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S. 4140

To require the Secretary of Energy to identify, analyze, and share available data for the purpose of improving the reliability and resilience of the electric grid, and for other purposes.

IN THE SENATE OF THE UNITED STATES

APRIL 17, 2024

Mr. HEINRICH (for himself, Mr. WYDEN, and Mr. PADILLA) introduced the following bill; which was read twice and referred to the Committee on Energy and Natural Resources

A BILL

To require the Secretary of Energy to identify, analyze, and share available data for the purpose of improving the reliability and resilience of the electric grid, 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 “Grid Reliability and
5 Integrated Data Act of 2024” or the “GRIData Act of
6 2024”.

7 **SEC. 2. DEFINITIONS.**

8 (a) IN GENERAL.—In this Act:

1 (1) CUSTOMER AVERAGE INTERRUPTION DURA-
 2 TION INDEX; CAIDI.—In accordance with IEEE
 3 1366, the term “Customer Average Interruption Du-
 4 ration Index” or “CAIDI” means the average num-
 5 ber of minutes per sustained interruption experi-
 6 enced by customers per year.

7 (2) DEPARTMENT.—The term “Department”
 8 means the Department of Energy.

9 (3) ENERGY COMMUNITY.—The term “energy
 10 community” has the meaning given the term in sec-
 11 tion 45(b)(11)(B) of the Internal Revenue Code of
 12 1986.

13 (4) IEEE 1366.—The term “IEEE 1366”
 14 means the standard published by the Institute of
 15 Electrical and Electronics Engineers Standards As-
 16 sociation entitled “IEEE Guide for Electric Power
 17 Distribution Reliability Indices” and numbered 1366
 18 (as in effect on the date of enactment of this Act).

19 (5) INTEGRATED RESOURCE PLANNING.—The
 20 term “integrated resource planning” means mod-
 21 eling and evaluating how projected long-term elec-
 22 tricity demands (such as electricity demands over pe-
 23 riods of 5, 10, 20, or more years) within a service
 24 area can be met with a combination of electric gen-
 25 eration resources that best achieve desired metrics,

1 such as metrics relating to reliability, resilience, and
 2 cost.

3 (6) MOMENTARY AVERAGE INTERRUPTION FRE-
 4 QUENCY INDEX; MAIFI.—In accordance with IEEE
 5 1366, the term “Momentary Average Interruption
 6 Frequency Index” or “MAIFI” means the average
 7 number of momentary interruptions experienced by
 8 customers per year.

9 (7) MOMENTARY INTERRUPTION.—

10 (A) IN GENERAL.—In accordance with
 11 IEEE 1366, the term “momentary interrup-
 12 tion” means a brief loss of power, as deter-
 13 mined by the applicable electric utility, subject
 14 to subparagraph (B).

15 (B) EXCLUSION.—The term “momentary
 16 interruption” does not include a loss of power
 17 lasting more than 5 minutes.

18 (8) RELIABILITY.—The term “reliability”, with
 19 respect to the electric grid, means the ability of the
 20 electric grid or the components of the electric grid
 21 to withstand instability, uncontrolled events, cas-
 22 cading failures, or unanticipated loss of system com-
 23 ponents.

24 (9) RESILIENCE.—The term “resilience”, with
 25 respect to the electric grid, means the ability of the

1 electric grid or the components of the electric grid
2 to adapt to changing conditions and withstand and
3 rapidly recover from disruptions, including disruptions
4 caused by extreme weather conditions or
5 emerging threats.

6 (10) RESOURCE ADEQUACY.—The term “re-
7 source adequacy” means the adequate supply and
8 provision of electricity from various electric genera-
9 tion resources to meet projected electricity demands
10 in a service area.

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

13 (12) SUSTAINED INTERRUPTION.—In accord-
14 ance with IEEE 1366, the term “sustained interrup-
15 tion” means an interruption in power service lasting
16 more than 5 minutes.

17 (13) SYSTEM AVERAGE INTERRUPTION DURA-
18 TION INDEX; SAIDI.—In accordance with IEEE
19 1366, the term “System Average Interruption Dura-
20 tion Index” or “SAIDI” means the average number
21 of minutes of sustained interruption per customer
22 per year.

23 (14) SYSTEM AVERAGE INTERRUPTION FRE-
24 QUENCY INDEX; SAIFI.—In accordance with IEEE
25 1366, the term “System Average Interruption Fre-

1 quency Index” or “SAIFI” means the average num-
 2 ber of sustained interruptions per customer per year.

3 (b) DISADVANTAGED COMMUNITY; LOW-INCOME
 4 COMMUNITY; RURAL AREA.—

5 (1) IN GENERAL.—The Secretary shall define
 6 the terms “disadvantaged community”, “low-income
 7 community”, and “rural area” for purposes of this
 8 Act.

9 (2) REQUIREMENT.—In carrying out paragraph
 10 (1), the Secretary shall take into consideration, as
 11 applicable, the following:

12 (A) The definition of the term “disadvan-
 13 taged community” in each of—

14 (i) section 6001 of the Omnibus Pub-
 15 lic Land Management Act of 2009 (16
 16 U.S.C. 1015); and

17 (ii) section 50121(d) of Public Law
 18 117–169 (commonly known as the “Infla-
 19 tion Reduction Act of 2022”) (42 U.S.C.
 20 18795(d)).

21 (B) The definition of the term “low-income
 22 community” in each of—

23 (i) section 11406(a) of the Infrastruc-
 24 ture Investment and Jobs Act (23 U.S.C.
 25 149 note; Public Law 117–58); and

1 (ii) section 45D(e) of the Internal
2 Revenue Code of 1986.

3 (C) The definition of the term “rural area”
4 in each of—

5 (i) section 609(a) of the Public Utility
6 Regulatory Policies Act of 1978 (7 U.S.C.
7 918c(a));

8 (ii) section 343(a) of the Consolidated
9 Farm and Rural Development Act (7
10 U.S.C. 1991(a)); and

11 (iii) section 6702(a) of title 49,
12 United States Code.

13 **SEC. 3. IDENTIFICATION, ANALYSIS, AND SHARING OF**
14 **DATA.**

15 (a) IN GENERAL.—The Secretary shall work with ap-
16 propriate entities, as necessary, to identify, analyze, and
17 share available data in a manner necessary—

18 (1) to inform and improve the reliability and re-
19 silience of the electric grid, especially in rural areas,
20 low-income communities, disadvantaged commu-
21 nities, and energy communities; and

22 (2) to improve long-term reliability assessments,
23 resource adequacy models, and integrated resource
24 planning.

25 (b) DATA IDENTIFICATION AND ANALYSIS.—

(1) RELIABILITY AND RESILIENCE DATA.—

(A) TYPES OF RELIABILITY AND RESILIENCE DATA.—In identifying and analyzing relevant data under subsection (a), the Secretary shall consider the types of data to be shared, including—

(i) existing IEEE 1366 reliability data and metrics, including—

(I) the System Average Interruption Duration Index (SAIDI);

(II) the System Average Interruption Frequency Index (SAIFI);

(III) the Customer Average Interruption Duration Index (CAIDI);

(IV) the Momentary Average Interruption Frequency Index (MAIFI); and

(V) any other reliability data or metric defined in IEEE 1366, as the Secretary determines to be appropriate; and

(ii) any new or modified data or metric, as the Secretary determines to be appropriate.

1 (B) TEMPORAL FREQUENCY OF RELI-
2 ABILITY AND RESILIENCE DATA.—In identifying
3 and analyzing relevant data under subsection
4 (a), the Secretary shall consider—

5 (i) the temporal frequency of the pro-
6 duction or collection of that data—

7 (I) to inform the reporting and
8 dissemination of information relating
9 to the reliability and resilience of the
10 electric grid on an annual basis, espe-
11 cially in rural areas, low-income com-
12 munities, disadvantaged communities,
13 and energy communities; and

14 (II) to the maximum extent prac-
15 ticable, to inform customers experi-
16 encing power outages of anticipated
17 recovery times on a real-time basis,
18 such as through the Outage Data Ini-
19 tiative Nationwide (ODIN) program
20 of the Department; and

21 (ii) any other considerations relating
22 to the temporal frequency of the produc-
23 tion or collection of that data, as the Sec-
24 retary determines to be appropriate.

1 (C) SPATIAL RESOLUTION OF RELIABILITY
2 AND RESILIENCE DATA.—In identifying and
3 analyzing relevant data under subsection (a),
4 the Secretary shall consider—

5 (i) the spatial resolution of that data,
6 with a goal—

7 (I) to inform the reporting and
8 dissemination of information relating
9 to the reliability and resilience of the
10 electric grid on an annual basis, espe-
11 cially in rural areas, low-income com-
12 munities, disadvantaged communities,
13 and energy communities; and

14 (II) to the maximum extent prac-
15 ticable, to inform customers experi-
16 encing power outages of anticipated
17 recovery times on a real-time basis,
18 such as through the Outage Data Ini-
19 tiative Nationwide (ODIN) program
20 of the Department; and

21 (ii) any other considerations relating
22 to the spatial resolution of that data, as
23 the Secretary determines to be appropriate.

24 (2) WEATHER DATA.—In identifying and ana-
25 lyzing relevant historical or simulated future weather

1 data required for long-term reliability assessments,
2 resource adequacy models, and integrated resource
3 planning under subsection (a), the Secretary shall,
4 as necessary, work with National Laboratories, the
5 National Center for Atmospheric Research, the Na-
6 tional Oceanic and Atmospheric Administration, and
7 other agencies or entities to consider—

8 (A) the type of data, which shall include
9 meteorological variables that have significant
10 impact on—

11 (i) generation, transmission, storage,
12 or distribution availability; or

13 (ii) electricity demand;

14 (B) the representativeness of the data,
15 with a goal to approximate actual conditions as
16 closely as reasonably possible with representa-
17 tiveness validated and uncertainty quantified;

18 (C) the spatial resolution of observational
19 data, with a goal to provide weather data over
20 a grid with 2 kilometer spacing or smaller;

21 (D) the frequency of the data, with a goal
22 to report weather data not less frequently than
23 hourly, and preferably every 15 minutes; and

24 (E) the duration of the data, with a goal
25 for the data to be—

1 (i) chronologically consistent, com-
2 plete, and span at least a 30-year period;
3 and

4 (ii) updated periodically, as deter-
5 mined by the Secretary.

6 (3) POTENTIAL DATA NEEDS.—In identifying
7 and analyzing relevant data under subsection (a),
8 the Secretary shall consider potential future needs,
9 including—

10 (A) emerging technologies that employ ma-
11 chine learning or artificial intelligence for the
12 purposes of improving—

13 (i) the reliability and resilience of the
14 electric grid, especially in rural areas, low-
15 income communities, disadvantaged com-
16 munities, and energy communities; and

17 (ii) long-term reliability assessments,
18 resource adequacy models, and integrated
19 resource planning;

20 (B) the changing mix of energy generation
21 resources and demands on the electric grid, in-
22 cluding energy efficiency as a resource;

23 (C) the security and costs associated with
24 collecting and sharing those data; and

1 (D) ways to mitigate risks and cost im-
2 pacts to utilities associated with data collection
3 and sharing.

4 (4) METHODS AND PLATFORMS.—In identifying
5 and analyzing relevant data under subsection (a)
6 with consideration of the factors described in para-
7 graphs (1) through (3), the Secretary shall consider
8 the available methods and platforms for acquiring
9 and sharing the data, including—

10 (A) existing surveys, such as the surveys
11 carried out using Form EIA-861 of the Energy
12 Information Administration;

13 (B) existing data sharing platforms, such
14 as—

15 (i) the Open Energy Data Initiative of
16 the Department;

17 (ii) the Outage Data Initiative Na-
18 tionwide (ODIN) program of the Depart-
19 ment;

20 (iii) the U.S. Energy Atlas of the En-
21 ergy Information Administration;

22 (iv) the Wind Data Hub of the Pacific
23 Northwest National Laboratory; and

1 (v) the National Solar Radiation
2 Database of the National Renewable En-
3 ergy Laboratory; and

4 (C) other methods and platforms, as the
5 Secretary determines to be appropriate, includ-
6 ing automated data collection methods.

7 (c) DATA AND INFORMATION SHARING.—

8 (1) REPORT.—

9 (A) IN GENERAL.—Not later than 1 year
10 after the date of enactment of this Act, the Sec-
11 retary shall submit to Congress and make pub-
12 licly available a report that summarizes the
13 findings from the activities conducted under
14 subsection (b).

15 (B) REQUIREMENT.—The report under
16 subparagraph (A) shall provide recommenda-
17 tions on the data types, spatial and temporal
18 resolution, collection methods, and sharing plat-
19 forms that will better assist utilities, regulators,
20 National Laboratories, academic institutions,
21 and associated agencies and entities in improv-
22 ing long-term electric reliability, resilience, re-
23 source adequacy modeling, and integrated re-
24 source planning.

1 (C) CONSIDERATION OF COSTS AND SECU-
2 RITY RISKS.—To the extent practicable, the re-
3 port under subparagraph (A) shall consider
4 costs and potential security risks associated
5 with data collection and sharing, with the goal
6 of minimizing costs and maximizing privacy and
7 security, as needed.

8 (2) WEBSITES.—

9 (A) IN GENERAL.—Not later than 18
10 months after the date of enactment of this Act,
11 the Secretary shall identify existing websites ad-
12 ministered by the Department or entities fund-
13 ed by the Department, including websites of the
14 Energy Information Administration or the Na-
15 tional Laboratories, or establish new websites,
16 to share available data in a manner identified
17 under subsection (b) and reported under para-
18 graph (1).

19 (B) PREFERENCE.—To improve accessi-
20 bility and standardization, the Secretary, in
21 carrying out subparagraph (A), shall give pref-
22 erence to fewer centralized and integrated
23 websites with appropriate links and references,
24 as necessary, rather than to multiple inde-
25 pendent websites.

1 (C) UPDATES.—The websites described in
2 subparagraph (A) shall be updated as needed,
3 as determined by the Secretary.

4 (d) STEERING COMMITTEE.—

5 (1) IN GENERAL.—The Secretary shall establish
6 a steering committee comprising a group of stake-
7 holders, including, as the Secretary determines to be
8 appropriate—

9 (A) representatives from relevant Federal
10 agencies, such as—

11 (i) the Office of Science and Tech-
12 nology Policy;

13 (ii) the Office of Electricity of the De-
14 partment;

15 (iii) the Office of Energy Efficiency
16 and Renewable Energy of the Department;

17 (iv) the Office of Cybersecurity, En-
18 ergy Security, and Emergency Response of
19 the Department;

20 (v) the Energy Information Adminis-
21 tration; and

22 (vi) the Federal Energy Regulatory
23 Commission;

24 (B) representatives of regulators and elec-
25 tric power sectors, such as—

- 1 (i) the North American Electric Reli-
- 2 ability Corporation;
- 3 (ii) the National Association of Regu-
- 4 latory Utility Commissioners;
- 5 (iii) State utility commissioners;
- 6 (iv) grid asset owners and operators
- 7 from the investor-owned utility segment;
- 8 (v) grid asset owners and operators
- 9 from the public power segment;
- 10 (vi) grid asset owners and operators
- 11 from the cooperative segment; and
- 12 (vii) the Institute of Electrical and
- 13 Electronics Engineers; and
- 14 (C) subject matter experts.

15 (2) PURPOSE.—The steering committee estab-

16 lished under paragraph (1) shall help inform and

17 guide the development and goals of the activities

18 carried out under subsection (a) by identifying prior-

19 ities for the identification, analysis, sharing, and use

20 of data under that subsection, such as—

- 21 (A) customer affordability;
- 22 (B) feasibility;
- 23 (C) the leveraging of existing capabilities
- 24 to minimize duplication of effort; and

1 (D) the protection of sensitive data or in-
2 formation.

3 (3) APPLICABILITY OF FACA.—Chapter 10 of
4 title 5, United States Code (commonly referred to as
5 the “Federal Advisory Committee Act”), shall not
6 apply to the steering committee established under
7 paragraph (1).

8 (e) RESPONSIBILITIES AND COSTS.—

9 (1) COLLABORATION.—In administering the ac-
10 tivities described in subsections (a) through (d), the
11 Secretary may work with utilities, electric coopera-
12 tives, National Laboratories, and other agencies and
13 entities, as the Secretary determines to be appro-
14 priate.

15 (2) AVOIDANCE OF ADDITIONAL COSTS.—In ad-
16 ministering the activities described in subsections (a)
17 through (d), the Secretary shall use amounts appro-
18 priated under subsection (f) to avoid imposing addi-
19 tional costs on electric cooperatives, utilities, and as-
20 sisting entities.

21 (3) ADDITIONAL PROGRAMS.—The Secretary
22 may establish new programs to carry out the activi-
23 ties described in subsections (a) through (d), as nec-
24 essary, using amounts appropriated under subsection
25 (f).

1 (4) SAVINGS PROVISION.—Nothing in this Act
2 precludes a State from continuing to collect, or add-
3 ing to, specific data required to be submitted to a
4 State agency.

5 (f) AUTHORIZATION OF APPROPRIATIONS.—There is
6 authorized to be appropriated to the Secretary to carry
7 out this section \$10,000,000 for the first fiscal year begin-
8 ning after the date of enactment of this Act, to remain
9 available until expended.

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