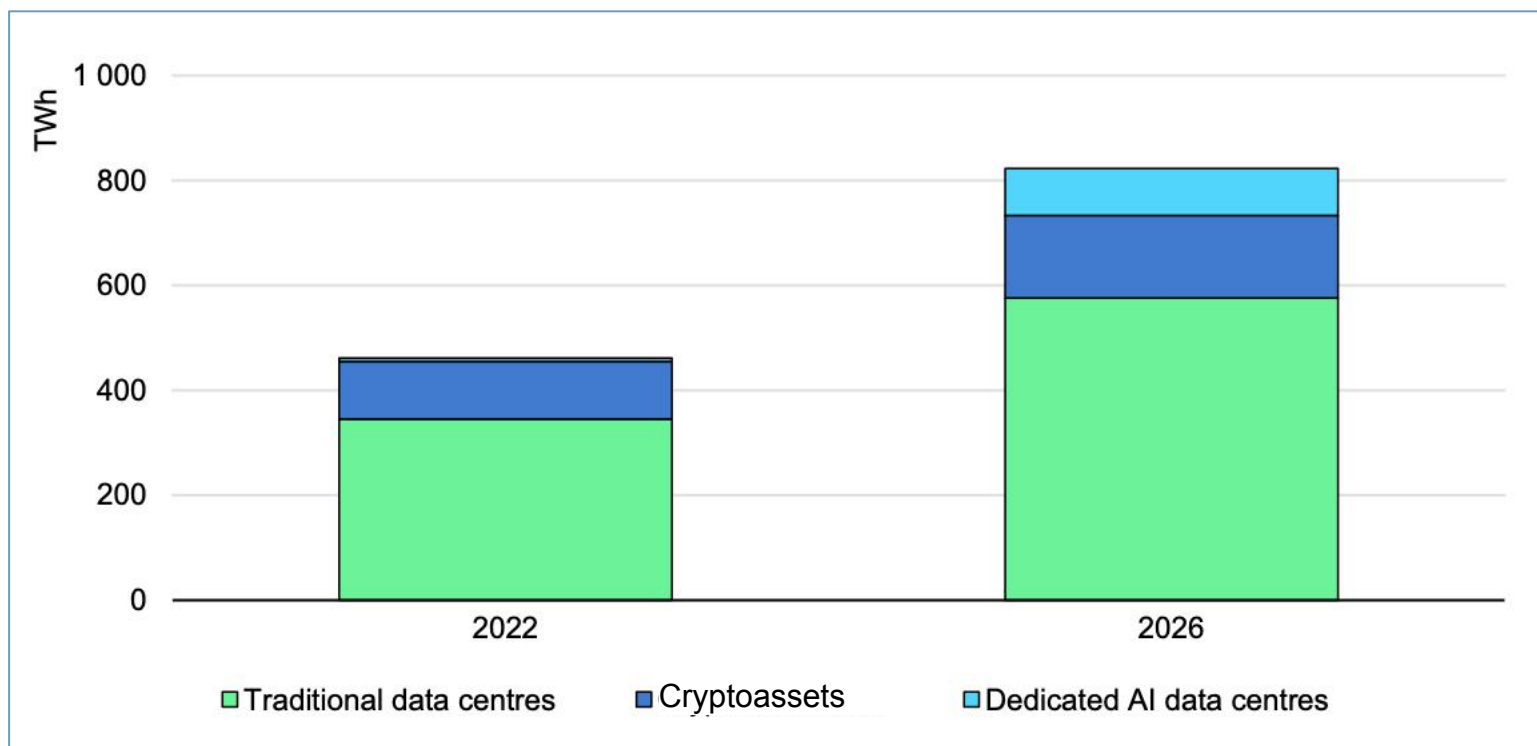


**Notes:** IEA, Data Centres and Data Transmission Networks; Lawrence Berkeley National Laboratory, United States Data Center Energy Usage Report; Ireland Central Statistics Office, Data Centres Metered Electricity Consumption 2022; Danish Energy Agency, Denmark's Energy and Climate Outlook 2018; China's State Council, Green data centres in focus; European Commission, Energy-efficient Cloud Computing Technologies and Policies for an Eco-friendly Cloud Market; Joule (2023), Alex de Vries, The growing energy footprint of artificial intelligence; and Crypto Carbon Ratings Institute,

\* Source: International Energy Agency (IEA), Electricity Report 2024

# Electricity Demand: Traditional Data Centers, Dedicated AI Data Centers and Cryptoassets, 2022 and 2026 \*

**Fig. 9. Estimated Electricity Demand from Traditional Data Centers, Dedicated AI data centres and Cryptoassets, 2022 and 2026, base case \***



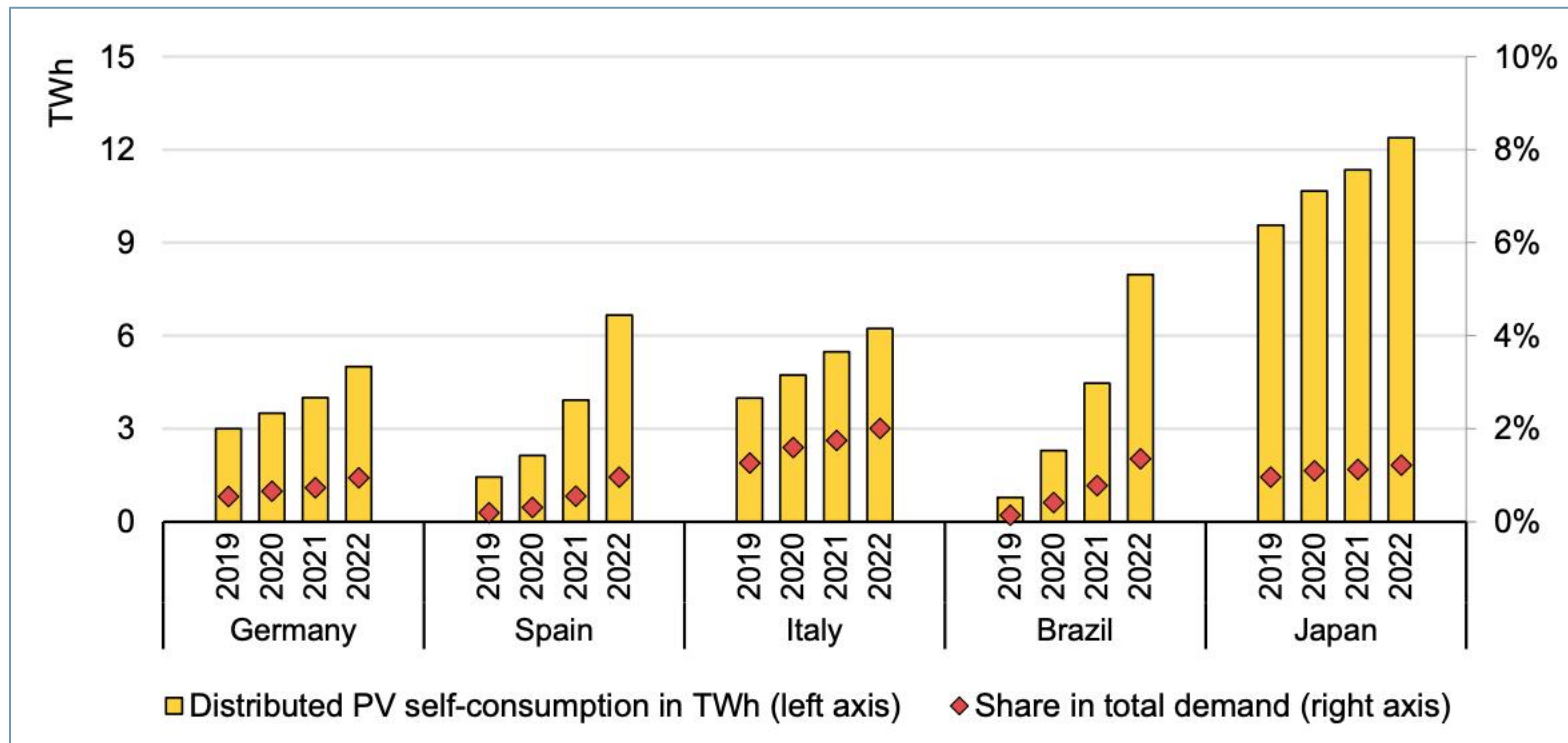
**Notes:** Data centre electricity demand excludes consumption from data network centres.

Data Sources: IEA forecast based on data and projections from Data Centres and Data Transmission Networks; Joule (2023), Alex de Vries, The growing energy footprint of artificial intelligence; Crypto Carbon Ratings Institute, Indices; Ireland Central Statistics Office, Data Centres Metered Electricity Consumption 2022; and Danish Energy Agency, Denmark's Energy and Climate Outlook 2018.

\* Source: International Energy Agency (IEA), Electricity Report 2024

# Electricity Self-Consumption in Distributed Systems and Share in Total Electricity Demand, 2019 - 2022 \*

**Fig. 10. Estimated Electricity Self-Consumption in Distributed Systems and Its Share in Total Electricity Demand in Selected Countries, 2019 - 2022 \***

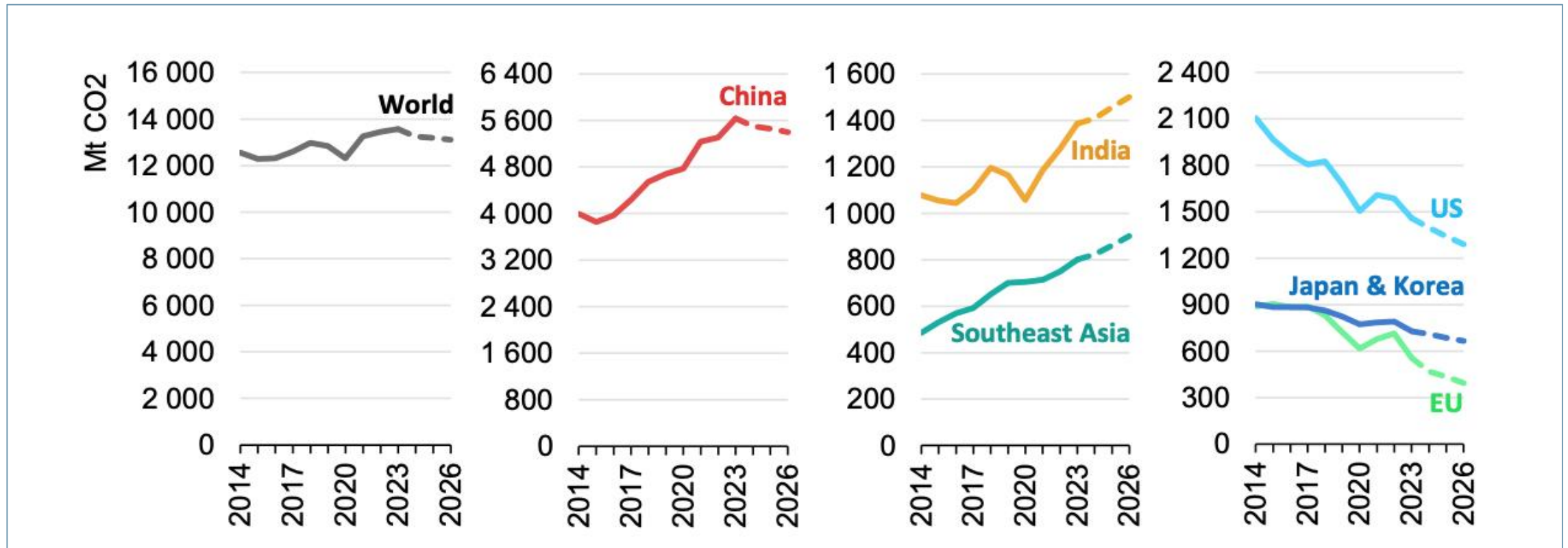


**Data Sources:** IEA estimates based on data and information from various sources; Federal Network Agency (Germany), Bundesnetzagentur; Federal Ministry of Economics and Climate Protection (Germany), BMWK; Strom-Report, Photovoltaic in Germany; APPA (Spain), Self-consumption yearly report; IEA, Photovoltaic Power Systems Programme; Terna, (Italy); EPE (Brazil), Brazilian distributed generation.

\* Source: International Energy Agency (IEA), Electricity Report 2024

# CO<sub>2</sub> Emissions From Electricity Generation in Selected Regions, 2014 - 2026 \*

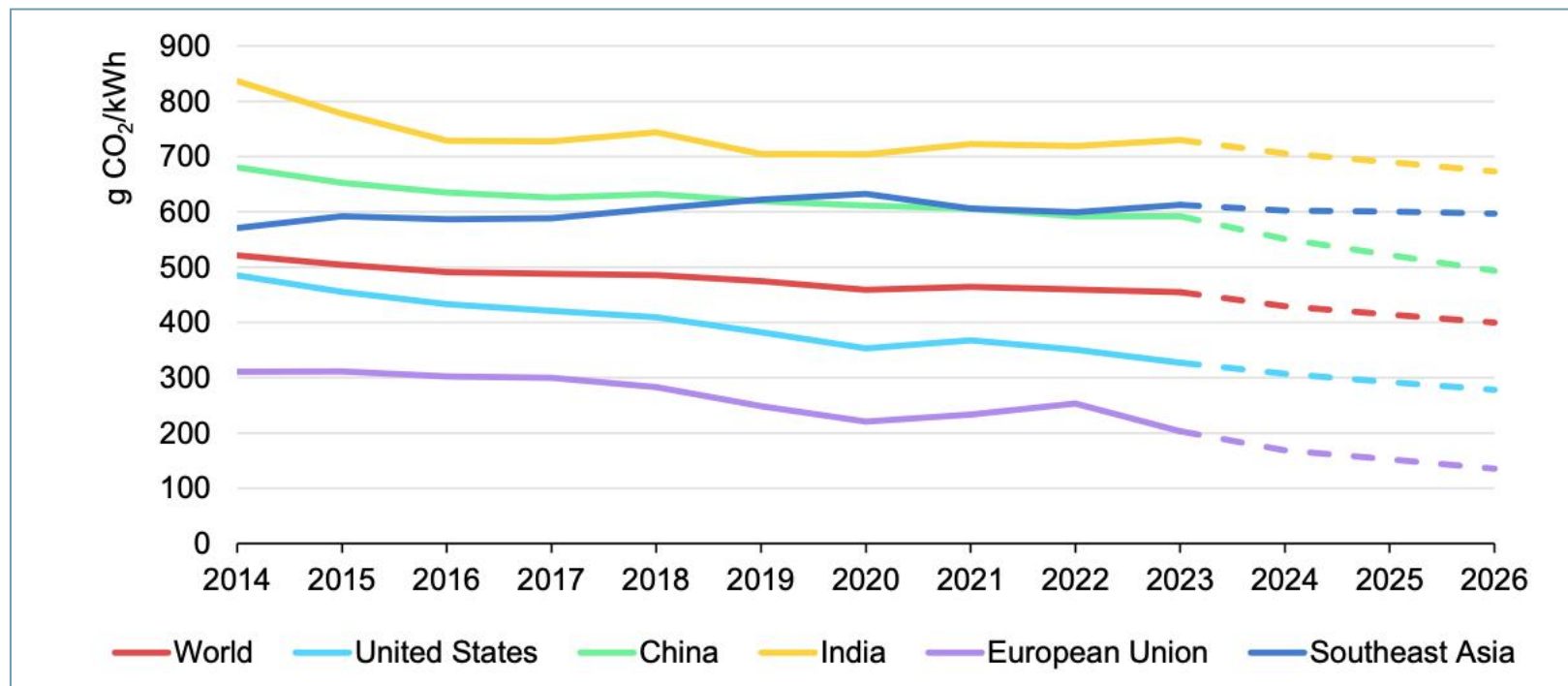
Fig. 11. CO<sub>2</sub> Emissions From Electricity Generation in Selected Regions, 2014 - 2026 \*



\* Source: International Energy Agency (IEA), Electricity Report 2024

# CO<sub>2</sub> Intensity of Electricity Generation, 2014 - 2026 \*

Fig. 12. CO<sub>2</sub> Intensity of Electricity Generation in Selected Regions, 2014 - 2026 \*



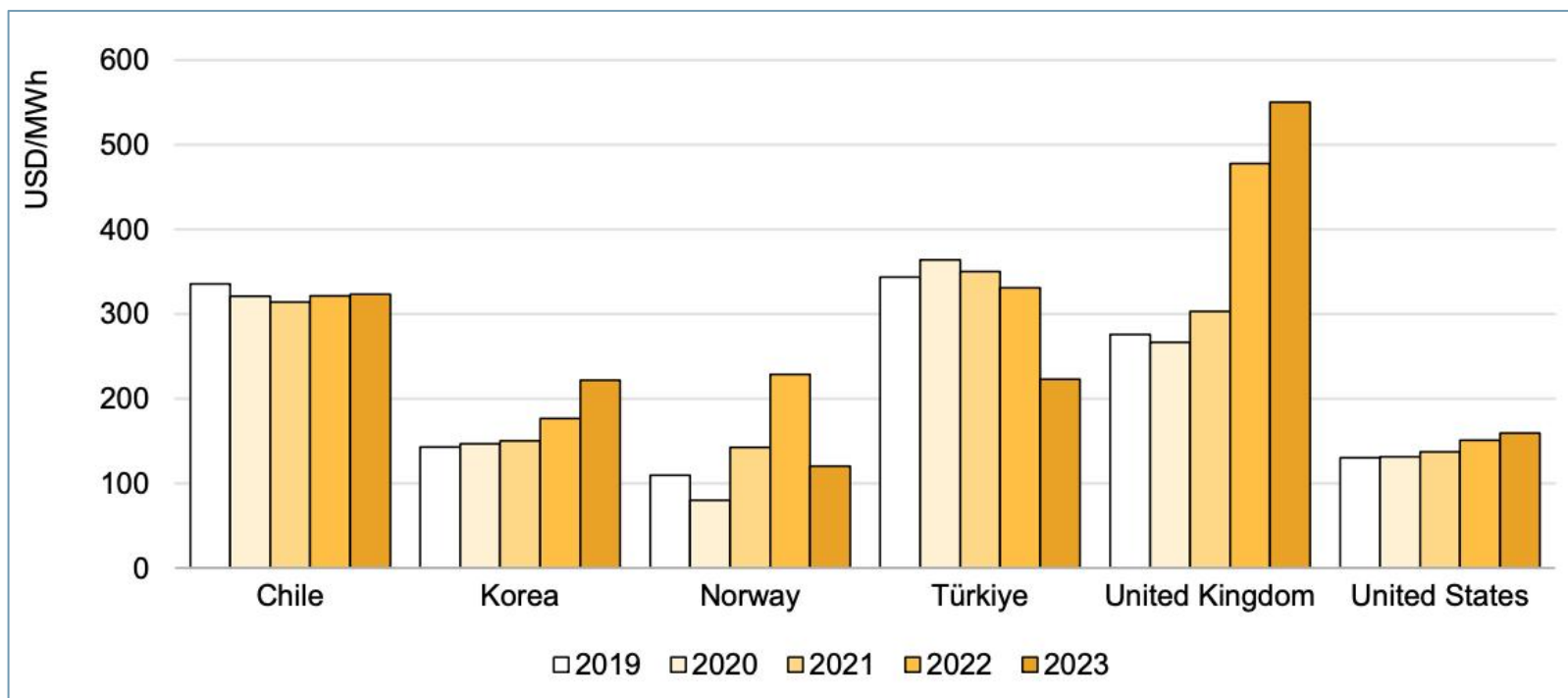
**Note:** The CO<sub>2</sub> intensity is calculated as total CO<sub>2</sub> emissions divided by total generation.

\* Source: International Energy Agency (IEA), Electricity Report 2024



# Average Household Electricity Prices, 2019 - 2023 \*

**Fig. 13. Average Household Electricity Prices in USD/MWh in Purchasing Power Parity (PP), 2019 - 2023 \***



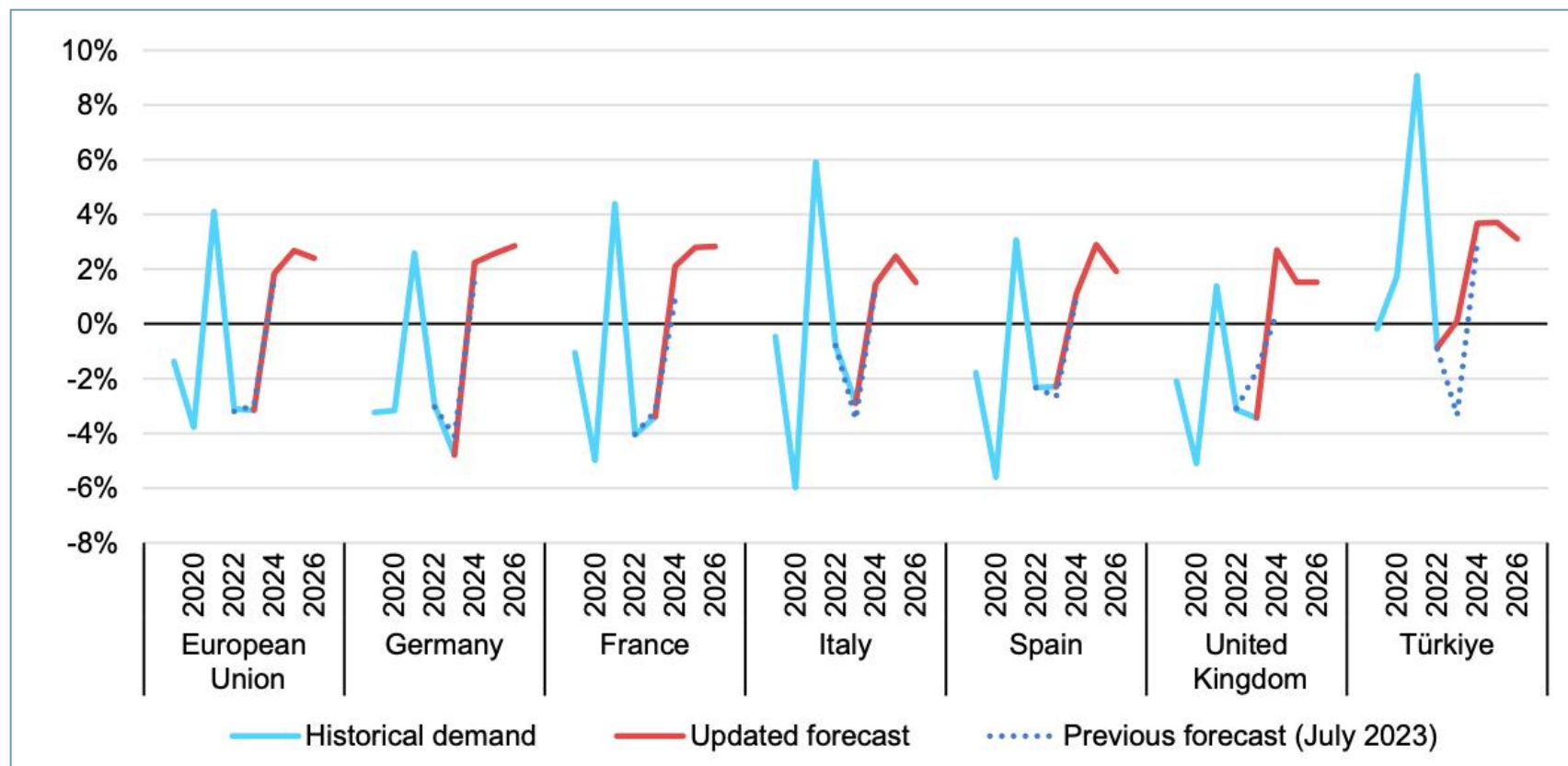
**Note:** Residential electricity prices include taxes and have been converted from local currencies to USD/MWh (PPP) using PPP conversion rates provided by the IMF PPP database. 2023 value is the average of Q1-Q3 2023 for all the countries except Chile, which is based on Q1-Q2 2023 average. The countries shown here are chosen due to data availability for 2023 as the time of publication of this report.

Data sources: IEA electricity prices database, IMF, PPP database.

\* Source: International Energy Agency (IEA), Electricity Report 2024

# Electricity Demand in Europe, 2019 - 2026 \*

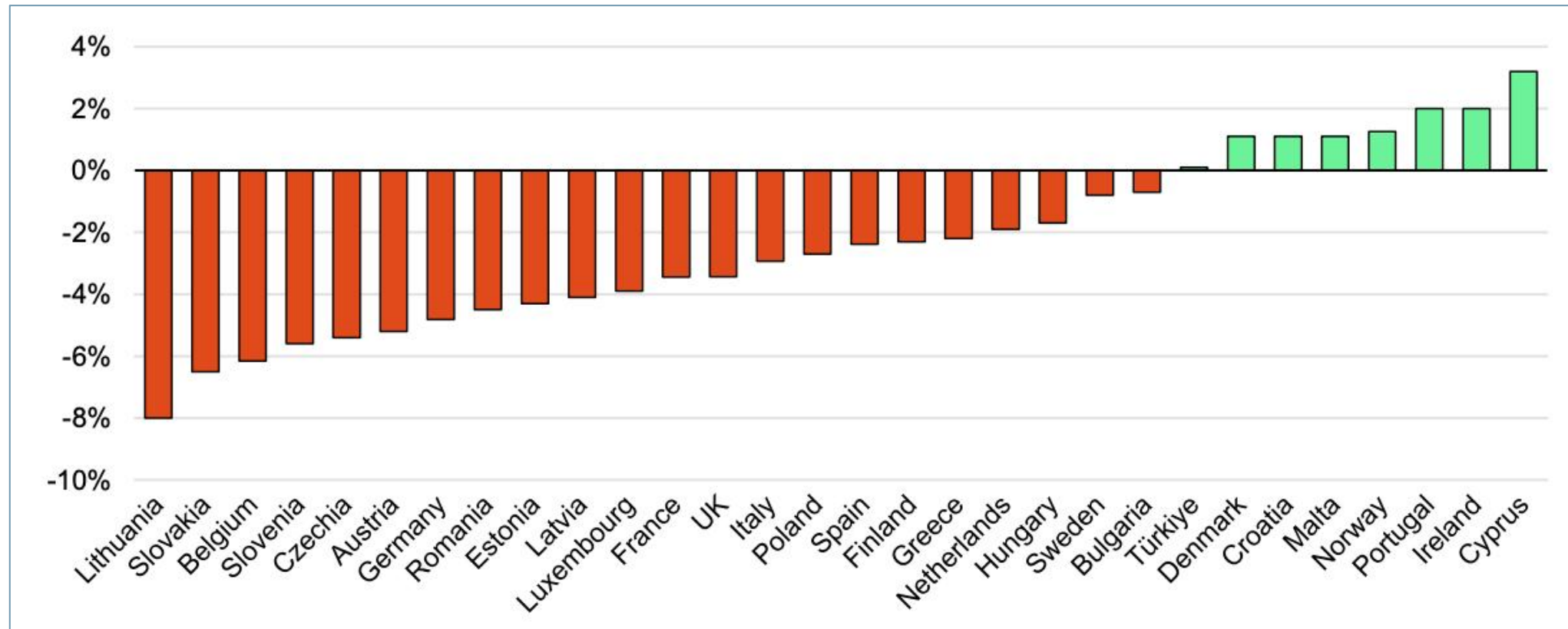
Fig. 14. Year-on-Year Percent Change in Electricity Demand in Europe, 2019 - 2026 \*



\* Source: International Energy Agency (IEA), Electricity Report 2024

# Electricity Demand in Europe, 2023 vs 2022 \*

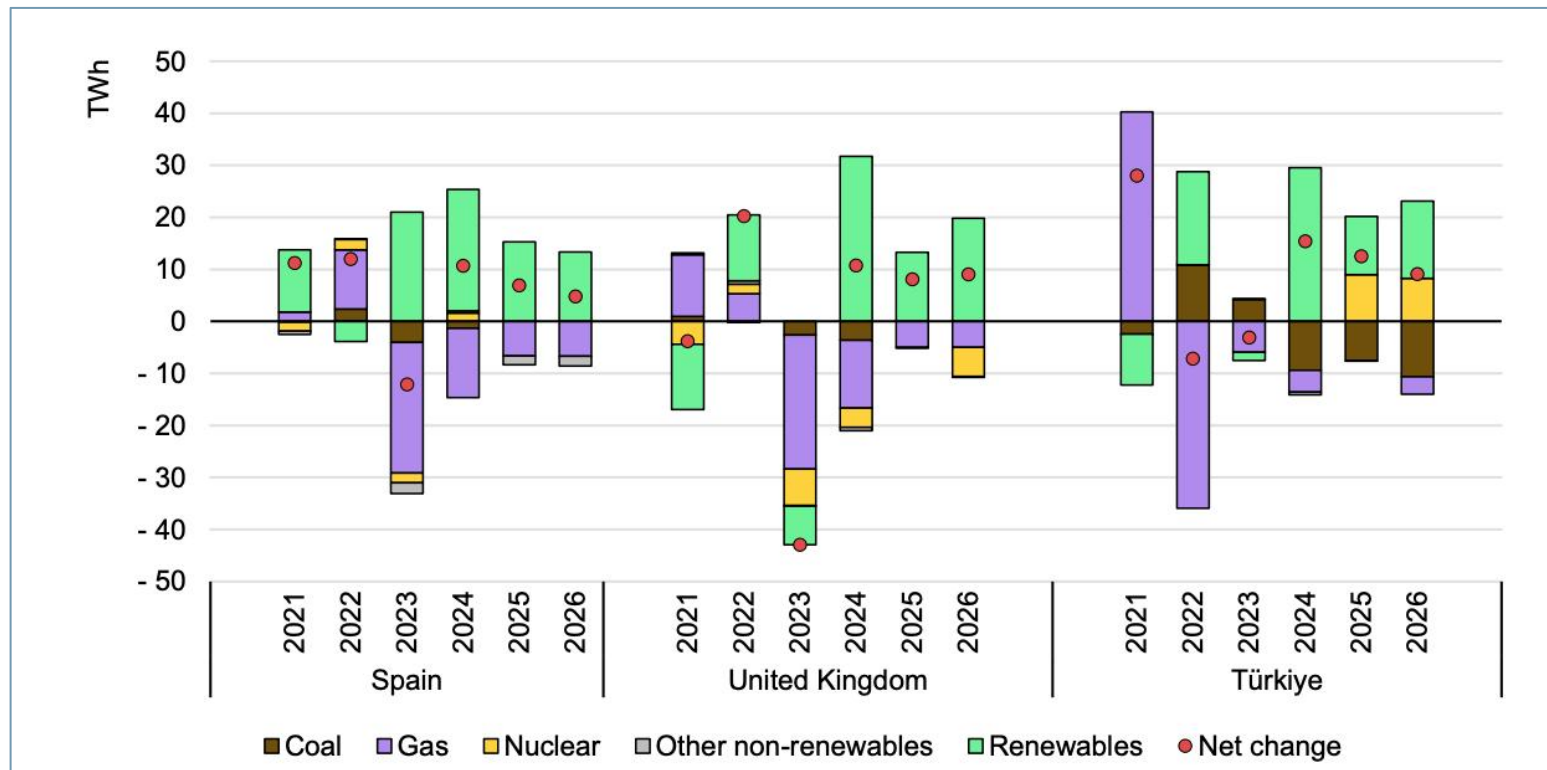
**Fig. 15. Year-on-Year Percent Change in Electricity Demand in Europe, 2023 vs 2022 \***



\* Source: International Energy Agency (IEA), Electricity Report 2024

# Electricity Generation in Spain, UK and Türkiye, 2021 - 2026\*

**Fig. 16. Year-on-Year Change in Electricity Generation in Spain, United Kingdom and Türkiye, 2021- 2026 \***

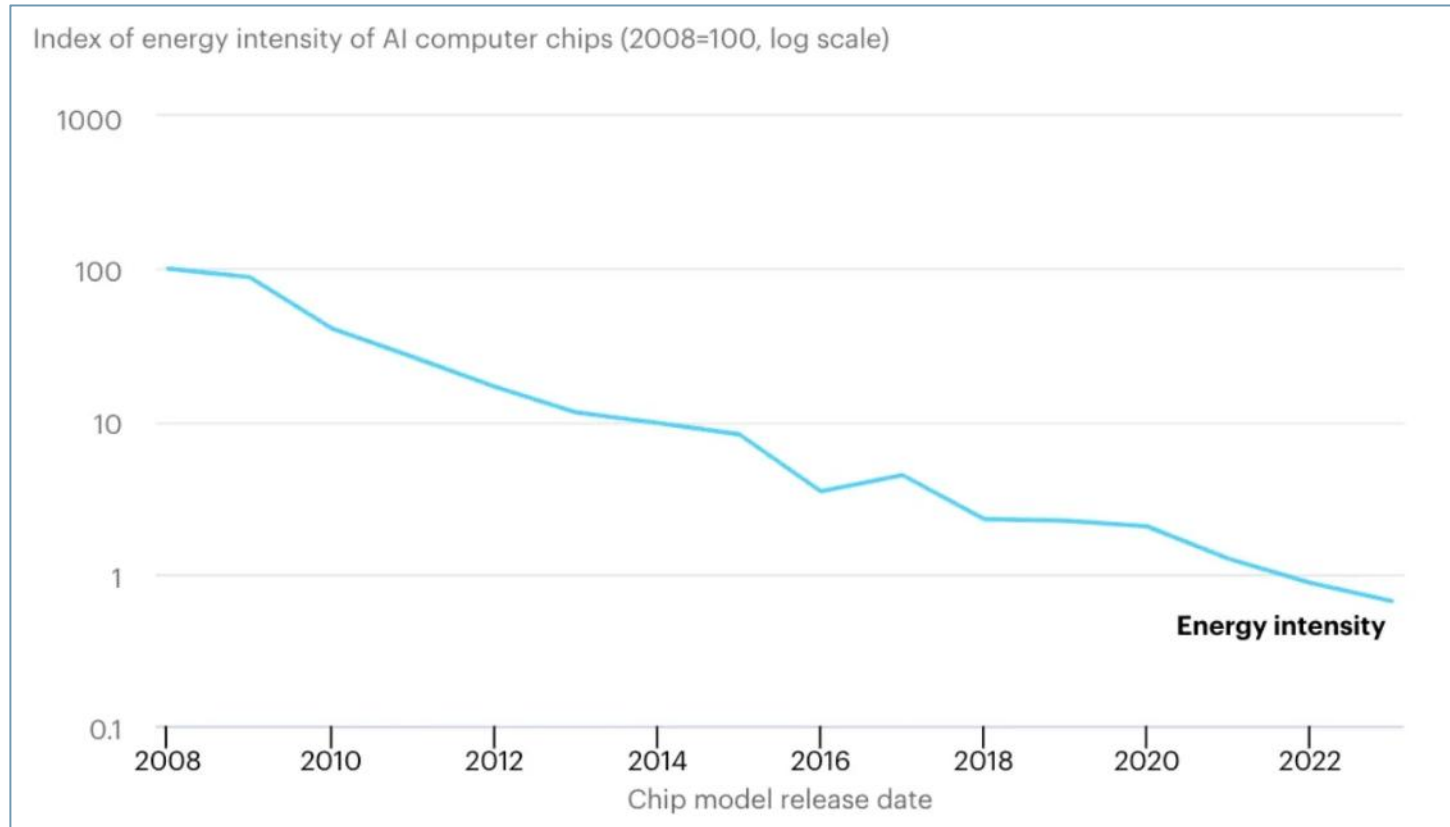


**Note:** Other non-renewables includes oil, waste and other non-renewable energy sources.

\* Source: International Energy Agency (IEA), Electricity Report 2024

# Efficiency Improvement of AI related Computer Chips, 2008 - 2023\*

**Fig. 17. Efficiency Improvement of AI related computer chips, 2008- 2023 \***



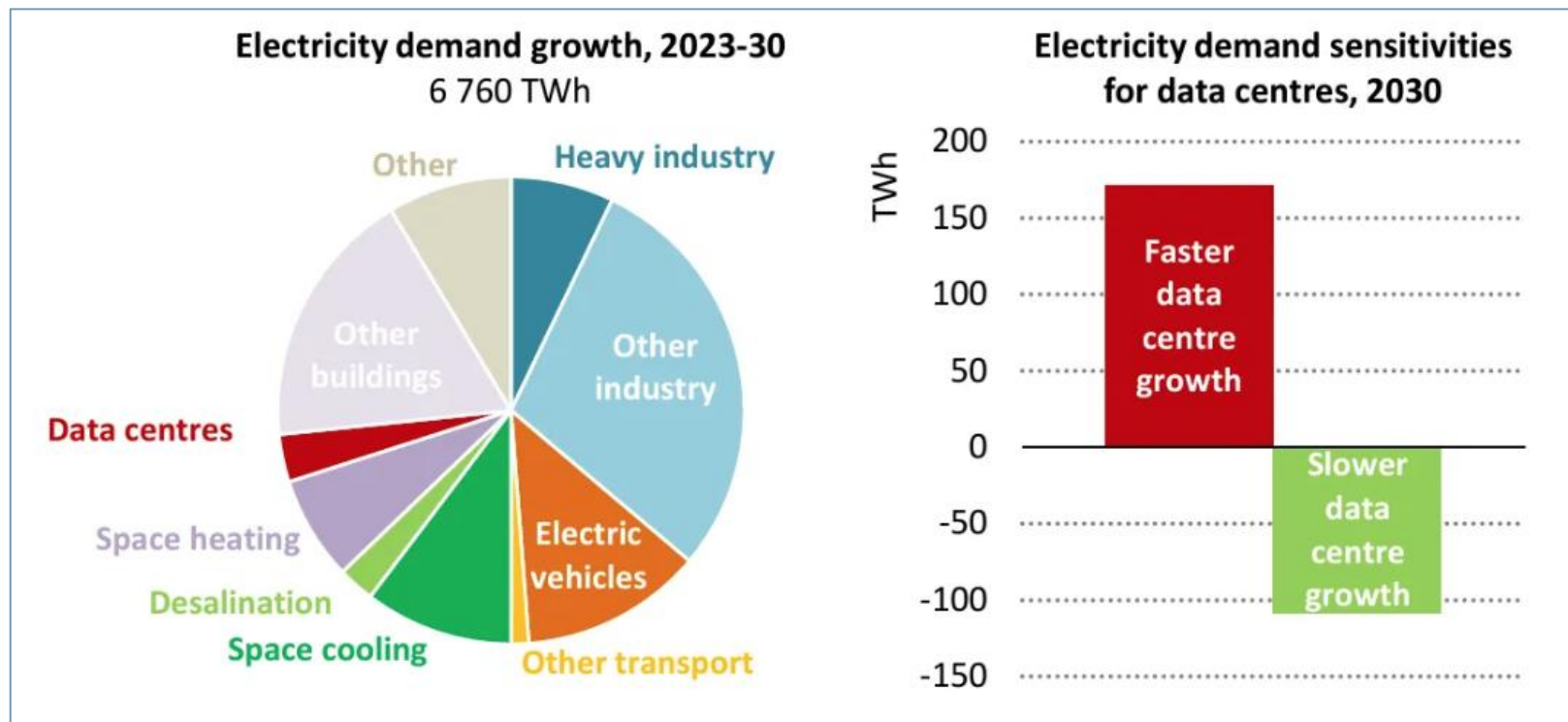
**Note:** Index of energy intensity of AI computer chips (2008 = 100, log scale). Timescale: Chip model release date

\* Source: International Energy Agency (IEA), available at <https://www.iea.org/commentaries/what-the-data-centre-and-ai-boom-could-mean-for-the-energy-sector>



# Electricity Demand Growth by End-Use in the STEPS, 2023 - 2030\*

**Fig. 18. Electricity demand growth by end-case in the STEPS, 2023- 2030, and data centre sensitivity cases \***

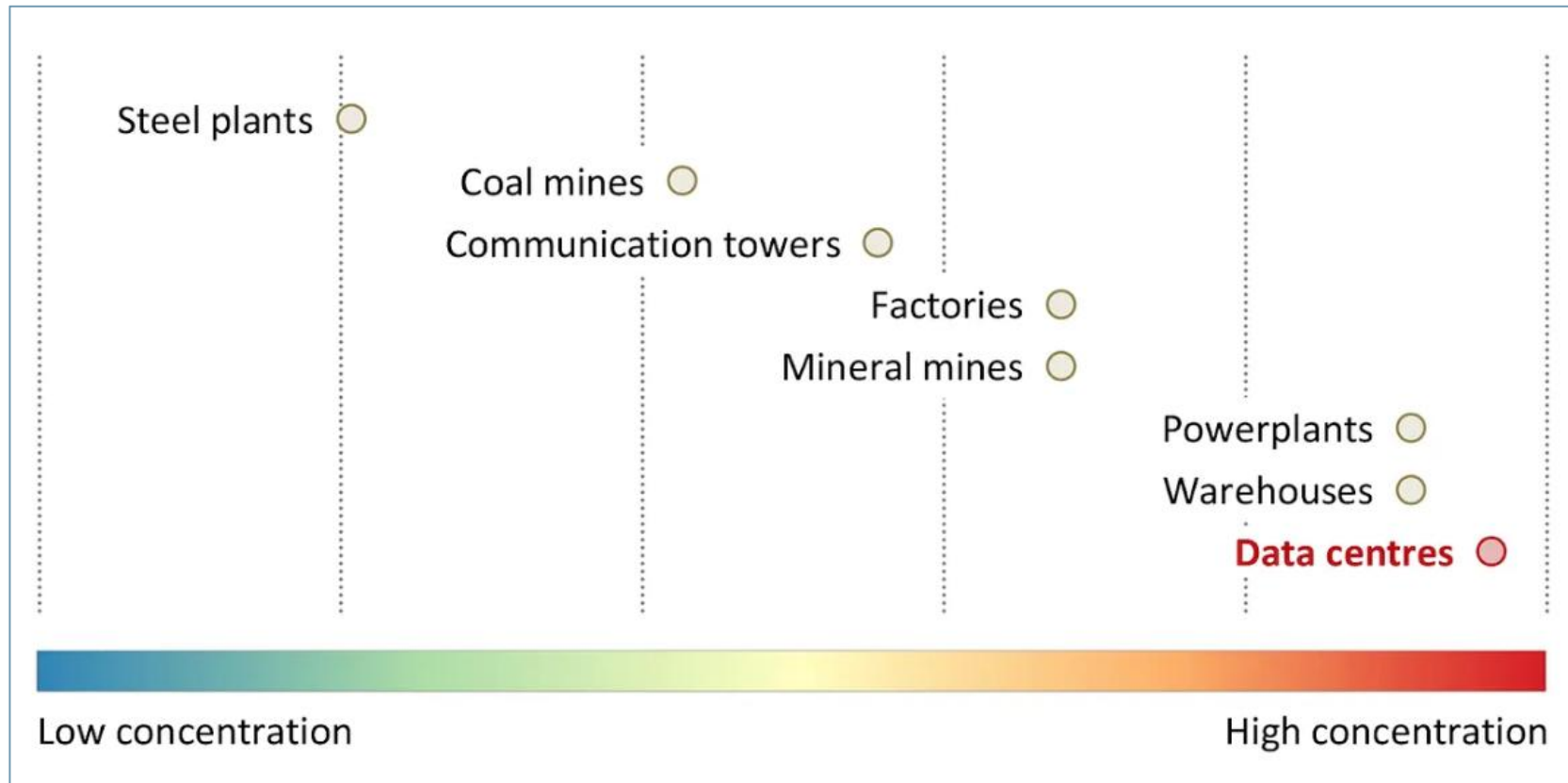


**Note:** Data centres account for a small share of global electricity demand growth to 2030, and plausible high and low sensitivities do not change the outlook fundamentally

\* Source: International Energy Agency (IEA), available at <https://www.iea.org/commentaries/what-the-data-centre-and-ai-boom-could-mean-for-the-energy-sector>

# Example 1. Spatial Concentration of Facilities, USA \*

**Fig. 19. Spatial Concentration of Selected Types of Facilities, United States \***












**Note:** Data centres have an exceptionally high spatial concentration, which has significant implications for local power grids, given their substantial power requirements

\* Source: International Energy Agency (IEA), Electricity Report 2024

# Crypto Industry: Market Capitalization \*

## Crypto Industry: Market Capitalization on the March 30th 2025 \*

#	Name	Price	1h %	24h %	7d %	Market Cap	Volume(24h)	Circulating Supply
1	 Bitcoin BTC	\$82,334.44	▼0.50%	▲0.67%	▼3.51%	\$1,633,855,175,182	\$14,524,732,518 176.76K BTC	19.84M BTC
2	 Ethereum ETH	\$1,799.20	▼0.89%	▼0.53%	▼9.93%	\$217,081,861,636	\$9,782,008,679 5.45M ETH	120.65M ETH
3	 Tether USDT	\$0.9997	▼0.01%	▲0.01%	▲0.02%	\$144,141,163,640	\$38,446,326,294 38.45B USDT	144.18B USDT
4	 XRP XRP	\$2.12	▼0.59%	▲2.16%	▼11.31%	\$123,521,504,545	\$2,858,588,631 1.34B XRP	58.2B XRP
5	 BNB BNB	\$599.17	▼0.26%	▲0.14%	▼3.46%	\$85,365,055,028	\$1,219,284,992 2.03M BNB	142.47M BNB
6	 Solana SOL	\$123.48	▼0.96%	▼0.57%	▼6.21%	\$63,258,136,296	\$1,712,428,204 13.86M SOL	512.29M SOL
7	 USDC USDC	\$0.9999	▼0.01%	▼0.00%	▼0.02%	\$60,235,031,559	\$5,295,291,348 5.29B USDC	60.24B USDC
8	 Dogecoin DOGE	\$0.1666	▼0.86%	▼0.12%	▼2.16%	\$24,773,148,048	\$876,783,959 5.26B DOGE	148.64B DOGE
9	 Cardano ADA	\$0.6584	▼1.48%	▼1.27%	▼7.16%	\$23,205,174,702	\$466,151,623 707.95M ADA	35.24B ADA

**Market Cap**  
**\$ 2.68 T**

13.24 M Tokens  
827 Exchanges

**Bitcoin Market Cap**  
**\$ 1.64 T**

61.50 % Market Share

**Ethereum Market Cap**  
**\$ 0.22 T**

8.1 % Market Share

\* Source: Coinmarketcap, available at <https://coinmarketcap.com>

# Case 1. Bitcoin: Proof-of-Work (PoW)

## Blockchain and Carbon Footprint

**Mining** is the process of block production on Proof-of-Work (PoW).

**Bitcoin Mining Difficulty** determines how difficult it will be to mine the next block. Bitcoin difficulty is a measure of how many hashes (statistically) must be generated to find a valid solution to solve the next Bitcoin block and earn the mining reward (the minting of a new Bitcoin tokens, BTC).

# Bitcoin: Total Token Supply and Network Difficulty \*

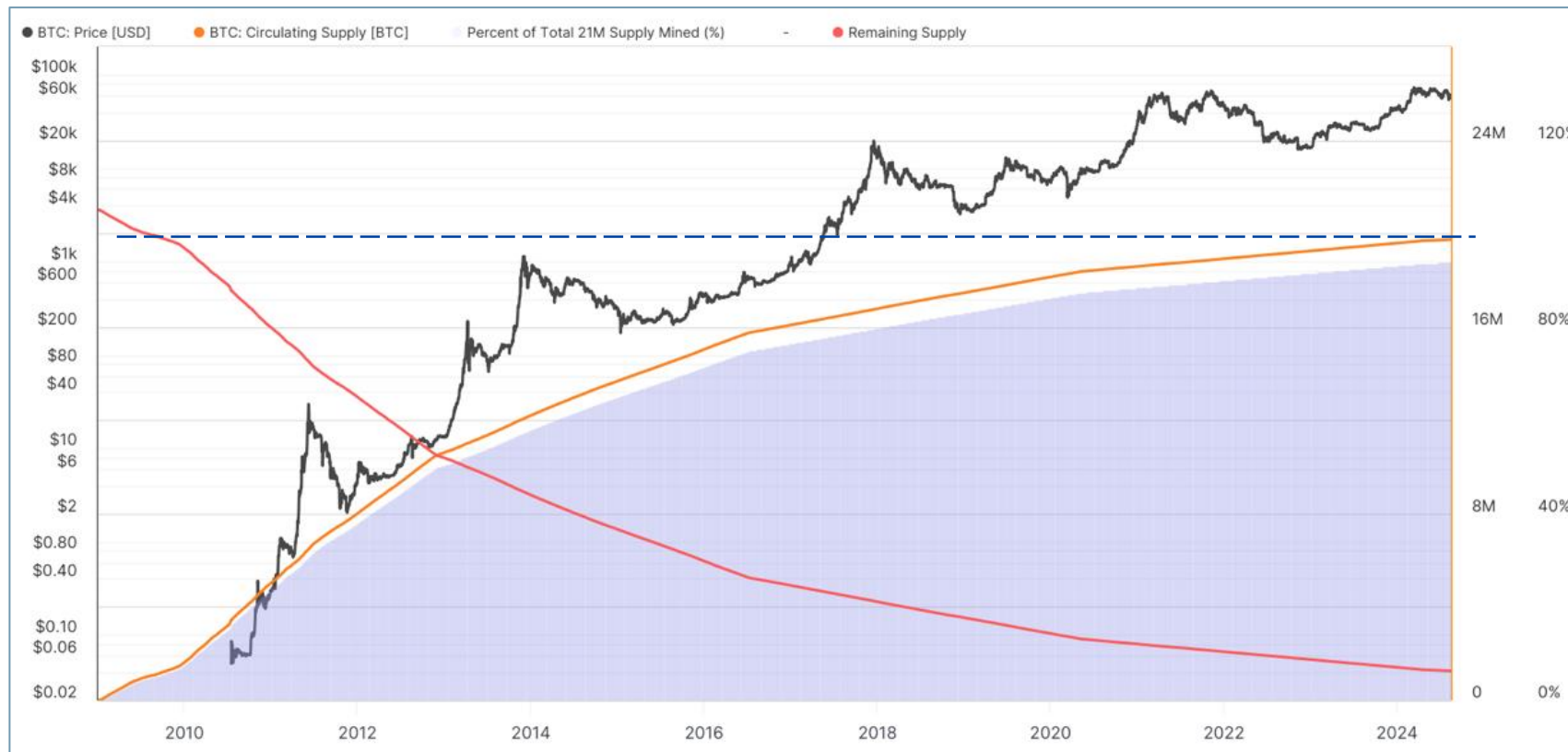
Event	Date	Block number	Block reward	Total new bitcoins between events
<b>Bitcoin launch</b>	03 January 2009	0 (genesis block)	50 new BTC	10,500 M BTC
<b>First Halving</b>	28 November 2012	210,000	25 new BTC	5,250 M BTC
<b>Second Halving</b>	09 July 2016	420,000	12.5 new BTC	2,625 M BTC
<b>Third Halving</b>	11 May2020	630,000	6.25 new BTC	1,312,500 BTC
<b>Fourth Halving</b>	20 April 2024	740,000	3.125 new BTC	656,250 BTC
<b>Fifth Halving</b>	Expected 2028	850,000	1.5625 new BTC	328,125 BTC
...	...	...	...	...
<b>Final Halving</b>	Expected 2140	-	-	<b>21,000,000 BTC</b>

\* Source: Bitcoin Token Supply Data



# Bitcoin Token Supply: % of Max Supply Mined

**Fig. 20. Bitcoin Token Supply, % of Max Supply (21M) Mined 2009 - 2025 \***

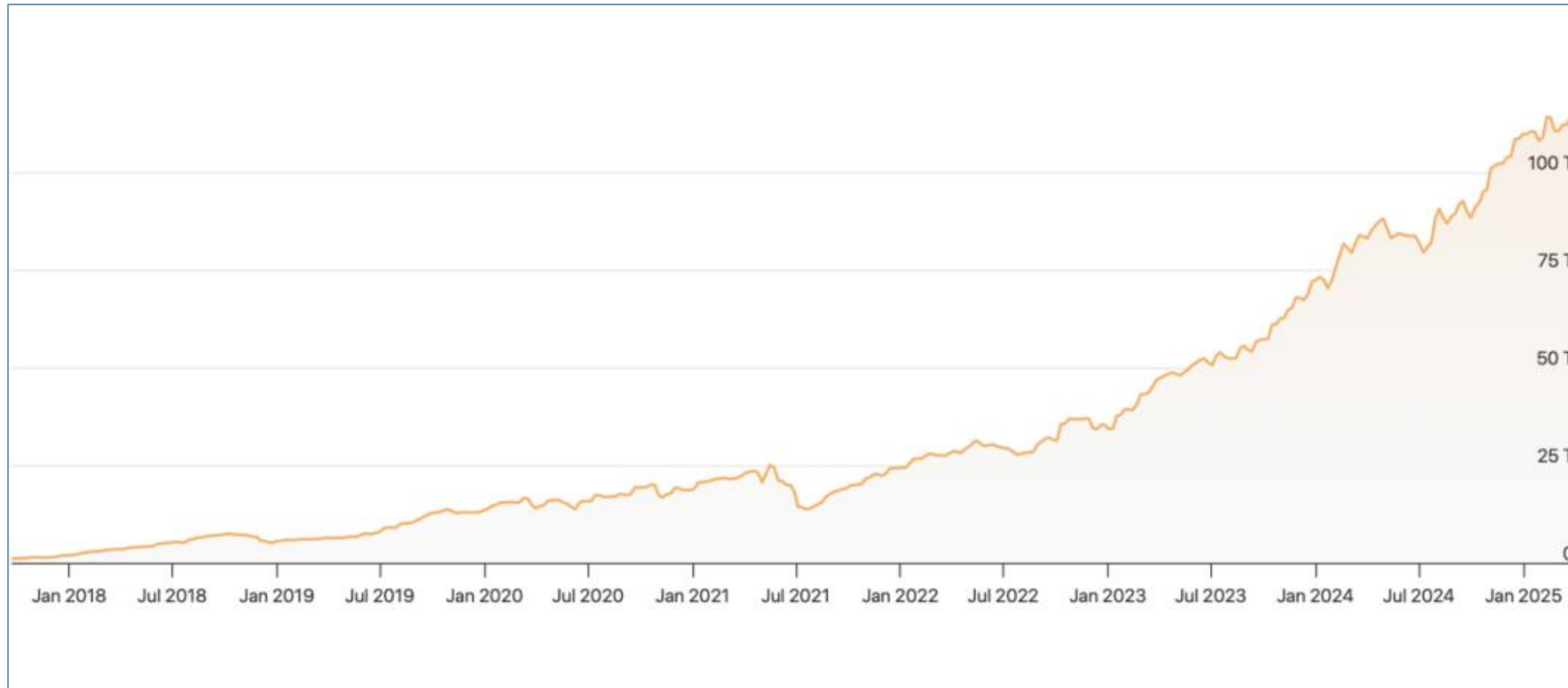


- ❖ Circulating Supply, which reflects the cumulative amount of Bitcoin that has been minted to date.
- ❖ Remaining Supply, which shows how many coins are left to be mined, with the last coin estimated to be minted in the year 2140.
- ❖ Percentage of 21M Bitcoin Supply Mined to date.

\* Source: Glassnode, available at <https://studio.glassnode.com/charts/72690f46-bc28-4a25-4f28-51828c993163>

# Bitcoin (BTC) Difficulty Chart, 2018 - 2025 \*

Fig. 21. Bitcoin Difficulty Chart, 2018 - 2025 \*



**Current BTC  
Difficulty**

**113.76 T**

(113,757,508,810,854.00)

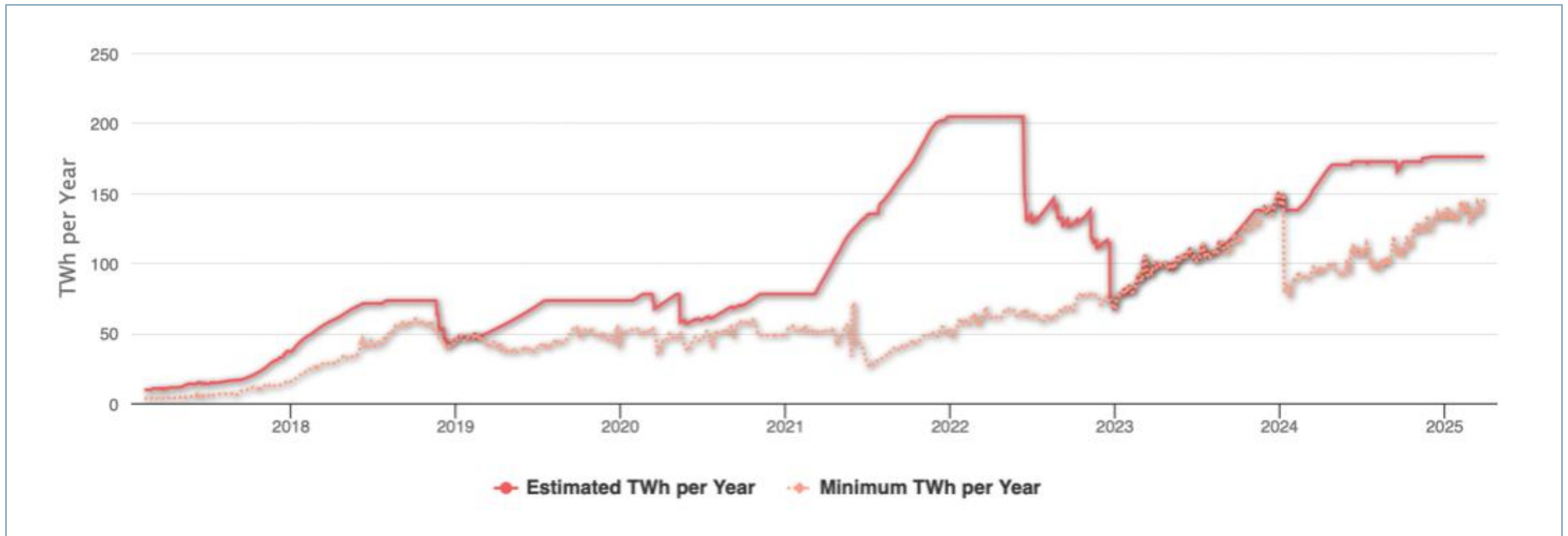
at block 890,126,  
resulting in a Bitcoin  
mining difficulty  
increase of 0.00% in  
the last 24 hours \*\*

(\*\* March 30th 2025)

\* Source: BTC Difficulty Chart, available at <https://www.coinwarz.com/mining/bitcoin/difficulty-chart>

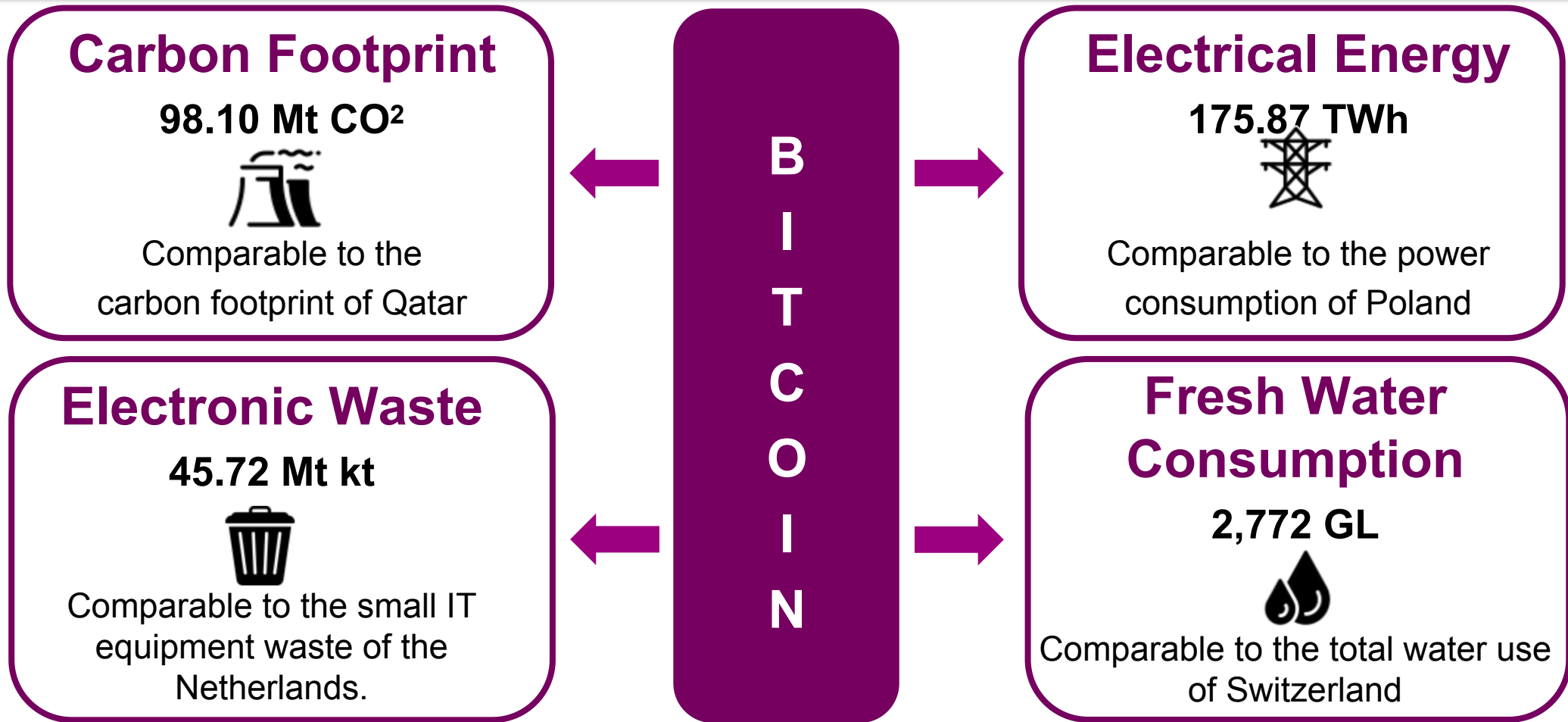
# Bitcoin Energy Consumption Index, 2017-2025 \*

Fig. 22. Bitcoin Energy Consumption, January 11, 2017 - March 29, 2025 \*



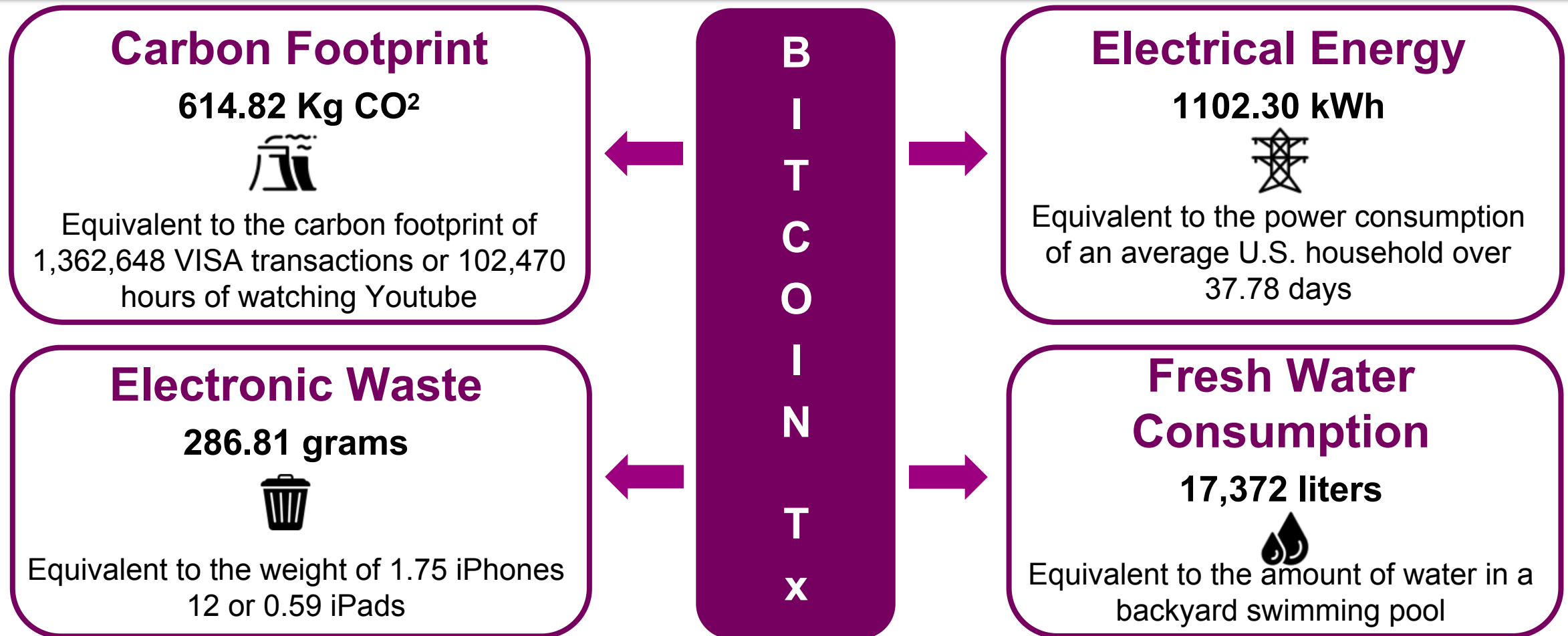
\* Source: Bitcoin Energy Consumption Index, available at <https://digiconomist.net/bitcoin-energy-consumption>

# Annualized Total Bitcoin Footprints \*



\* Source: Bitcoin Energy Consumption Index, available at <https://digiconomist.net/bitcoin-energy-consumption>

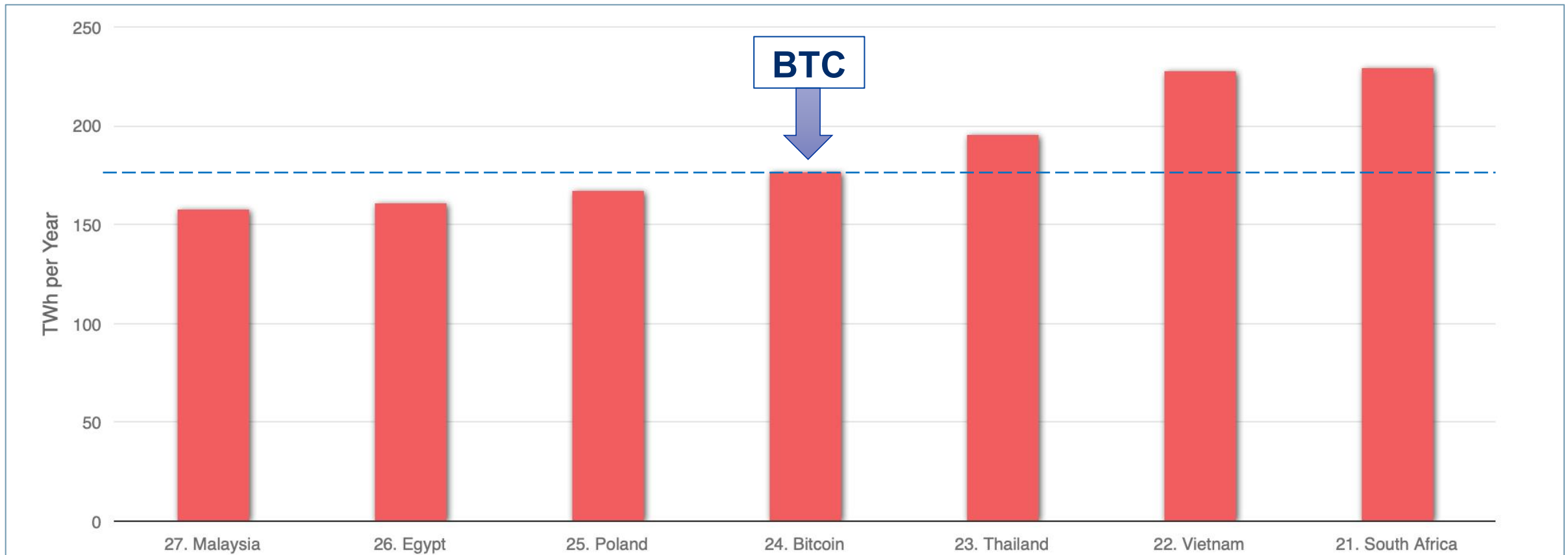
# Single Bitcoin Transaction (Tx) Footprint \*



\* Source: Bitcoin Energy Consumption Index, available at <https://digiconomist.net/bitcoin-energy-consumption>

# Energy Consumption by Country 2025 \*

**Fig. 23. Energy Consumption by Country 2025 \***

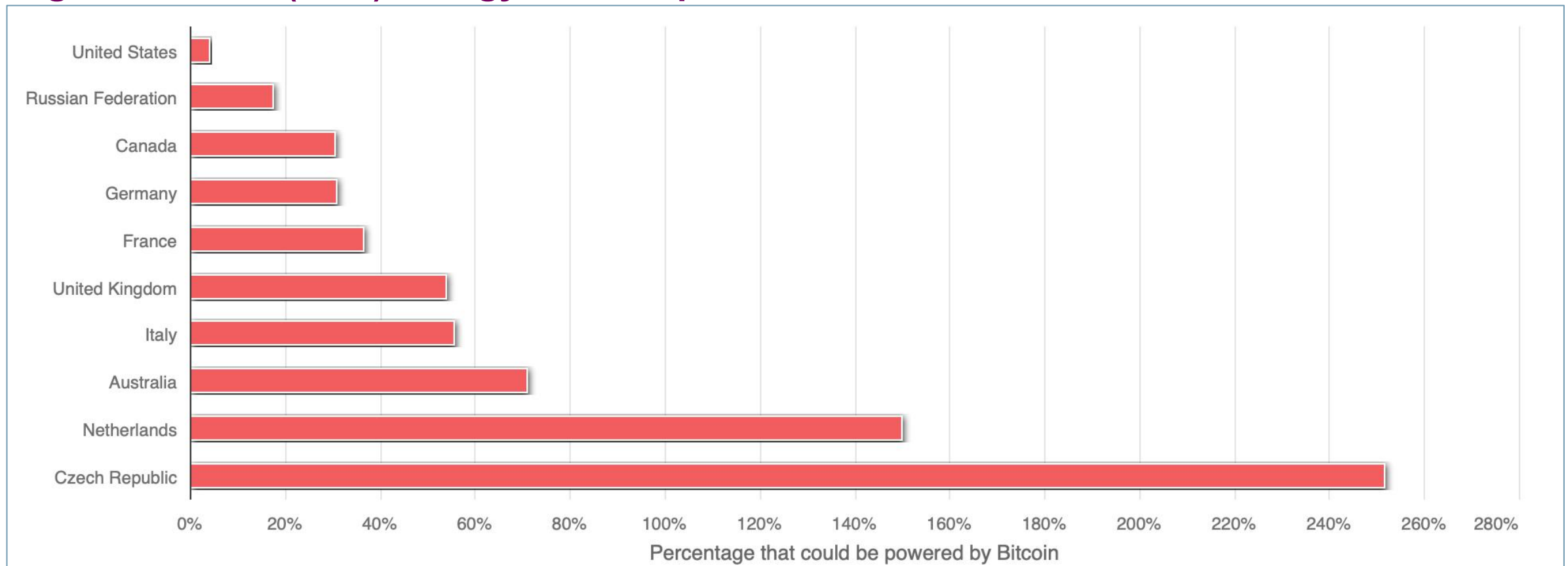


\* Source: Bitcoin Energy Consumption Index, available at <https://digiconomist.net/bitcoin-energy-consumption>



# Bitcoin (BTC) Energy Consumption Relative to Several Countries 2025 \*

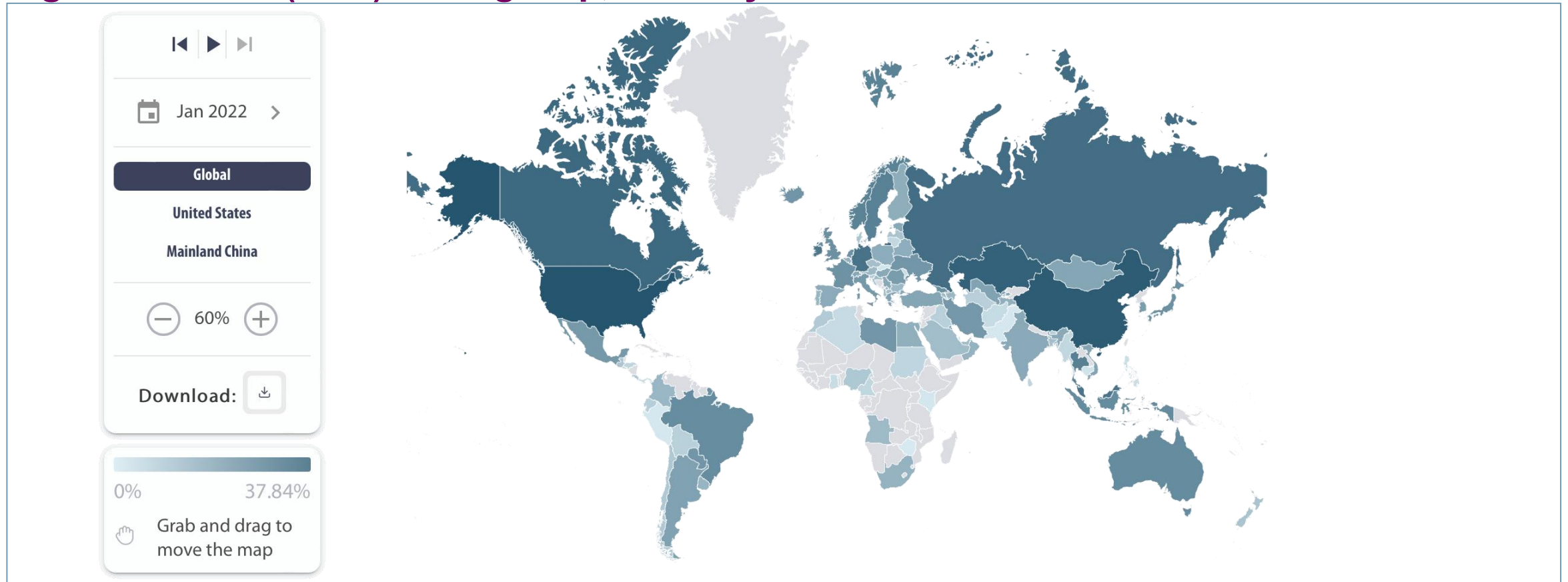
**Fig. 24. Bitcoin (BTC) Energy Consumption Relative to Several Countries 2025 \***



\* Source: Bitcoin Energy Consumption Index, available at <https://digiconomist.net/bitcoin-energy-consumption>

# Bitcoin (BTC) Mining Map \*

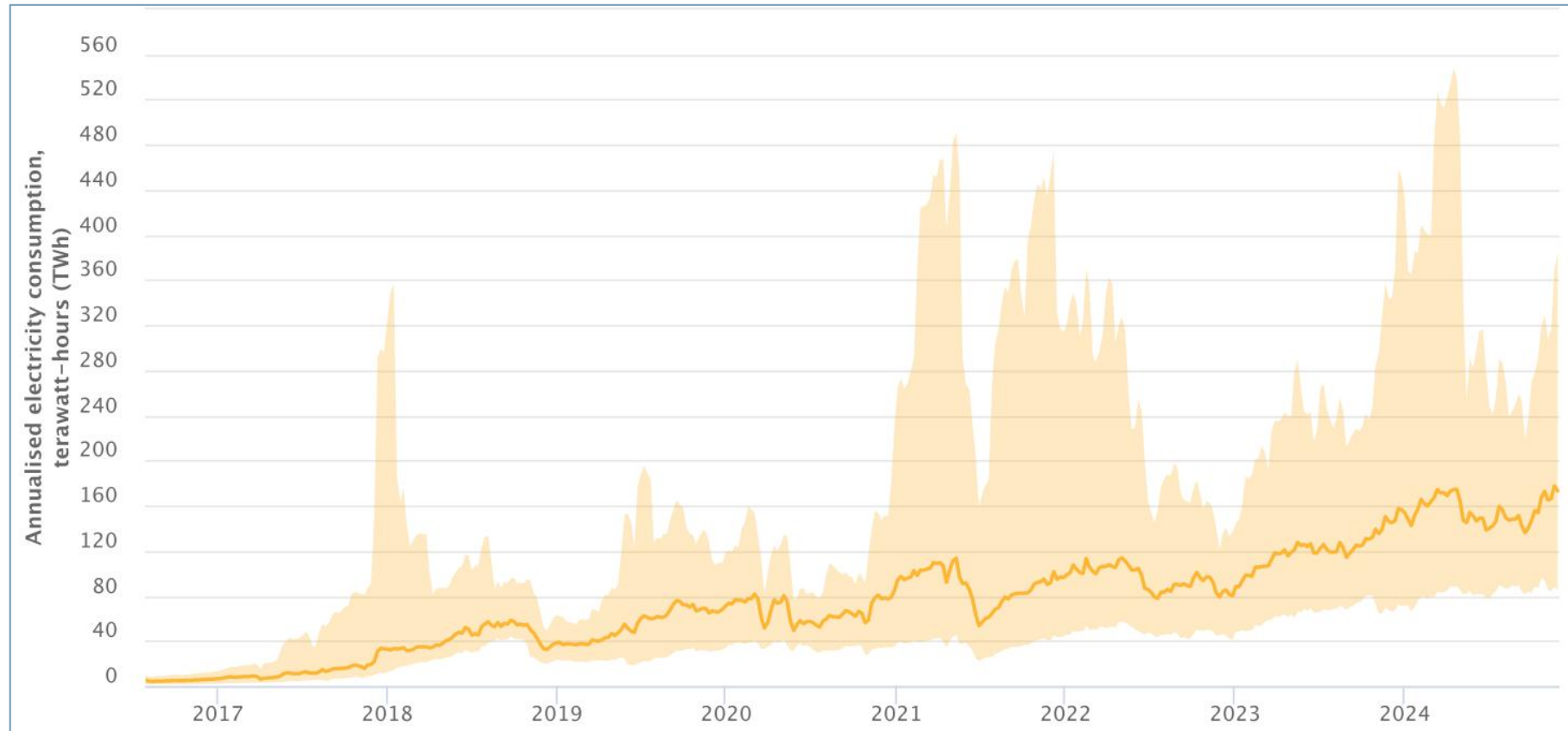
**Fig. 25. Bitcoin (BTC) Mining Map, January 2022 \***



\* Source: Cambridge Bitcoin Electricity Consumption Index, available at [https://ccaf.io/cbnsi/cbeci/mining\\_map](https://ccaf.io/cbnsi/cbeci/mining_map)

# Bitcoin (BTC): Annualised Electricity Consumption \*

**Fig. 26. Bitcoin (BTC): Historical Annualised Electricity Consumption, 2017- 2025 \***



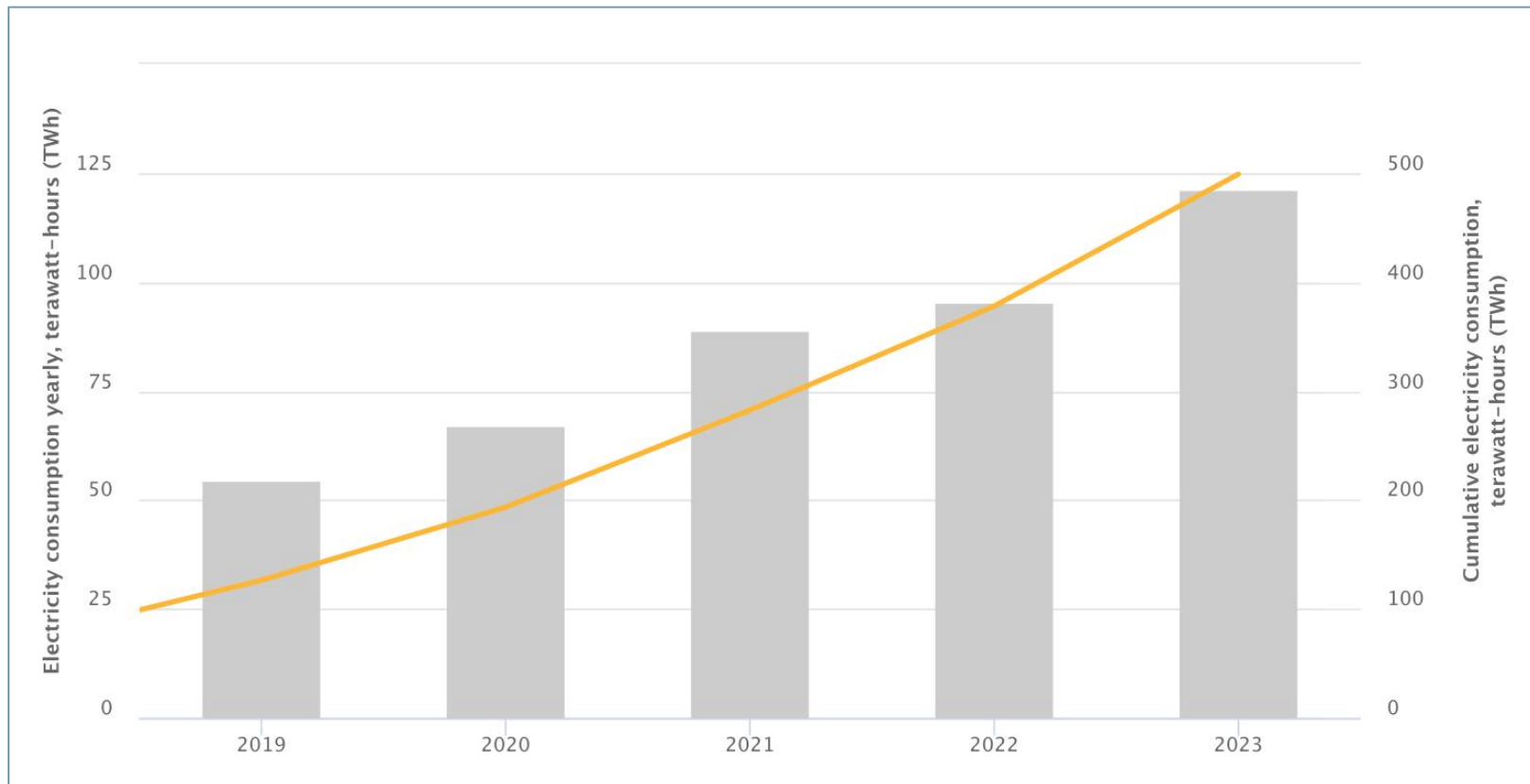
**Note:** A 7-day moving average is applied to reduce the effect of short-term hashrate volatility.

The model begins on July 18th 2010.

\* Source: Cambridge Bitcoin Electricity Consumption Index, available at <https://ccaf.io/cbnsi/cbeci>

# Total Bitcoin Electricity Consumption, 2019-2025 \*

Fig. 27. Total Bitcoin (BTC) Electricity Consumption, 2019 - 2025 \*

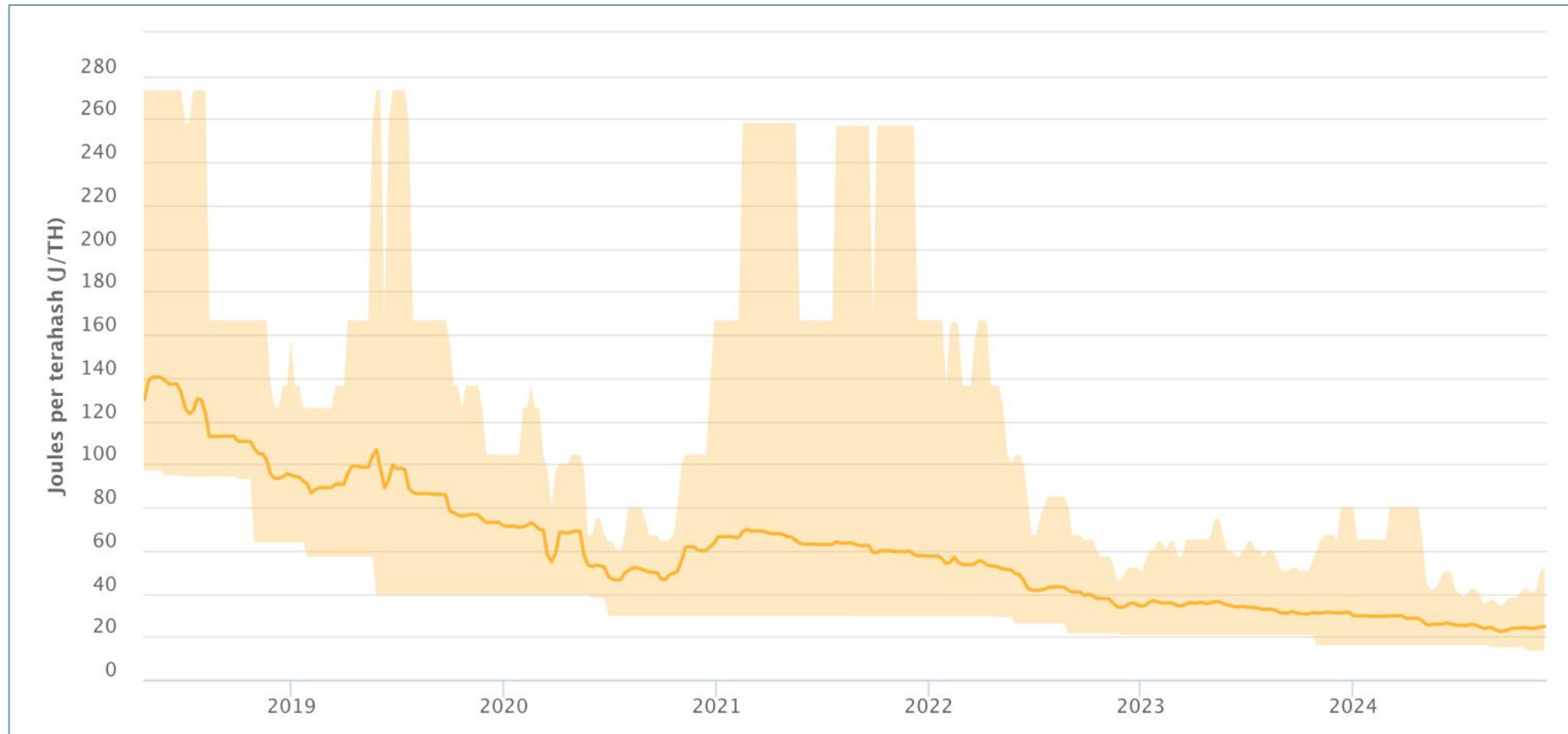


**Note:** Monthly consumption figures are the sum of daily consumption figures calculated by assuming constant power usage over 24 hours at the daily best-guess estimate of Bitcoin's network power demand. The cumulative consumption is the sum of monthly totals since the start of the model on July 18th 2010.

\* Source: Cambridge Bitcoin Electricity Consumption Index, available at <https://ccaf.io/cbnsi/cbeci>

# Estimated Average Energy Efficiency of Bitcoin Mining Hardware, 2019 - 2025 \*

**Fig. 28. Estimated Average Energy Efficiency of Bitcoin Mining Hardware, 2019 - 2025 \***



**Note:** Average  
electricity  
cost = 5 ¢

\* Source: Cambridge Bitcoin Electricity Consumption Index, available at <https://ccaf.io/cbnsi/cbeci>

# Bitcoin Mining Hardware Efficiency: March 30, 2025 \*

## Bitcoin Mining Hardware Efficiency on the March 30<sup>th</sup> 2025 \*

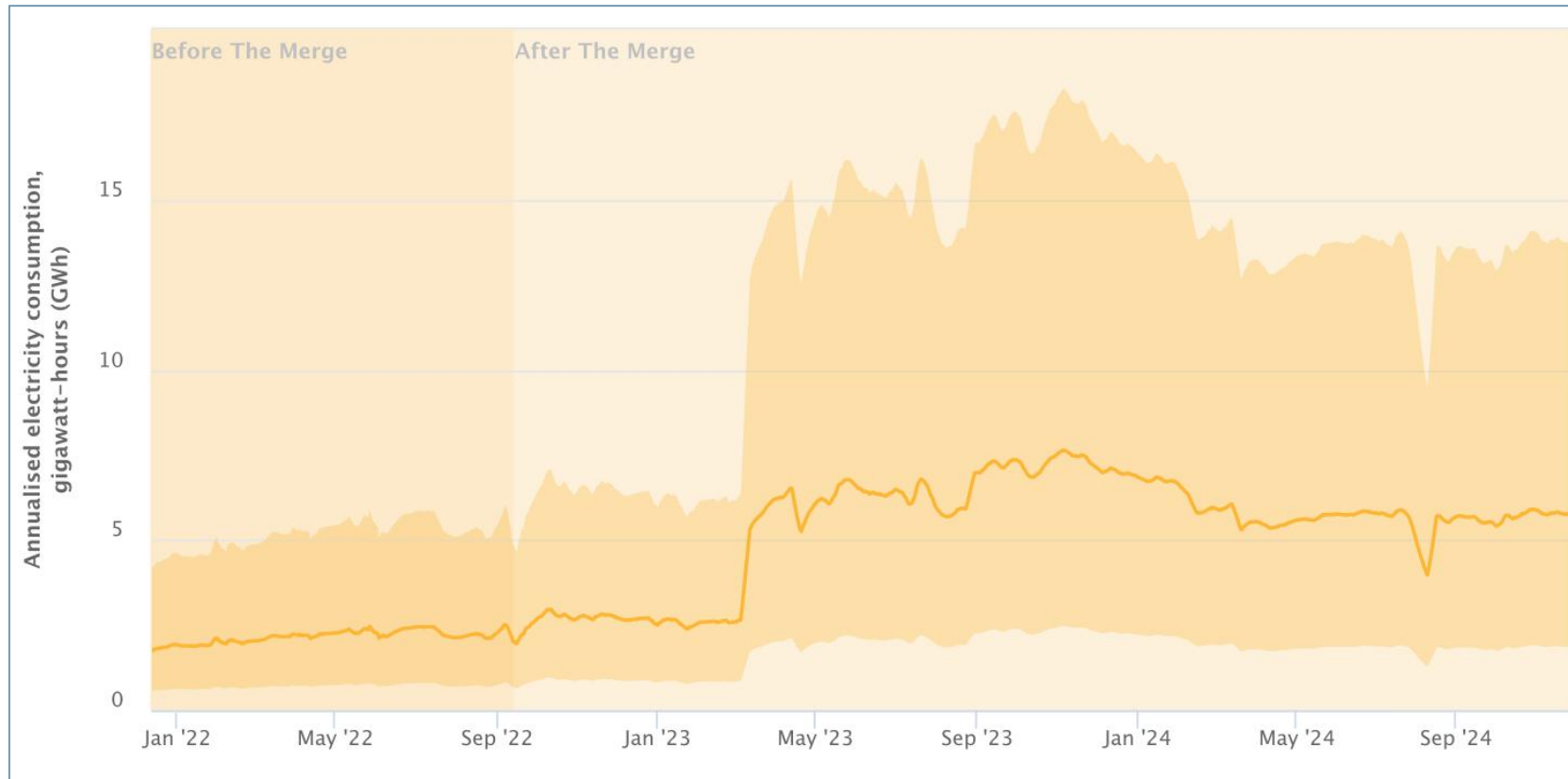


\* Source: Cambridge Bitcoin Electricity Consumption Index, available at <https://ccaf.io/cbnsi/cbeci>



# Case 2. Ethereum - Proof-of-Stake (PoS) Blockchain: Historical Ethereum Network Power Demand, 2022 - 2025 \*

**Fig. 29. Historical Ethereum Network Power Demand, 2022 - 2025 \***

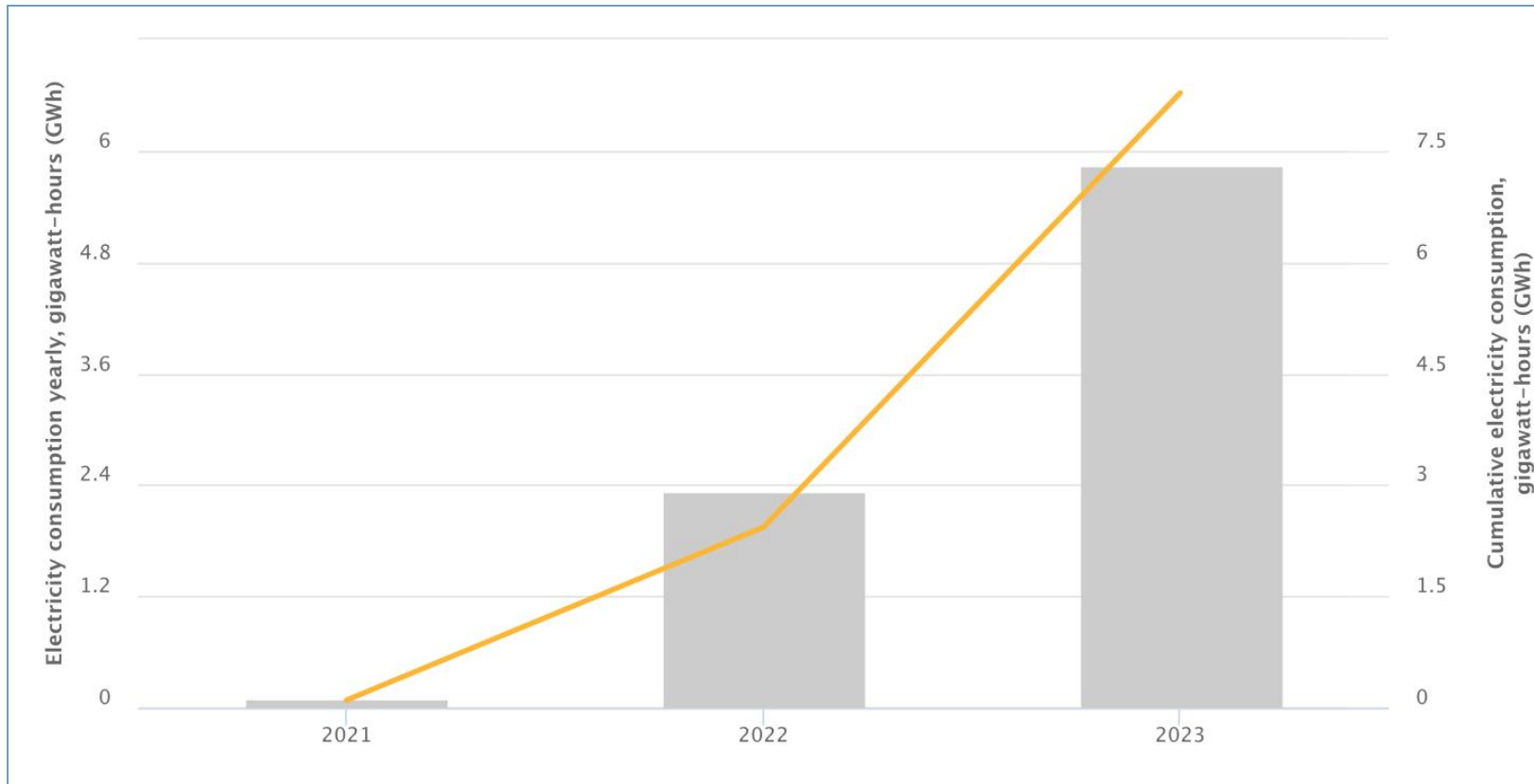


**Note:** A seven-day moving average is applied to reduce the effect of short-term Beacon Node count volatility. The graph does not show historical electricity consumption estimates of the Ethereum Mainnet before The Merge.

\* Source: Cambridge Ethereum Electricity Consumption Index, available at <https://ccaf.io/cbnsi/ethereum>

# Case 2. Ethereum - Proof-of-Stake (PoS) Blockchain: Total Ethereum Electricity Consumption, 2021 -2023 \*

**Fig. 30. Total Ethereum Electricity Consumption, 2021 - 2023 \***

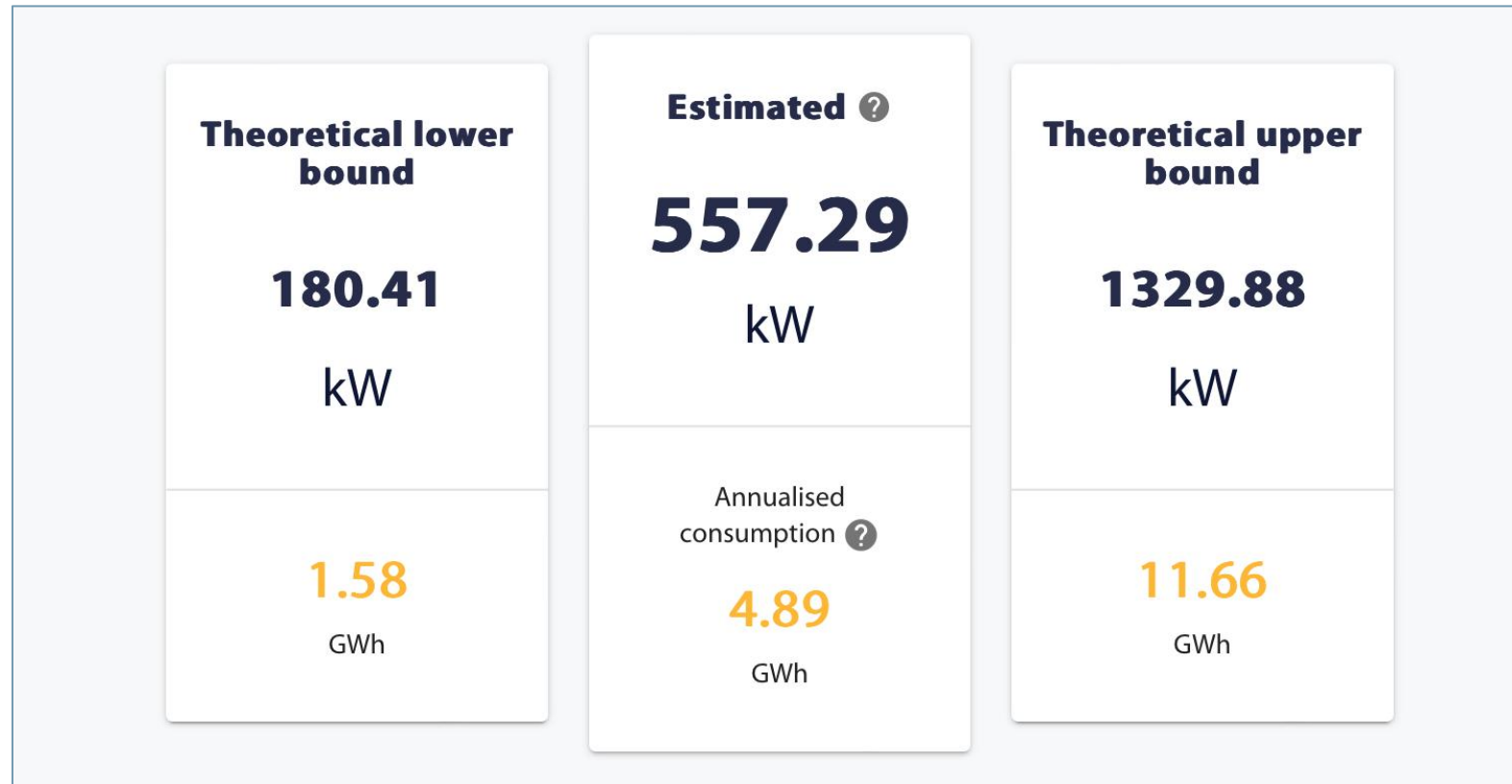


**Note:** monthly or yearly consumption figures are the sum of daily consumption figures calculated by assuming constant power usage over 24 hours at the daily best-guess estimate of Ethereum's network power demand. The cumulative consumption is the sum of monthly or yearly totals since the start of the model on 12/12/2021.

\* Source: Cambridge Ethereum Electricity Consumption Index, available at <https://ccaf.io/cbnsi/ethereum>

# Ethereum Network Power Demand: March 30, 2025 \*

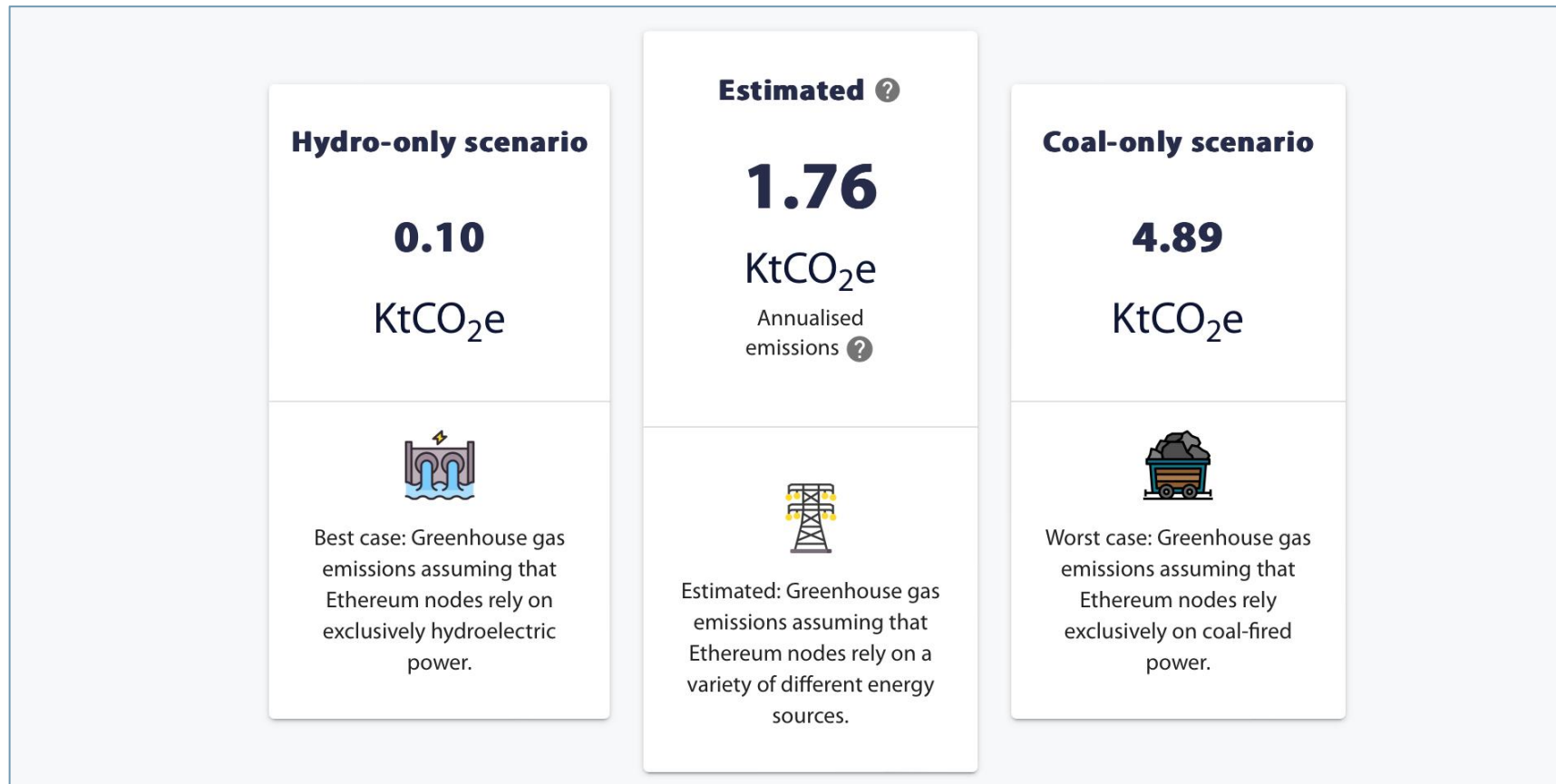
## Ethereum Network Power Demand on the March 30<sup>th</sup> 2025 \*



\* Source: Cambridge Ethereum Electricity Consumption Index, available at <https://ccaf.io/cbnsi/ethereum>

# Ethereum Greenhouse Gas Emissions: March 30, 2025 \*

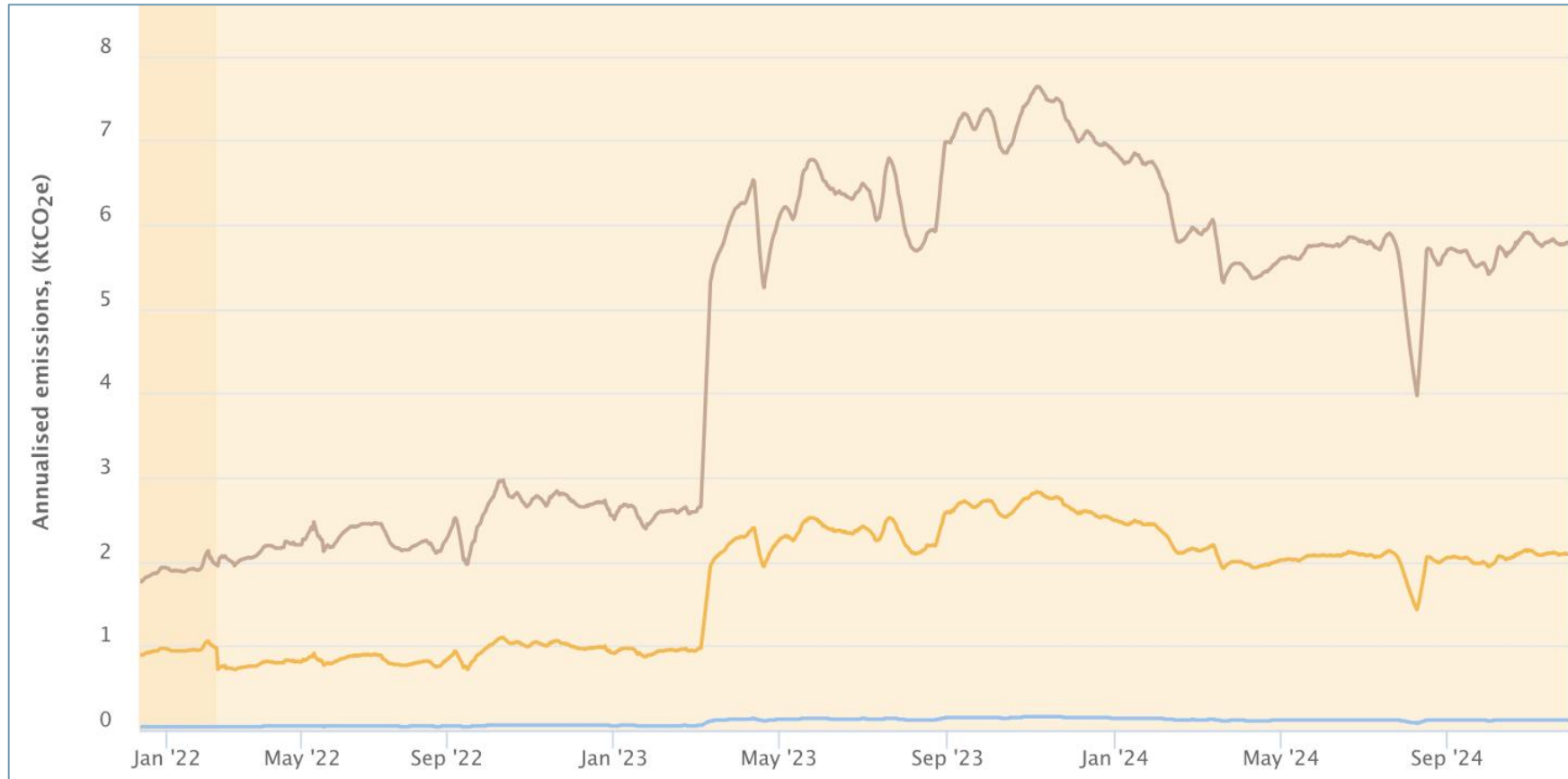
## Ethereum Greenhouse Gas Emissions on the March 30<sup>th</sup> 2025 \*



\* Source: Cambridge Ethereum Index, available at <https://ccaf.io/cbnsi/ethereum/ghg>

# Ethereum Greenhouse Gas Emissions, 2022-2025 \*

**Fig. 31. Ethereum Historical Greenhouse Gas Emissions, 2022 - 2025 \***

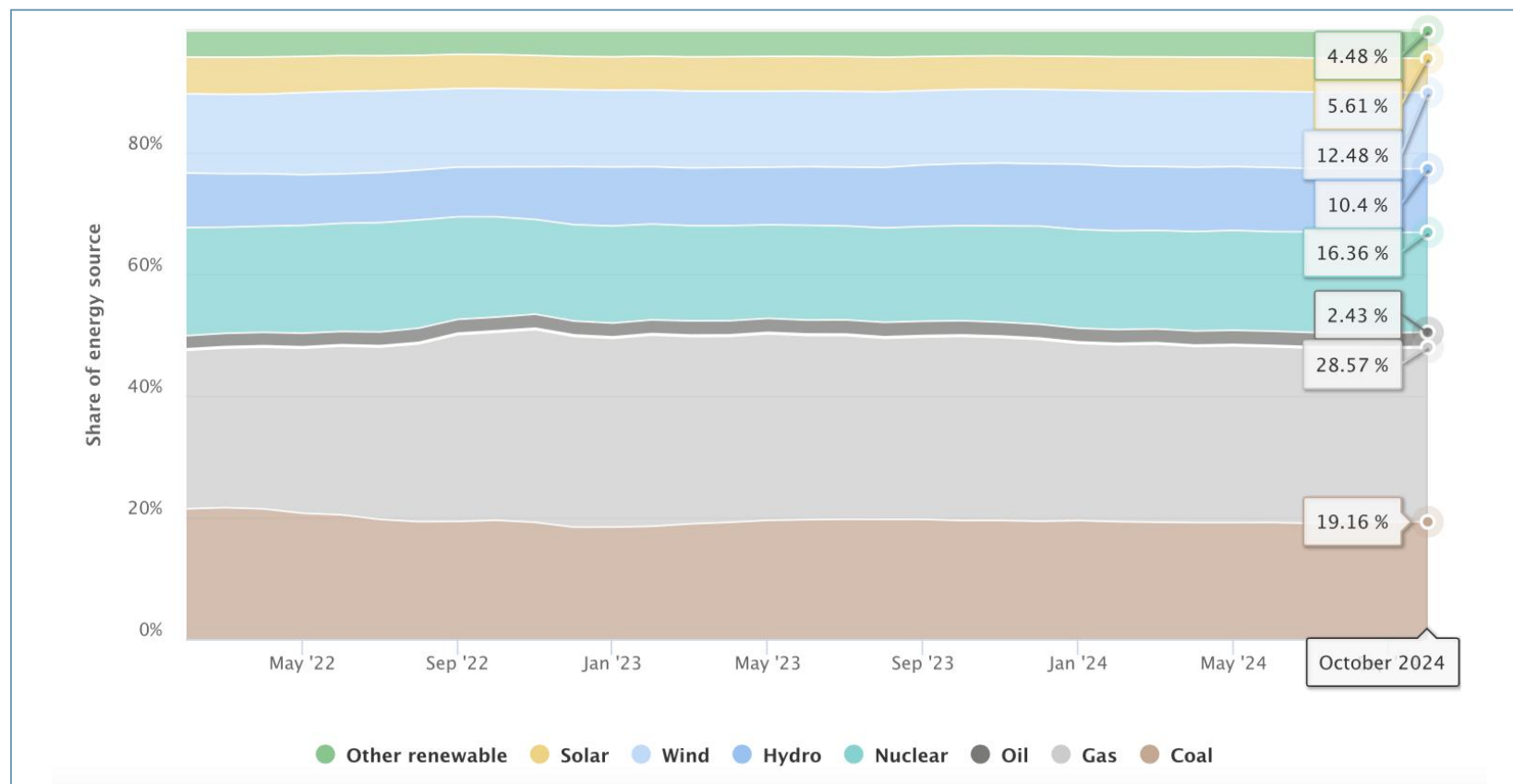


**Note:** "Historical" refers to the period before location-specific data was available. GHG emissions are expressed in kilotonnes of carbon dioxide equivalent (KtCO<sub>2</sub>e).

\* Source: Cambridge Ethereum Index, available at <https://ccaf.io/cbnsi/ethereum/ghg>

# Ethereum Consumption by Source, 2022-2025 \*

Fig. 32. Ethereum Consumption by Source, 2022 - 2025 \*



**Note:** The electricity consumption by source is based on a combination of annual data on electricity generation by source and daily data on the geolocational distribution of Ethereum nodes. More information can be found in the network analytics segment.

\* Source: Cambridge Ethereum Index, available at <https://ccaf.io/cbnsi/ethereum/ghg>



# Ethereum Emission Intensity, 2022-2025 \*

**Fig. 33. Ethereum Emission Intensity, 2022 - 2025 \***



**Note:** As with electricity consumption by source, the model also provides an estimate of the average greenhouse gas emission intensity. Specified in terms of greenhouse gases emitted per kilowatt-hour (gCO<sub>2</sub>e/kWh), the estimate indicates the environmental footprint of the average kilowatt-hour consumed by Ethereum nodes.

\* Source: Cambridge Ethereum Index, available at <https://ccaf.io/cbnsi/ethereum/ghg>

# Research Activity 2. Brainstorming: Carbon Footprint of Artificial Intelligence (AI), FinTech and Crypto Industry

## Research Activity 2. Brainstorming: Carbon Footprint of AI, FinTech and Crypto Industry: The Regional and International Levels

### Steps to follow:

1. Choose the region or country alongwith the segment (AI, FinTech or Crypto Industry) or the project to be investigated;
2. Conduct research anaylsis on the chosen project's carbon footprint within the selected region or country;
3. Present the summary of the current state of the project (or the segment):
  - Identify data sources on carbon footprint of the project (or the segment);
  - Clarify the project's technological solutions and envinronmental impact;
  - Present the data evidence for your conclusions.

# Thank you!