

## Calendar No. 355

118TH CONGRESS  
2D SESSION**S. 1118****[Report No. 118–164]**

To establish the Open Access Evapotranspiration (OpenET) Data Program.

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 IN THE SENATE OF THE UNITED STATES

MARCH 30, 2023

Ms. CORTEZ MASTO (for herself and Mr. HICKENLOOPER) introduced the following bill; which was read twice and referred to the Committee on Energy and Natural Resources

APRIL 9, 2024

Reported by Mr. MANCHIN, with an amendment and an amendment to the title

[Strike out all after the enacting clause and insert the part printed in italic]

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**A BILL**

To establish the Open Access Evapotranspiration (OpenET) Data Program.

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 “Open Access  
 5 ~~Evapotranspiration Data Act~~”.

1 **SEC. 2. DEFINITIONS.**

2 In this Act:

3 (1) **EVAPOTRANSPIRATION.**—The term  
4 “evapotranspiration” or “ET” means the process by  
5 which water is transferred from the land to the at-  
6 mosphere by—

7 (A) evaporation from soil and other sur-  
8 faces; and

9 (B) transpiration from plants.

10 (2) **PROGRAM.**—The term “Program” means  
11 the Open Access Evapotranspiration (OpenET) Data  
12 Program established under section 4(a).

13 (3) **PROGRAM PARTNER.**—The term “Program  
14 partner” means—

15 (A) an institution of higher education;

16 (B) a State (including a State agency);

17 (C) an Indian Tribe as defined in section  
18 4 of the Indian Self-Determination and Edu-  
19 cation Assistance Act (25 U.S.C. 5304);

20 (D) a private sector entity;

21 (E) a nongovernmental organization; or

22 (F) any other entity determined to be ap-  
23 propriate by the Secretary.

24 (4) **SECRETARY.**—The term “Secretary” means  
25 the Secretary of the Interior, acting through the Di-  
26 rector of the United States Geological Survey.

1 **SEC. 3. FINDINGS.**

2 Congress finds that—

3 (1) evapotranspiration is the second largest  
4 component of the water budget, which is an account-  
5 ing of the allocation of water resources to various  
6 water uses;

7 (2) evapotranspiration is a measure of the  
8 water that is consumed and lost from a water sys-  
9 tem; removed from available supplies; and unavail-  
10 able for other uses within a watershed;

11 (3) accurate information on evapotranspiration  
12 is required to balance water supply and water de-  
13 mand in a watershed and ensure that adequate  
14 water supplies for beneficial uses are available over  
15 time;

16 (4) water users and managers are impeded in  
17 more efficient decision making by—

18 (A) the lack of consistent and comprehen-  
19 sive water use data; and

20 (B) the fact that access to existing data is  
21 often limited and cost-prohibitive; and

22 (5) evapotranspiration data may be applied for  
23 the purposes of—

24 (A) assisting users and decisionmakers to  
25 better manage resources and protect financial  
26 viability of farm operations during drought;

1           (B) developing more accurate water budg-  
 2           ets and innovative management programs to  
 3           better promote conservation and sustainability  
 4           efforts; and

5           (C) employing greater groundwater man-  
 6           agement practices and understanding impacts  
 7           of consumptive water use.

8 **SEC. 4. OPEN ACCESS EVAPOTRANSPIRATION (OPENET)**  
 9           **DATA PROGRAM.**

10       (a) **ESTABLISHMENT.**—The Secretary shall establish  
 11 a program to be known as the “Open Access  
 12 Evapotranspiration (OpenET) Data Program” under  
 13 which the Secretary shall provide for the delivery of sat-  
 14 ellite-based evapotranspiration data, as available, sup-  
 15 ported by other ET methods—

16           (1) to advance the quantification of evaporation  
 17           and consumptive water use; and

18           (2) to provide data users with estimates of  
 19           evapotranspiration data across large landscapes over  
 20           certain periods of time, with a priority for Landsat  
 21           scale (30–100m) when available.

22       (b) **PURPOSE.**—The purpose of the Program is to  
 23 support the operational distribution of satellite-based  
 24 evapotranspiration data generated under the Program to  
 25 sustain and enhance water resources in the United States.

1 (c) DUTIES.—In carrying out the Program, the Sec-  
2 retary shall—

3 (1) evaluate, use, and modify sources of sat-  
4 ellite-based evapotranspiration data, supported by  
5 other ET methods, based on best available science  
6 and technologies; and

7 (2) coordinate and consult with—

8 (A) the heads of other relevant Federal  
9 agencies, including—

10 (i) the Commissioner of Reclamation;

11 (ii) the Administrator of the National  
12 Aeronautics and Space Administration;

13 (iii) the Administrator of the National  
14 Oceanic and Atmospheric Administration;

15 (iv) the Administrator of the Agricul-  
16 tural Research Service; and

17 (v) the Chief of the Natural Resources  
18 Conservation Service; and

19 (B) Program partners.

20 (d) COMPONENTS.—In carrying out the Program, the  
21 Secretary shall, in coordination with other relevant agen-  
22 cies, carry out activities to develop, maintain, establish,  
23 expand, or advance delivery of satellite-based  
24 evapotranspiration data, supported by other ET methods,  
25 to advance the quantification of evaporation and consump-

1 tive water use, with an emphasis on carrying out activities  
2 that—

3           (1) support the development and maintenance  
4 of evapotranspiration data and software systems and  
5 associated research and development in a manner  
6 that ensures that Program data are reflective of the  
7 best available science, including by providing support  
8 to Program partners, or coordinating activities with  
9 other programs within the Department of the Inte-  
10 rior, that have developed and are maintaining  
11 evapotranspiration software systems and datasets;

12           (2) demonstrate or test new and existing  
13 evapotranspiration measurement technology;

14           (3) improve evapotranspiration measurement  
15 science and technology; and

16           (4) develop or refine the application of satellite-  
17 based evapotranspiration data available to Federal  
18 agencies, States, and Indian Tribes, including pro-  
19 grams within both the Water Resources and Core  
20 Science Systems divisions of the United States Geo-  
21 logical Survey. These may include—

22                   (A) the Water Availability and Use Science  
23 Program, the National Water Census, and Inte-  
24 grated Water Availability Assessments; and

1           ~~(B)~~ the National Land Imaging Program,  
2           the Land Change Science Program, and the  
3           Science Analytics and Synthesis Program.

4           ~~(e)~~ WATER USE AND AVAILABILITY OF PROGRAM  
5 DATA.—The Secretary—

6           ~~(1)~~ shall incorporate, to the maximum extent  
7           practicable, program information and data for pur-  
8           poses of determining consumptive water use on irri-  
9           gated or other vegetated landscapes for use by water  
10          resource management agencies;

11          ~~(2)~~ may continue to coordinate data analyses,  
12          use, and collection efforts with other Federal agen-  
13          cies, States, and Tribal governments through exist-  
14          ing coordinating organizations, such as—

15                  ~~(A)~~ the Western States Water Council; and

16                  ~~(B)~~ the Western States Federal Agency  
17          Support Team; and

18          ~~(3)~~ may provide information collected and ana-  
19          lyzed under the Program to Program partners  
20          through appropriate mechanisms, including through  
21          agreements with Federal agencies, States (including  
22          State agencies), or Indian Tribes, leases, contracts,  
23          cooperative agreements, grants, loans, and memo-  
24          randa of understanding.

1       (f) COOPERATIVE AGREEMENTS.—The Secretary  
2 shall—

3           (1) enter into cooperative agreements with Pro-  
4 gram partners to provide for the efficient and cost-  
5 effective administration of the Program, including  
6 through cost sharing or by providing additional in-  
7 kind resources necessary to carry out the Program;  
8 and

9           (2) provide nonreimbursable matching funding,  
10 as permissible, for programmatic and operational ac-  
11 tivities under this section, in consultation with Pro-  
12 gram partners.

13       (g) ENVIRONMENTAL LAWS.—Nothing in this Act  
14 modifies any obligation of the Secretary to comply with  
15 applicable Federal and State environmental laws in car-  
16 rying out this Act.

17 **SEC. 5. REPORT.**

18       Not later than 5 years after the date of the enact-  
19 ment of this Act, the Secretary shall submit to the Com-  
20 mittees on Energy and Natural Resources, Agriculture,  
21 Nutrition, and Forestry, and Appropriations of the Senate  
22 and the Committees on Natural Resources, Agriculture,  
23 and Appropriations of the House of Representatives a re-  
24 port that includes—

1           (1) a status update on the operational incorpo-  
 2           ration of Program data into modeling, water plan-  
 3           ning, and reporting efforts of relevant Federal agen-  
 4           cies; and

5           (2) a list of Federal agencies and Program  
 6           partners that are applying Program data to bene-  
 7           ficial use, including a description of examples of ben-  
 8           eficial uses.

9 **SEC. 6. AUTHORIZATION OF APPROPRIATIONS.**

10          There is authorized to be appropriated to the Sec-  
 11          retary to carry out this Act \$23,000,000 for each of fiscal  
 12          years 2024 through 2028, to remain available until ex-  
 13          pended.

14 **SECTION 1. SHORT TITLE.**

15          *This Act may be cited as the “Evapotranspiration*  
 16          *Data Act”.*

17 **SEC. 2. DEFINITIONS.**

18          *In this Act:*

19           (1) *EVAPOTRANSPIRATION; ET.—The terms*  
 20           *“evapotranspiration” and “ET” mean the process by*  
 21           *which water is transferred from the land to the at-*  
 22           *mosphere by—*

23                   (A) *evaporation from soil and other sur-*  
 24                   *faces; and*

25                   (B) *transpiration from plants.*

1           (2) *INDIAN TRIBE*.—The term “Indian Tribe”  
 2           has the meaning given the term in section 4 of the In-  
 3           dian Self-Determination and Education Assistance  
 4           Act (25 U.S.C. 5304).

5           (3) *NON-FEDERAL ENTITY*.—The term “non-Fed-  
 6           eral entity” means—

7                   (A) an institution of higher education;

8                   (B) a State (including a State agency);

9                   (C) an Indian Tribe;

10                  (D) a private sector entity;

11                  (E) a nongovernmental organization; or

12                  (F) an irrigation district, water district,  
 13                  groundwater sustainability agency, or other or-  
 14                  ganization with water or power delivery author-  
 15                  ity.

16           (4) *SECRETARY*.—The term “Secretary” means  
 17           the Secretary of the Interior, acting through the Di-  
 18           rector of the United States Geological Survey.

19 **SEC. 3. EVAPOTRANSPIRATION DATA.**

20           (a) *IN GENERAL*.—The Secretary may—

21                   (1) evaluate, analyze, test, refine, and improve  
 22                   ET data and models, based on the best available  
 23                   science and technology, including satellite-based ET  
 24                   data with Landsat scale (30–100m) and ground-based  
 25                   ET measurement technologies, across public land (in-

1 *cluding State forests and units of the National Forest*  
2 *System), rangeland, agricultural land, and large*  
3 *urban and other vegetated landscapes;*

4 *(2) provide and maintain estimates of ET data*  
5 *across large landscapes over certain periods of time;*

6 *(3) use ET data to advance the quantification of*  
7 *evaporation and consumptive water use on public*  
8 *land (including State forests and units of the Na-*  
9 *tional Forest System), rangeland, agricultural land,*  
10 *and large urban and other vegetated landscapes; and*

11 *(4) support the development and maintenance of*  
12 *ET data, models, software systems, and associated re-*  
13 *search and development, in consultation with other*  
14 *programs within the Department of the Interior that*  
15 *have developed and are maintaining ET software sys-*  
16 *tems and datasets.*

17 *(b) REQUIREMENTS AND COORDINATION.—In carrying*  
18 *out subsection (a), the Secretary—*

19 *(1) shall incorporate scientific peer review, as*  
20 *appropriate and to the maximum extent practicable;*

21 *(2) shall collaborate and consult with scientists*  
22 *and experts, including individuals working for com-*  
23 *mercial enterprises, on using models or an ensemble*  
24 *of models, based on the best available science and*  
25 *technology, to provide ET data;*

1           (3) *may develop and carry out public education*  
2 *programs aimed at helping non-Federal entities,*  
3 *water managers, media outlets, agricultural pro-*  
4 *ducers, and other relevant stakeholders understand*  
5 *appropriate interpretations and uses of ET data;*

6           (4) *shall coordinate and consult with—*

7           (A) *the heads of other relevant Federal*  
8 *agencies, including—*

9                   (i) *the Commissioner of Reclamation;*

10                   (ii) *the Administrator of the National*  
11 *Aeronautics and Space Administration;*

12                   (iii) *the Administrator of the National*  
13 *Oceanic and Atmospheric Administration;*

14                   (iv) *the Administrator of the Agricul-*  
15 *tural Research Service; and*

16                   (v) *the Chief of the Natural Resources*  
17 *Conservation Service;*

18           (B) *non-Federal entities; and*

19           (C) *relevant stakeholders;*

20           (5) *may coordinate ET data analyses, use, and*  
21 *collection efforts with other Federal agencies, States,*  
22 *Indian Tribes, non-Federal entities, and other rel-*  
23 *evant stakeholders through existing coordinating orga-*  
24 *nizations, such as—*

25           (A) *the Western States Water Council; and*

1                   (B) *the Western States Federal Agency Sup-*  
2                   *port Team;*

3                   (6) *shall provide a disclaimer relating to the*  
4                   *publication of ET data, in consultation with the ap-*  
5                   *licable State from which the data is being published;*  
6                   *and*

7                   (7) *shall adhere to scientific integrity policies re-*  
8                   *lating to the publication of ET data.*

9                   (c) *COOPERATIVE AGREEMENTS.—In carrying out*  
10                  *subsection (a), the Secretary may enter into cooperative*  
11                  *agreements with non-Federal entities to provide for im-*  
12                  *proved technical approaches to carry out activities under*  
13                  *that subsection or additional in-kind resources.*

14                  (d) *ADVISORY COMMITTEE.—*

15                  (1) *IN GENERAL.—In carrying out subsection*  
16                  *(a), the Secretary shall establish an advisory com-*  
17                  *mittee, to be known as the “Advisory Committee on*  
18                  *ET Data” (referred to in this subsection as the “Advi-*  
19                  *sory Committee”).*

20                  (2) *MEMBERSHIP.—The Advisory Committee*  
21                  *shall be composed of not fewer than 11 members, to*  
22                  *be appointed by the Secretary, who shall be represent-*  
23                  *atives of—*

24                               (A) *States, including State agencies;*

25                               (B) *Indian Tribes;*

1           (C) *irrigation districts, water districts,*  
2 *groundwater sustainability agencies, or other or-*  
3 *ganizations with water or power delivery author-*  
4 *ity;*

5           (D) *farmers or ranchers;*

6           (E) *nongovernmental organizations;*

7           (F) *research institutions and institutions of*  
8 *higher education that are qualified to provide*  
9 *advice regarding ET measurement and science;*  
10 *and*

11           (G) *private sector entities that are qualified*  
12 *to provide advice regarding ET measurement*  
13 *and science.*

14       (3) *RESPONSIBILITIES.—*

15           (A) *IN GENERAL.—The Advisory Committee*  
16 *shall provide recommendations to the Secretary*  
17 *for the implementation of the activities author-*  
18 *ized under subsection (a), including rec-*  
19 *ommendations regarding—*

20               (i) *ET research;*

21               (ii) *scientific progress of ET measure-*  
22 *ment and science;*

23               (iii) *ET data use and application, in-*  
24 *cluding restrictions and qualifications on*  
25 *use of data;*

1                   (iv) public education programs aimed  
2                   at helping relevant stakeholders understand  
3                   the appropriate interpretations and uses of  
4                   ET data;

5                   (v) scientific overviews of ET data  
6                   used or published by Federal agencies for  
7                   regulation or water resources planning and  
8                   management;

9                   (vi) data privacy measures and proce-  
10                  dures beyond the minimum required by this  
11                  Act;

12                  (vii) reducing the competitiveness of  
13                  commercial services offering ET data, anal-  
14                  yses, or other products or impacts to the vi-  
15                  ability of the commercial services; and

16                  (viii) such other topics as the Advisory  
17                  Committee determines appropriate.

18                  (B) CONSIDERATION.—The Secretary shall  
19                  take into consideration any recommendation of  
20                  the Advisory Committee provided under subpara-  
21                  graph (A).

22                  (e) ENVIRONMENTAL LAWS.—Nothing in this Act  
23                  modifies any obligation of the Secretary to comply with ap-  
24                  plicable Federal and State environmental laws in carrying  
25                  out this Act.

1 (f) *APPLICATION; EFFECT OF ACT; PRIVACY.*—

2 (1) *APPLICATION.*—*ET data may be applied for*  
3 *the purposes of—*

4 (A) *assisting users and decisionmakers to*  
5 *better manage resources and protect financial vi-*  
6 *ability of farm operations during drought; and*

7 (B) *developing more accurate water budgets*  
8 *and innovative management programs to better*  
9 *promote conservation and sustainability efforts.*

10 (2) *FEDERAL OR STATE WATER RIGHTS.*—*Noth-*  
11 *ing in this Act creates, impairs, alters, or supersedes*  
12 *a Federal or State water right.*

13 (3) *PRIVACY.*—*In carrying out subsection (a), the*  
14 *Secretary shall, to the maximum extent practicable,*  
15 *aggregate or de-identify ET data under this Act in a*  
16 *manner sufficient to ensure that information on enti-*  
17 *ties or personally identifiable information is not dis-*  
18 *closed.*

19 (4) *AUTHORITY.*—*Nothing in this Act provides*  
20 *new, or expands any existing, authority to provide*  
21 *ET data, in accordance with the matter under the*  
22 *heading “GEOLOGICAL SURVEY” of the first sec-*  
23 *tion of the Act of March 3, 1879 (20 Stat. 394, chap-*  
24 *ter 182; 43 U.S.C. 31(a)).*

1 **SEC. 4. REPORT.**

2 *Not later than 2 years after the date of enactment of*  
3 *this Act, the Secretary shall submit to the Committees on*  
4 *Energy and Natural Resources, Agriculture, Nutrition, and*  
5 *Forestry, and Appropriations of the Senate and the Com-*  
6 *mittees on Natural Resources, Agriculture, and Appropria-*  
7 *tions of the House of Representatives a report that in-*  
8 *cludes—*

9 (1) *an evaluation and analysis of the accuracy,*  
10 *limitations, and trade-offs of new and existing ET*  
11 *measurement science and technology and ET data;*

12 (2) *a summary of the uses or anticipated uses of*  
13 *ET data by relevant Federal agencies and non-Fed-*  
14 *eral entities;*

15 (3) *a status update on the operational incorpora-*  
16 *tion of ET data into modeling, water planning, and*  
17 *reporting efforts of relevant Federal agencies;*

18 (4) *an evaluation of potential governance struc-*  
19 *tures and privacy protections that could be used to*  
20 *ensure the intended and proper use of ET data;*

21 (5) *recommendations for using ET data for an*  
22 *improved, larger-scale approach and application; and*

23 (6) *a description of—*

24 (A) *any non-Federal entities that provide*  
25 *ET data or analysis; and*

1                   *(B) any potential adverse impacts to the en-*  
2                   *tities described under subparagraph (A) relating*  
3                   *to the publication of ET data.*

4 **SEC. 5. AUTHORIZATION OF APPROPRIATIONS.**

5           *There are authorized to be appropriated to the Sec-*  
6 *retary to carry out this Act, to remain available until ex-*  
7 *pended—*

8                   *(1) \$5,000,000 for fiscal year 2024;*

9                   *(2) \$8,000,000 for fiscal year 2025;*

10                  *(3) \$11,000,000 for fiscal year 2026;*

11                  *(4) \$14,500,000 for fiscal year 2027; and*

12                  *(5) \$17,000,000 for fiscal year 2028.*

Amend the title so as to read: “A bill to require the Secretary of the Interior to conduct certain activities relating to evapotranspiration data.”.



Calendar No. 355

118<sup>TH</sup> CONGRESS  
2<sup>D</sup> SESSION

**S. 1118**

[Report No. 118-164]

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## **A BILL**

To establish the Open Access Evapotranspiration  
(OpenET) Data Program.

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APRIL 9, 2024

Reported with an amendment and an amendment to the  
title