

117TH CONGRESS  
2D SESSION

# S. 5210

To require an interagency study on the environmental and energy impacts of crypto-asset mining, to assess crypto-asset mining compliance with the Clean Air Act, and for other purposes.

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## IN THE SENATE OF THE UNITED STATES

DECEMBER 7, 2022

Mr. MARKEY (for himself and Mr. MERKLEY) introduced the following bill; which was read twice and referred to the Committee on Environment and Public Works

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## A BILL

To require an interagency study on the environmental and energy impacts of crypto-asset mining, to assess crypto-asset mining compliance with the Clean Air Act, and for other purposes.

1       *Be it enacted by the Senate and House of Representa-*  
2       *tives of the United States of America in Congress assembled,*

3       **SECTION 1. SHORT TITLE.**

4       This Act may be cited as the “Crypto-Asset Environ-  
5       mental Transparency Act of 2022”.

6       **SEC. 2. FINDINGS.**

7       Congress finds that—

1 (1) human activity is the dominant cause of ob-  
2 served climate change in the past century;

3 (2) climate change is increasing the frequency  
4 and intensity of wildfires, droughts, severe storms,  
5 heat waves, rising of sea levels, and severe weather  
6 events;

7 (3) the Federal Government has—

8 (A) committed under the decision of the  
9 21st Conference of Parties of the United Na-  
10 tions Framework Convention on Climate  
11 Change, adopted in Paris, France, December  
12 12, 2015 (commonly referred to as the “Paris  
13 Agreement”), to reduce greenhouse gas emis-  
14 sions by 50 to 52 percent by 2030; and

15 (B) a responsibility to mitigate current and  
16 future impacts of climate change to protect the  
17 health, safety, and welfare of individuals of the  
18 United States;

19 (4) crypto-asset mining operations—

20 (A) can be energy intensive; and

21 (B) unlike most other technologies, are  
22 often designed to generally increase computing  
23 requirements over time, which can lead to in-  
24 creased energy consumption;

1 (5) a crypto-asset network, Bitcoin, consumes  
2 more energy annually than countries such as Chile  
3 or Bangladesh consume;

4 (6) crypto-asset mining operations often rely on  
5 fossil fuels for power, which contributes to green-  
6 house gas emissions;

7 (7) the carbon dioxide emissions of the United  
8 States from Bitcoin mining were estimated at 21 to  
9 35 megatons per year in 2022, which is equivalent  
10 to the annual emissions from more than 4,500,000  
11 to 7,500,000 gasoline-powered cars driven for 1  
12 year;

13 (8) crypto-asset mining can also cause local  
14 noise and water pollution;

15 (9) the number of crypto-asset mining facilities  
16 in the United States is increasing, and the share of  
17 the United States of global Bitcoin mining rose from  
18 3.5 percent in 2020 to 38 percent in 2022;

19 (10) crypto-asset mining is an emergent indus-  
20 try, and the potential of crypto-asset mining to exac-  
21 erbate systemic racial, social, environmental, and  
22 economic injustices is not sufficiently understood;

23 (11) there is no comprehensive, independent  
24 study of crypto-asset mining operations in the  
25 United States, including the energy use, resource

1 mix, and greenhouse gas emissions of those crypto-  
2 asset mining operations; and

3 (12) one of the primary recommendations of the  
4 report of the Office of Science and Technology Pol-  
5 icy entitled “Climate and Energy Implications of  
6 Crypto-Assets in the United States” and dated Sep-  
7 tember 2022 was to obtain detailed data on energy  
8 use and emissions from crypto-asset activity.

9 **SEC. 3. DEFINITIONS.**

10 In this Act:

11 (1) ADMINISTRATOR.—The term “Adminis-  
12 trator” means the Administrator of the Environ-  
13 mental Protection Agency.

14 (2) AIR POLLUTANT.—The term “air pollutant”  
15 has the meaning given the term in section 302 of the  
16 Clean Air Act (42 U.S.C. 7602).

17 (3) BLOCK.—The term “block” means a group  
18 of data stored as a single record in a blockchain.

19 (4) BLOCKCHAIN.—The term “blockchain”  
20 means a distributed ledger technology in which—

21 (A) the data are shared across a network  
22 that creates a digital ledger of verified trans-  
23 actions or information among network partici-  
24 pants; and

1 (B) the data are typically linked using  
2 cryptography to maintain the integrity of the  
3 ledger and execute other functions, including  
4 transfer of ownership or value.

5 (5) CONSENSUS MECHANISM.—The term “con-  
6 sensus mechanism” means a process to achieve  
7 agreement among network participants on the cur-  
8 rent state of a blockchain.

9 (6) CRYPTO-ASSET.—The term “crypto-asset”  
10 means a digital asset, which may be a medium of ex-  
11 change, a representation of value, or both, for which  
12 generation or ownership records of the digital asset  
13 are recorded in a distributed ledger technology that  
14 relies on cryptography.

15 (7) CRYPTO-ASSET MINING.—The term “crypto-  
16 asset mining” means the process of performing com-  
17 putations to add a valid block of data to the  
18 blockchain, typically in exchange for a reward or fee.

19 (8) POWER LOAD.—The term “power load”  
20 means the amount of electrical power, in megawatts,  
21 that can be consumed by a qualifying crypto-asset  
22 mining operation.

23 (9) QUALIFYING CRYPTO-ASSET MINING OPER-  
24 ATION.—The term “qualifying crypto-asset mining  
25 operation” means—

1 (A) an individual crypto-asset mining facil-  
2 ity that has a power load that is greater than  
3 or equal to 5 megawatts; or

4 (B) multiple crypto-asset mining facilities  
5 that—

6 (i) are owned by the same company;

7 and

8 (ii)(I) each have a power load that is  
9 less than 5 megawatts; but

10 (II) have a cumulative power load  
11 that is greater than or equal to 5  
12 megawatts.

13 (10) SCOPE 1 EMISSIONS.—The term “scope 1  
14 emissions” means greenhouse gas emissions directly  
15 from sources that are operated, controlled, or owned  
16 by an individual or entity performing a qualifying  
17 crypto-asset mining operation.

18 (11) SCOPE 2 EMISSIONS.—The term “scope 2  
19 emissions” means indirect greenhouse gas emissions  
20 associated with the purchase of electricity, steam,  
21 heat, or cooling by an individual or entity per-  
22 forming a qualifying crypto-asset mining operation.

23 (12) SECRETARY.—The term “Secretary”  
24 means the Secretary of Energy.

1 **SEC. 4. COMPLIANCE WITH THE CLEAN AIR ACT.**

2 (a) RULEMAKING REQUIRED.—

3 (1) PROPOSED REGULATION.—Not later than 1  
4 year after the date of enactment of this Act, the Ad-  
5 ministratoꝛ shall issue a notice of proposed rule-  
6 making to revise part 98 of title 40, Code of Federal  
7 Regulations (as in effect on the date of enactment  
8 of this Act)—

9 (A) to require qualifying crypto-asset min-  
10 ing operations to report as covered facilities  
11 under subpart A of that part;

12 (B) to add a new subpart to that part that  
13 includes qualifying crypto-asset mining oper-  
14 ations as a source category;

15 (C) to include in the new subpart created  
16 under subparagraph (B) appropriate calculation  
17 methodologies, reporting guidelines, and moni-  
18 toring operations of, with respect to qualifying  
19 crypto-asset mining operations, scope 1 emis-  
20 sions and scope 2 emissions; and

21 (D) to designate the qualifying crypto-  
22 asset mining operations source category estab-  
23 lished pursuant to subparagraph (B) as a  
24 source category that is subject to greenhouse  
25 gas reporting requirements and related moni-  
26 toring, recordkeeping, and reporting require-

1           ments under section 98.2 of that title, regard-  
2           less of whether a qualifying crypto-asset mining  
3           operation emits at least 25,000 metric tons of  
4           carbon dioxide-equivalent.

5           (2) FINAL RULE.—Not later than 180 days  
6           after the date on which the public comment period  
7           on the proposed rule under paragraph (1) closes, the  
8           Administrator shall issue a final rule revising part  
9           98 of title 40, Code of Federal Regulations.

10          (b) ASSESSMENT.—Not later than 1 year after the  
11         date on which the Administrator finalizes the rule required  
12         under subsection (a), the Administrator shall, pursuant to  
13         section 114(a) of the Clean Air Act (42 U.S.C. 7414(a)),  
14         issue requests for information for the purpose of con-  
15         ducting an assessment of, with respect to qualifying  
16         crypto-asset mining operations, the permit programs  
17         under the Clean Air Act (42 U.S.C. 7401 et seq.), which  
18         shall include identifying the extent to which any qualifying  
19         crypto-asset mining operations are improperly operating  
20         without a valid and current permit under that Act.

21          (c) AUTHORIZATION OF APPROPRIATIONS.—There is  
22         authorized to be appropriated to the Administrator to  
23         carry out this section \$5,000,000 for fiscal year 2023, to  
24         remain available until expended.



1 (d) SAVINGS PROVISION.—Nothing in this section  
2 limits the ability of the Administrator to require the re-  
3 porting of emissions of any type in another source cat-  
4 egory.

5 **SEC. 5. IMPACT STUDY.**

6 (a) IN GENERAL.—Not later than 1 year after the  
7 date of enactment of this Act, the Administrator, in con-  
8 sultation with the Secretary, the Administrator of the En-  
9 ergy Information Administration, the Federal Energy  
10 Regulatory Commission, and the head of any other Fed-  
11 eral agency the Administrator or the Secretary determines  
12 appropriate, shall conduct a study on the environmental  
13 impacts of crypto-asset mining in the United States.

14 (b) STUDY REQUIREMENTS.—The study required  
15 under subsection (a) shall include—

16 (1) the number and location of any existing or  
17 planned qualifying crypto-asset mining operation;

18 (2) the amount of greenhouse gas emissions  
19 and other air pollutants that are—

20 (A) released by an onsite energy source;

21 and

22 (B) attributable to offsite-generated elec-  
23 tricity, steam, heat, or cooling provided to a  
24 qualifying crypto-asset mining operation;

1           (3) the anticipated increase of new, and expansion of existing, qualifying crypto-asset mining operations;  
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4           (4) the potential impacts of electric energy consumption by qualifying crypto-asset mining operations, including by prolonging the use of fossil fuel generators, on the ability of the United States to achieve the greenhouse gas emission reductions necessary to keep global warming below 1.5 degrees Celsius compared to pre-industrial levels;  
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11           (5) the ecological impacts, including ecological impacts associated with electronic waste generation and the use or discharge of cooling water, caused by qualifying crypto-asset mining operations;  
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15           (6) the potential public health impacts due to the reduced air and water quality and increased water stress on communities near qualifying crypto-asset mining operations;  
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19           (7) the potential public health impacts from greenhouse gas emissions released by qualifying crypto-asset mining operations;  
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22           (8) the potential public health and ecological impacts from noise generated by qualifying crypto-asset mining operations;  
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1           (9) the amount of electric energy consumed by  
2 each qualifying crypto-asset mining operation, in-  
3 cluding the time of use of electricity and the poten-  
4 tial grid stress posed by the power load of the quali-  
5 fying crypto-asset mining operation;

6           (10) the source of electric energy consumed by  
7 each qualifying crypto-asset mining operation;

8           (11) the aggregated energy-use statistics and  
9 greenhouse gas emissions statistics for qualifying  
10 crypto-asset mining operations in the United States;

11           (12) an analysis of energy use and greenhouse  
12 gas emissions by type of consensus mechanism;

13           (13) an analysis of demand-response programs  
14 negotiated between qualifying crypto-asset mining  
15 operations and electric utilities;

16           (14) an analysis of potential rate-design meas-  
17 ures that could be implemented by State and local  
18 regulators to reduce the energy consumption and de-  
19 pendence on fossil fuel energy sources of crypto-  
20 asset mining operations;

21           (15) a geospatial assessment of the extent to  
22 which crypto-asset mining operations are located  
23 within environmental justice communities, as defined  
24 by the Administrator or within the Climate and Eco-

1        nomic Justice Screening Tool of the Council on En-  
2        vironmental Quality; and

3            (16) an identification of, and recommendations  
4        for, best practices for data types, data sources, and  
5        methodologies for accurately measuring, modeling,  
6        and tracking the environmental impacts of crypto-  
7        asset mining operations in the United States in the  
8        future.

9        (c) PUBLIC COMMENT.—Before conducting the study  
10       required by subsection (a), the Administrator shall provide  
11       an opportunity for public comment and advice relevant to  
12       conducting the study.

13       (d) REPORT TO CONGRESS.—Not later than 18  
14       months after the date of enactment of this Act, the Ad-  
15       ministrator shall submit to the Committees on Energy and  
16       Commerce and Science, Space, and Technology of the  
17       House of Representatives and the Committees on Environ-  
18       ment and Public Works and Energy and Natural Re-  
19       sources of the Senate, and publish on the public websites  
20       of the Environmental Protection Agency and the Depart-  
21       ment of Energy, a report that contains the results of the  
22       study required by subsection (a).

23       (e) AUTHORIZATION OF APPROPRIATIONS.—There is  
24       authorized to be appropriated to the Administrator to

1 carry out this section \$5,000,000 for fiscal year 2023, to  
2 remain available until expended.

3 **SEC. 6. ENERGY EFFICIENCY OF DATA CENTER BUILDINGS.**

4 Section 453(a)(1) of the Energy Independence and  
5 Security Act of 2007 (42 U.S.C. 17112(a)(1)) is amend-  
6 ed—

7 (1) in subparagraph (A), by striking “or” at  
8 the end after the semicolon;

9 (2) in subparagraph (B), by striking the period  
10 at the end and inserting “; or”; and

11 (3) by adding at the end the following:

12 “(C) a facility in which 2 or more com-  
13 puters perform logical operations to mine or  
14 create crypto-asset (as defined in section 3 of  
15 the Crypto-Asset Environmental Transparency  
16 Act of 2022).”.

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