

111<sup>TH</sup> CONGRESS  
1<sup>ST</sup> SESSION

# S. 1621

To improve thermal energy efficiency and use, and for other purposes.

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IN THE SENATE OF THE UNITED STATES

AUGUST 6, 2009

Mr. SANDERS (for himself and Mr. MERKLEY) introduced the following bill;  
which was read twice and referred to the Committee on Energy and Nat-  
ural Resources

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## A BILL

To improve thermal energy efficiency and use, 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 “Thermal Energy Effi-  
5       ciency Act of 2009”.

6       **SEC. 2. FINDINGS.**

7       Congress finds that—

8               (1) approximately 40 percent of the total quan-  
9       tity of energy consumed in the United States is used

1 in heating and air conditioning buildings and indus-  
2 trial process heat;

3 (2) thermal energy is an essential, but often  
4 overlooked, segment of the national energy mix;

5 (3) district energy systems use 1 or more cen-  
6 tral plants to provide thermal energy or combined  
7 heat and power to multiple buildings that range in  
8 size from campus applications to systems heating en-  
9 tire towns or cities;

10 (4) district energy systems provide several ad-  
11 vantages that support secure, affordable, renewable,  
12 and sustainable energy for the United States, includ-  
13 ing—

14 (A) fuel flexibility to reduce fossil fuel con-  
15 sumption and greenhouse gas emissions;

16 (B) use of local fuels that keep jobs and  
17 energy dollars in local economies;

18 (C) stable, predictable energy costs for  
19 businesses and industry; and

20 (D) reduction in reliance on fossil fuels;

21 (5) district energy systems provide infrastruc-  
22 ture to produce and distribute thermal energy and  
23 use electric energy from sources of industrial surplus  
24 heat and from renewable sources, such as biomass,  
25 geothermal, and solar;

1           (6) as of 2009, the United States had approxi-  
2           mately 2,500 operating district energy systems;

3           (7) combined heat and power systems increase  
4           energy efficiency of power plants by capturing ther-  
5           mal energy and using the thermal energy to provide  
6           heating and cooling, more than doubling the effi-  
7           ciency of conventional power plants; and

8           (8) according to the Oak Ridge National Lab-  
9           oratory, if the United States was able to increase  
10          combined heat and power from approximately 9 per-  
11          cent of total electric generation capacity on the date  
12          of enactment of this Act to 20 percent by 2030, the  
13          increase would—

14                 (A) save as much energy as half of all  
15                 household energy consumption;

16                 (B) create approximately 1,000,000 new  
17                 jobs;

18                 (C) avoid more than 800,000,000 metric  
19                 tons of carbon dioxide emissions annually,  
20                 which is equivalent to taking  $\frac{1}{2}$  of all United  
21                 States passenger vehicles off the road; and

22                 (D) save hundreds of millions of barrels of  
23                 oil equivalent.

24 **SEC. 3. DEFINITIONS.**

25           In this Act:

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

4           (2) COMBINED HEAT AND POWER.—The term  
5           “combined heat and power” means simultaneous  
6           generation of electric energy and heat in a single, in-  
7           tegrated system, with an overall efficiency of 60 per-  
8           cent or higher based on a higher-heating value basis.

9           (3) DISTRICT ENERGY SYSTEM.—The term  
10          “district energy system” means a system that pro-  
11          vides thermal energy from 1 or more central plants  
12          to at least 2 or more buildings through a network  
13          of pipes to provide steam, hot water, or chilled water  
14          to be used for space heating, air conditioning, do-  
15          mestic hot water, compression, process energy, or  
16          other end uses for the thermal energy.

17          (4) ELIGIBLE ENTITY.—The term “eligible enti-  
18          ty” means—

19                   (A) an institutional entity;

20                   (B) a commercial or industrial entity; or

21                   (C) a Federal agency or facility.

22          (5) FUND.—The term “Fund” means the Ther-  
23          mal Energy Efficiency Fund established by section  
24          4(a).

1           (6) INSTITUTIONAL ENTITY.—The term “insti-  
2           tutional entity” means—

3                   (A) an institution of higher education;

4                   (B) a public school district;

5                   (C) a local government;

6                   (D) a State government;

7                   (E) a tribal government;

8                   (F) a municipal utility; or

9                   (G) a nonprofit or public hospital; or

10                  (H) a designee of 1 of the entities de-  
11                  scribed in subparagraphs (A) through (G).

12           (7) QUALIFYING PROJECT.—The term “quali-  
13           fying project” means a district energy, combined  
14           heat and power, or recoverable waste energy project  
15           that (in accordance with guidance issued by the Sec-  
16           retary)—

17                   (A) reduces or avoids greenhouse gas emis-  
18                   sions; and

19                   (B)(i) produces thermal energy from re-  
20                   newable energy resources (such as biomass, geo-  
21                   thermal, and solar resources) and natural cool-  
22                   ing sources (such as cold lake or ocean water  
23                   sources);

1           (ii) captures and productively uses thermal  
2 energy from an existing electric generation fa-  
3 cility;

4           (iii) provides for the capture and produc-  
5 tive use of thermal energy in a new electric gen-  
6 eration facility;

7           (iv) integrates new electricity generation  
8 into an existing district energy system;

9           (v) captures and productively uses surplus  
10 thermal energy from an industrial or municipal  
11 process (such as wastewater treatment); or

12           (vi) distributes and transfers to buildings  
13 the thermal energy from the energy sources de-  
14 scribed in clauses (i) through (v).

15           (8) RECOVERABLE WASTE ENERGY.—The term  
16 “recoverable waste energy” means electrical, ther-  
17 mal, or mechanical energy that—

18           (A) may be recovered or generated through  
19 modification of an existing facility or addition  
20 of a new facility; and

21           (B) if not for that recovery, would be wast-  
22 ed.

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

1 **SEC. 4. THERMAL ENERGY EFFICIENCY FUND.**

2 (a) ESTABLISHMENT.—There is established in the  
3 Treasury a fund to be known as the “Thermal Energy  
4 Efficiency Fund”.

5 (b) ALLOCATION.—If a program for the regulation of  
6 greenhouse gas emissions is established by Federal law  
7 (including regulations) for any of calendar years 2012  
8 through 2050 and emission allowances are allocated under  
9 the program, the Administrator shall allocate to the Fund  
10 2 percent of the quantity of emission allowances estab-  
11 lished for the calendar year.

12 (c) AUCTIONING.—The Administrator shall auction  
13 all of the emission allowances allocated to the Fund for  
14 a calendar year under subsection (b).

15 (d) DEPOSITS.—The Administrator shall deposit all  
16 proceeds of auctions conducted pursuant to subsection (c),  
17 immediately on receipt of those proceeds, in the Fund.

18 **SEC. 5. GRANTS FOR QUALIFYING PROJECTS.**

19 (a) IN GENERAL.—For each calendar year during  
20 which a program described in section 4(b) is in effect, the  
21 Secretary shall use amounts in the Fund, without further  
22 appropriation, to make competitive grants to eligible enti-  
23 ties to carry out qualifying projects in accordance with this  
24 section, as determined by the Secretary.

1 (b) USE ALLOCATION.—Of the amount of grants that  
2 are made available for each of calendar years 2012  
3 through 2050 under this section, the Secretary shall use—

4 (1) at least 75 percent of the amount to make  
5 grants to support infrastructure construction and  
6 development for qualifying projects;

7 (2) at least 15 percent of the amount to make  
8 grants to support planning, engineering, and feasi-  
9 bility studies for qualifying projects; and

10 (3) the remainder to make grants described in  
11 paragraph (1) or (2), as determined by the Sec-  
12 retary.

13 (c) RECIPIENT ALLOCATION.—Of the amount of  
14 grants that are made available for each of calendar years  
15 2012 through 2050 under this section, the Secretary shall  
16 use—

17 (1) at least 40 percent of the amount to make  
18 grants to institutional entities to carry out quali-  
19 fying projects;

20 (2) at least 40 percent of the amount to make  
21 grants to industrial and commercial entities to carry  
22 out qualifying projects; and

23 (3) the remainder to make grants described in  
24 paragraph (1) or (2) or to fund qualifying projects

1 carried out by Federal agencies or facilities, as de-  
2 termined by the Secretary.

3 (d) **MATCHING REQUIREMENTS.**—To be eligible to  
4 obtain a grant, a recipient (other than a Federal agency  
5 or facility) shall provide matching funds in an amount  
6 equal to at least—

7 (1) in the case of each of calendar years 2012  
8 through 2017, 25 percent of the amount of the  
9 grant; and

10 (2) in the case of each of calendar years 2018  
11 through 2050, 50 percent of the amount of the  
12 grant.

13 **SEC. 6. COMBINED HEAT AND POWER.**

14 It is the goal of the United States that by calendar  
15 year 2030, 20 percent or more of the total electrical power  
16 capacity of the United States be met through combined  
17 heat and power.

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