

**AMENDMENT IN THE NATURE OF A SUBSTITUTE
TO H.R. 8665
OFFERED BY MR. STAUBER OF MINNESOTA**

Strike all after the enacting clause and insert the following:

1 SECTION 1. SHORT TITLE.

2 This Act may be cited as the “Supercritical Geo-
3 thermal Research and Development Act”.

4 SEC. 2. GEOTHERMAL ENERGY.

5 (a) IN GENERAL.—The Energy Independence and
6 Security Act of 2007 is amended—

7 (1) in section 612 (42 U.S.C. 17191; relating
8 to definitions)—

9 (A) by redesignating paragraph (8) as
10 paragraph (9); and

11 (B) by inserting after paragraph (7) the
12 following new paragraph:

13 “(8) SUPERCRITICAL GEOTHERMAL.—The term
14 ‘supercritical geothermal’ means energy derived from
15 a subsurface rock resource in-situ existing at or
16 above the supercritical conditions of the primary
17 fluid present.”;

1 (2) in section 613 (42 U.S.C. 17192; relating
2 to hydrothermal research and development), by
3 striking “advanced geologic tools to assist” and in-
4 serting “advanced tools, including machine learning
5 algorithms, to assist”;

6 (3) in section 614 (42 U.S.C. 17193; relating
7 to general geothermal systems research and develop-
8 ment)—

9 (A) in paragraph (1) of subsection (d), by
10 striking “among the Office of Fossil Energy,
11 the Office of Energy Efficiency and Renewable
12 Energy,” and inserting “across the Depart-
13 ment”; and

14 (B) in subsection (h)—

15 (i) in paragraph (1), by inserting
16 “and publicly available subsurface data, in-
17 cluding data reported as part of fossil fuel
18 and mining operations,” after “geothermal
19 drilling information”; and

20 (ii) in paragraph (2), by adding at the
21 end the following new subparagraphs:

22 “(C) UPDATES.—The repository estab-
23 lished under paragraph (1) shall be periodically
24 updated in order to carry out the following:

1 “(i) Standardize data in a uniform
2 manner to the maximum extent practicable
3 and enable analysis across different
4 projects.

5 “(ii) Enhance the accessibility and
6 usability of data to increase analysis of
7 geothermal energy, including enhanced,
8 closed-loop, and supercritical geothermal,
9 on regional, local, and site-specific scales.

10 “(iii) Increase uses of data, including
11 data viewable by map and organization by
12 common attributes such as region.

13 “(iv) Make other improvements in
14 functionality and usability, as determined
15 by the Secretary.

16 “(D) MEMORANDUM OF UNDER-
17 STANDING.—The Secretary shall enter into a
18 memorandum of understanding with the Sec-
19 retary of the Interior, along with the heads of
20 other relevant Federal departments, for (to the
21 maximum extent practicable) notifying, sharing,
22 and providing opportunities for additional data
23 collection regarding shared geothermal develop-
24 ment data from projects funded by each such
25 department, including data from mining, crit-

1 ical minerals, and energy projects, such as sub-
2 surface heat data, seismic data, lithology data,
3 boundaries of State and federally protected
4 areas, and existing transmission capacity.

5 “(E) REGIONAL DATA PROBES.—The Sec-
6 retary of the Interior may, in consultation with
7 the Secretary, commission the drilling of super-
8 critical geothermal exploration boreholes in rep-
9 resentative geological provinces in the United
10 States to provide control points for deep heat
11 mapping and geothermal development. The re-
12 sulting data shall include an exploration of
13 heat, lithology, and strain profiles, and shall be
14 shared publicly on the repository established
15 under paragraph (1).

16 “(F) GEOLOGIC INVESTIGATIONS OF
17 FORGE DEEP DRILL SITES.—The Secretary of
18 the Interior shall, in consultation with the Sec-
19 retary and to the maximum extent practicable,
20 conduct a geologic investigations of FORGE
21 deep drill sites. The Secretary of the Interior
22 shall make the information collected from such
23 investigation available on the repository estab-
24 lished under paragraph (1).

1 “(G) STUDY ON SITE SELECTION CHARAC-
2 TERISTICS FOR SUPERCRITICAL GEO-
3 THERMAL.—The Secretary of the Interior shall,
4 in consultation with the Secretary, conduct a
5 study on site selection characteristics in rep-
6 resentative geological provinces in the United
7 States, including the United States territories
8 of American Samoa, Guam, Northern Mariana
9 Islands, Puerto Rico, and the U.S. Virgin Is-
10 lands, for supercritical geothermal.”;

11 (4) in section 615 (42 U.S.C. 17194; relating
12 to enhanced geothermal systems research and devel-
13 opment)—

14 (A) in subsection (b)—

15 (i) in paragraph (11), by striking
16 “and” after the semicolon;

17 (ii) in paragraph (12), by striking the
18 period and inserting “; and”; and

19 (iii) by adding at the end the fol-
20 lowing new paragraph:

21 “(13) the research topics specified in para-
22 graphs (1) through (12) in supercritical condi-
23 tions.”;

24 (B) in subsection (c), by adding at the end
25 the following new paragraph:

1 “(8) SUPERCRITICAL NEXT GENERATION GEO-
2 THERMAL TESTING.—Not later than one year after
3 the date of the enactment of this paragraph, the
4 Secretary shall take such actions as may be nec-
5 essary to ensure that at least one FORGE site has
6 the capabilities to include supercritical geothermal
7 testing and, if practicable and technically feasible,
8 closed-loop geothermal systems in supercritical con-
9 ditions.”; and

10 (C) by adding at the end the following new
11 subsection:

12 “(e) SUPERCRITICAL GEOTHERMAL RESEARCH AND
13 DEVELOPMENT PROGRAM.—

14 “(1) IN GENERAL.—Within the Geothermal
15 Technologies Office of the Department, the Sec-
16 retary shall, in consultation with the Secretary of
17 the Interior, support a program of supercritical geo-
18 thermal research, development, demonstration, and
19 commercial application activities and, if practicable
20 and technically feasible, closed-loop geothermal sys-
21 tems in supercritical conditions.

22 “(2) FOCUS AREAS.—

23 “(A) IN GENERAL.—The program de-
24 scribed in paragraph (1) shall focus on the fol-
25 lowing topics:

1 “(i) Well completion.

2 “(ii) Permeability creation and man-
3 agement, including proppants and packers.

4 “(iii) Materials development and
5 equipment design, including power produc-
6 tion, specific to supercritical geothermal
7 systems.

8 “(iv) Sensor development.

9 “(v) Water-rock geochemistry.

10 “(vi) Rock properties.

11 “(vii) Hard rock and deep drilling.

12 “(viii) Any other topics the Secretary
13 determines necessary.

14 “(B) ADMINISTRATION.—The Secretary
15 may administer grants to universities and pri-
16 vate sector entities to carry out activities on the
17 topics specified in subparagraph (A) and, to the
18 maximum extent practicable, share data, re-
19 sults, and information publicly.

20 “(3) REPORT ON WATER USE.—Not later than
21 five years after the date of the enactment of this
22 subsection, the Secretary shall submit to the Com-
23 mittee on Natural Resources and the Committee on
24 Science, Space, and Technology of the House of
25 Representatives and the Committee on Energy and

1 Natural Resources of the Senate a report on the fol-
2 lowing:

3 “(A) Water use and estimated needs of en-
4 hanced geothermal systems.

5 “(B) Water use and estimated needs for
6 closed-loop, and superhot geothermal energy
7 production.

8 “(4) NEXT GENERATION GEOTHERMAL CENTER
9 OF EXCELLENCE.—

10 “(A) ESTABLISHMENT.—The Secretary
11 shall award grants through a competitive,
12 merit-reviewed process, to National Labora-
13 tories (as such term is defined in section 2 of
14 the Energy Policy Act of 2005 (42 U.S.C.
15 15801)), multi-institutional collaborations, or
16 institutes of higher education (or consortia
17 thereof) for the following:

18 “(i) The continuation and expansion
19 of research, development, demonstration,
20 testing, and commercial application activi-
21 ties applicable to FORGE sites.

22 “(ii) The establishment of a next-gen-
23 eration geothermal center of excellence.

24 “(B) LOCATION.—In selecting institutions
25 of higher education for a center referred to in

1 subparagraph (A), the Secretary shall consider
2 the following criteria:

3 “(i) Whether the institution hosts an
4 existing geothermal energy research and
5 development program.

6 “(ii) Whether the institution has prov-
7 en technical expertise to support geo-
8 thermal energy research.

9 “(iii) Whether the institution has ac-
10 cess to geothermal resources.

11 “(C) PURPOSE.—The center referred to in
12 subparagraph (A) shall coordinate among exist-
13 ing FORGE sites, the Department, and Na-
14 tional Laboratories to carry out the following:

15 “(i) Advance research, development,
16 demonstration, and commercial application
17 of enhanced geothermal energy tech-
18 nologies, including supercritical geothermal
19 technologies, in response to industry and
20 commercial needs, including by partnering
21 with other academic or research institu-
22 tions, industry, non-governmental organi-
23 zations, and State, local, or Tribal govern-
24 ments.

1 “(ii) Foster collaboration for edu-
2 cation, research, and partnership initiatives
3 in order to support the technology, deploy-
4 ment, and workforce needs of the United
5 States geothermal energy industry, includ-
6 ing a focus on enhanced, closed-loop, and
7 supercritical geothermal systems.

8 “(iii) Support workforce development
9 across the enhanced geothermal energy de-
10 velopment lifecycle.

11 “(iv) Provide educational, technical,
12 and analytical assistance on enhanced geo-
13 thermal systems to Federal agencies, in-
14 dustry, and State, local, and Tribal govern-
15 ments.

16 “(v) Collect and disseminate informa-
17 tion on best practices in all areas relating
18 to developing and managing geothermal
19 energy resources and energy systems, in-
20 cluding enhanced, closed-loop, and super-
21 critical geothermal.

22 “(5) AUTHORIZATION OF APPROPRIATIONS.—
23 There are authorized to be appropriated to the Sec-
24 retary \$5,000,000 for each of fiscal years 2026
25 through 2030 to carry out this subsection.”; and

1 (5) in section 617 (42 U.S.C. 17196; relating
2 to organization and administration of programs)—

3 (A) in subsection (e), by striking “Com-
4 mittee on Science and Technology” and insert-
5 ing “Committee on Science, Space, and Tech-
6 nology”; and

7 (B) by amending subsection (f) to read as
8 follows:

9 “(f) PROGRESS REPORTS.—Not later than one year
10 after the date of the enactment of this subsection and
11 every two years thereafter, the Secretary shall, in con-
12 sultation with the Secretary of the Interior, submit to the
13 Committee on Science, Space, and Technology of the
14 House of Representatives and the Committee on Energy
15 and Natural Resources of the Senate a report that con-
16 tains the following:

17 “(1) A description of the maximum potential of
18 geothermal resources in the United States.

19 “(2) Information relating to the results of
20 projects undertaken under this section.

21 “(3) An assessment of the barriers to commer-
22 cialization of enhanced, closed-loop, and supercritical
23 geothermal technologies.

24 “(4) Such other information as the Secretary
25 considers appropriate.”.

1 (b) UPDATE TO GEOTHERMAL RESOURCE ASSESS-
2 MENT.—

3 (1) IN GENERAL.—Section 2501 of the Energy
4 Policy Act of 1992 (30 U.S.C. 1028) is amended—

5 (A) in subsection (c)—

6 (i) by inserting “quadrennially” before
7 “update”;

8 (ii) in subparagraph (D)(ii), by strik-
9 ing “and” at the end;

10 (iii) in paragraph (2), by striking the
11 period at the end and inserting “; and”;
12 and

13 (iv) by adding at the end the fol-
14 lowing:

15 “(3) to the maximum extent practicable, by as-
16 sessing regions of the United States, including the
17 United States territories of American Samoa, Guam,
18 Northern Mariana Islands, Puerto Rico, and the
19 U.S. Virgin Islands, with significant potential for
20 supercritical geothermal.”; and

21 (B) by striking subsection (d).

22 (2) FIRST UPDATE.—The first quadrennial up-
23 date to the geothermal resource assessment carried
24 out by the United States Geological Survey under
25 subsection (c) of section 2501 of the Energy Policy

1 Act of 1992, as amended by paragraph (1), shall be
2 completed by not later than two years after the date
3 of the enactment of this Act.

