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(Original Signature of Member)

119TH CONGRESS
2D SESSION

H. R. _____

To direct the Director of the National Institute of Standards and Technology to develop best practices for measuring data center energy use, study data availability for the purpose of improving energy demand forecasting capabilities, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

Mr. SUBRAMANYAM introduced the following bill; which was referred to the Committee on _____

A BILL

To direct the Director of the National Institute of Standards and Technology to develop best practices for measuring data center energy use, study data availability for the purpose of improving energy demand forecasting capabilities, 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 “Data Infrastructure
5 Energy Measurement and Standards Act”.

1 **SEC. 2. ACTIVITIES TO SUPPORT METROLOGY OF DATA**
2 **CENTER ENERGY USE.**

3 (a) **BEST PRACTICES FOR MEASURING DATA CEN-**
4 **TER ENERGY USE.**—The Director of the National Insti-
5 tute of Standards and Technology, in consultation with
6 the Secretary of Energy, shall carry out a measurement
7 research program (in this section referred to as the “pro-
8 gram”) to inform the development or improvement of best
9 practices, definitions, methodologies, procedures, and tech-
10 nical standards for the measurement of energy and water
11 use by data centers and the workloads of such centers,
12 including the measurement of energy and water use result-
13 ing from training and inference of artificial intelligence
14 models or other compute intensive information processes.

15 (b) **ACTIVITIES.**—In carrying out the program, the
16 Director shall carry out the following:

17 (1) Conduct research and testing to improve the
18 accuracy, efficacy, timeliness, and reliability of the
19 measurement of energy and water use by data cen-
20 ters and the workloads of such centers.

21 (2) Develop or identify best practices, guide-
22 lines, definitions, methodologies, and procedures for
23 measuring and reporting energy and water use by
24 data centers and the workloads of such centers, tak-
25 ing into consideration the following:

1 (A) The type of workload and aggregate
2 energy and water use by a given data center,
3 including complex artificial intelligence work-
4 loads.

5 (B) Temporal power consumption load pro-
6 files associated with data center energy use ac-
7 counting for behind-the-meter generation, front-
8 of-meter generation, and energy generation not
9 provided to the electric grid on a facility-level
10 basis.

11 (C) Varying information technology sys-
12 tem, power chain, and cooling configurations,
13 including consideration of servers, storage, net-
14 work, power transformation, distribution, and
15 uninterruptible supply technologies.

16 (D) Temporal variations in electricity loads
17 due to variations in workloads, technology con-
18 figurations, and data center locations, including
19 local climate and resource factors.

20 (3) Study data needs for relevant research and
21 energy and water demand forecasting, and relevant
22 driving factors relating to such needs, including an
23 identification of the following:

24 (A) Existing gaps in the following:

25 (i) Data collection.

1 (ii) Data availability from public and
2 non-public sources.

3 (iii) Researcher access.

4 (B) Risks related to the gaps identified in
5 clauses (i) through (iii) of subparagraph (A),
6 including the reliability of energy and water de-
7 mand forecasts from different stakeholder per-
8 spectives.

9 (4) Support the development of standardized
10 metrics and data sharing mechanisms that would
11 help provide information to researchers and relevant
12 stakeholders regarding data center energy and water
13 use in such a way that promotes improved energy
14 and water demand forecasting capabilities.

15 (5) Coordinate with the Secretary of Energy to
16 carry out the following:

17 (A) Ensure applicable metrics and data are
18 managed, stewarded, and archived appro-
19 priately, and in accordance with the best prac-
20 tices described in paragraph (2).

21 (B) Promote full and open exchange of
22 such metrics and data at Federal and State lev-
23 els, and with academia, industry, and other
24 users, as practicable and appropriate.

1 (6) Coordinate with international partners, in-
2 cluding international standards organizations, to
3 maintain global data center energy measurement
4 standards.

5 (c) STAKEHOLDER ENGAGEMENT.—In carrying out
6 subsection (b), the Director shall seek to engage with and
7 convene representatives of industry, academia, nonprofit
8 organizations, standards development organizations, civil
9 society groups, and appropriate Federal departments and
10 agencies.

11 (d) BRIEFINGS.—Not later than one year after the
12 date of the enactment of this Act, and again not later than
13 two years after such date, the Director shall brief the
14 Committee on Science, Space, and Technology of the
15 House of Representatives and the Committee on Com-
16 merce, Science, and Transportation and the Committee on
17 Energy and Natural Resources of the Senate on the pro-
18 gram.

19 (e) AUTHORIZATION OF APPROPRIATIONS.—There
20 are authorized to be appropriated to the Director to carry
21 out this section \$10,000,000 for each of fiscal years 2027
22 through 2029.

23 (f) DEFINITIONS.—In this section:

24 (1) ARTIFICIAL INTELLIGENCE.—The term “ar-
25 tificial intelligence” has the meaning given such

1 term in section 5002 of the National Artificial Intel-
2 ligence Initiative Act of 2020 (15 U.S.C. 9401).

3 (2) ARTIFICIAL INTELLIGENCE MODEL.—The
4 term “artificial intelligence model” means a software
5 component of an information system that imple-
6 ments artificial intelligence technology and uses
7 computational, statistical, or machine-learning tech-
8 niques to produce outputs from a defined set of in-
9 puts.

10 (3) BEHIND-THE-METER GENERATION.—The
11 term “behind-the-meter generation” means the gen-
12 eration or storage of energy, including electricity and
13 fuels consumed in backup and onsite generation,
14 using a system that operates on the customer side
15 of the applicable utility meter.

16 (2) DATA CENTER.—The term “data center”
17 means any facility that primarily contains electronic
18 equipment used to process, store, or transmit digital
19 information.

20 (3) DIRECTOR.—The term “Director” means
21 the Director of the National Institute of Standards
22 and Technology.

23 (4) FRONT-OF-METER GENERATION.—The term
24 “front-of-meter generation” means the generation of
25 energy at a facility directly connected to a grid with

1 the primary purpose of providing electricity to one
2 or more offsite locations via such grid or utility me-
3 ters with which such facility does not have an elec-
4 trical connection.

5 (5) INFORMATION SYSTEM.—The term “infor-
6 mation system” has the meaning given such term in
7 section 3502 of title 44, United States Code.