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**SUBSTITUTE SENATE BILL 6350**

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**State of Washington**

**65th Legislature**

**2018 Regular Session**

**By** Senate Energy, Environment & Technology (originally sponsored by Senators Brown and Honeyford)

READ FIRST TIME 02/01/18.

1 AN ACT Relating to promoting renewable energy by advancing the  
2 development of geothermal resources; and amending RCW 78.60.180,  
3 78.60.130, 28B.156.005, 28B.156.010, and 28B.156.030.

4 BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF WASHINGTON:

5 **Sec. 1.** RCW 78.60.180 and 1974 ex.s. c 43 s 18 are each amended  
6 to read as follows:

7 (1) The department shall have the authority to conduct or  
8 authorize investigations, research, experiments, and demonstrations,  
9 cooperate with other governmental and private agencies in making  
10 investigations, receive any federal funds, state funds, and other  
11 funds and expend them on research programs concerning geothermal  
12 resources and their potential development within the state, and to  
13 collect and disseminate information relating to geothermal resources  
14 in the state(~~(: PROVIDED, That the department shall not construct or~~  
15 ~~operate commercial geothermal facilities))~~).

16 (2) The department shall develop, periodically revise, and  
17 publish an inventory and map of state-owned lands suspected of having  
18 great potential for geothermal resource production.

19 (3) The department may not construct or operate commercial  
20 geothermal facilities.

1       **Sec. 2.** RCW 78.60.130 and 2007 c 338 s 3 are each amended to  
2 read as follows:

3       Every operator who engages in the drilling, redrilling, or  
4 deepening of any well or core hole shall file with the department a  
5 reasonable bond or bonds with good and sufficient surety, or the  
6 equivalent thereof, acceptable to the department, conditioned on  
7 compliance with the provisions of this chapter and all rules and  
8 permit conditions adopted pursuant to this chapter. This performance  
9 bond shall be executed in favor of and approved by the department.

10       In lieu of a bond the operator may file with the department a  
11 cash deposit, negotiable securities acceptable to the department, or  
12 an assignment of a savings account in a Washington bank on an  
13 assignment form prescribed by the department. The department(~~(, in~~  
14 ~~its discretion, may)) must accept a single surety or security~~  
15 arrangement covering more than one well or core hole if proposed by  
16 an operator.

17       **Sec. 3.** RCW 28B.156.005 and 2015 3rd sp.s. c 20 s 1 are each  
18 amended to read as follows:

19       The legislature finds that to reach our energy, environmental,  
20 and economic goals, it is important to accelerate the development of  
21 next generation clean energy and transportation technologies in  
22 Washington. Today, a large number of clean and renewable energy  
23 technologies are dependent on rare earth elements and other expensive  
24 and difficult-to-source earth components. These technologies are  
25 critical to reducing carbon emissions, such as wind turbines, solar  
26 panels, and electric and hybrid car batteries.

27       According to a 2012 environmental protection agency report  
28 (EPA/600/R-12/572), no rare earth element mining has been conducted  
29 in the United States since 1995, and a legacy of environmental  
30 destruction has been left in countries where rare earth elements are  
31 mined. The same environmental protection agency report notes that  
32 recovering rare earth elements from state-of-the-art recycling  
33 processes is far more efficient than smelting metals from ores,  
34 generates only a fraction of the carbon emissions, and has  
35 significant benefits compared to mining in terms of land use and  
36 hazardous emissions. The environmental protection report stresses the  
37 need for additional research in alternative materials to rare earth  
38 materials as well as recycling innovation.

1 The legislature acknowledges that the people of Washington desire  
2 to leave behind a cleaner planet, and to lead the world in the  
3 research and innovations to make that possible. Setting aggressive,  
4 renewable energy and clean technology standards at home that result  
5 in exporting the environmental harms of improper mineral extraction  
6 to other nations is not an acceptable strategy. Fortunately,  
7 Washington is home to some of the world's leading researchers who  
8 have core competencies in developing material substitutes and  
9 extracting rare earth elements for recycling.

10 Leading research institutions have indicated that a program to  
11 accelerate the development of next generation clean energy and  
12 transportation technologies using earth-abundant materials would fit  
13 within their strategic vision and core mission to increase and  
14 coordinate their efforts with the private industry and implement this  
15 talent and research to work in accelerating the deployment of clean  
16 energy and cleaner transportation solutions. The goal is to develop  
17 materials to use in the manufacturing process that can be reliably  
18 accessed and acquired in environmentally responsible processes. A  
19 joint center established for this purpose can bridge the gap between  
20 institutions, encourage private-public partnerships, and increase the  
21 ability to compete for federal grants.

22 The legislature recognizes the opportunity for Washington to lead  
23 in these areas of research and innovation, fostering true  
24 sustainability environmental stewardship, and providing supply  
25 reliability and resiliency in next generation technologies. Doing so  
26 will contribute to the preservation of national security by  
27 increasing energy independence. Therefore, the legislature intends to  
28 fund research of earth-abundant materials that can substitute  
29 effectively in manufacturing for rare earth elements or other  
30 critical materials, with great potential to increase efficiency or  
31 reduce emissions in the transportation or energy sector, ~~((and))~~ to  
32 fund research into the recycling of rare earth elements from existing  
33 consumer products, and to fund research of methods and technologies  
34 that will allow for the economical extraction of metals, minerals,  
35 and rare earth elements from underground fluids brought to the  
36 surface by geothermal power plants. The legislature intends to  
37 accomplish this by establishing the joint center for deployment and  
38 research in earth abundant materials, or JCDREAM, to attract academic  
39 talent and research funding to our state, and develop a workforce for  
40 manufacturing next generation earth-abundant technologies.

1       **Sec. 4.** RCW 28B.156.010 and 2015 3rd sp.s. c 20 s 2 are each  
2 amended to read as follows:

3       The joint center for deployment and research in earth-abundant  
4 materials is created to:

5       (1) Establish a transformative program in earth-abundant  
6 materials to accelerate the development of next generation clean  
7 energy and transportation technologies in Washington;

8       (2) Establish a coordinated framework and deploy resources that  
9 can facilitate and promote multi-institution collaborations to drive  
10 research, development, and deployment efforts in the use of earth-  
11 abundant materials for manufactured clean technologies or recycling  
12 of advanced materials used in clean technologies; ~~((and))~~

13       (3) Promote environmentally responsible processes in the areas of  
14 manufacturing and recycling of advanced materials used in clean  
15 technologies; and

16       (4) Promote research of methods and technologies that will allow  
17 for the economical extraction of metals, minerals, and rare earth  
18 elements from underground fluids brought to the surface by geothermal  
19 power plants.

20       **Sec. 5.** RCW 28B.156.030 and 2015 3rd sp.s. c 20 s 4 are each  
21 amended to read as follows:

22       (1)(a) The powers of the joint center for deployment and research  
23 in earth-abundant materials are vested in and shall be exercised by a  
24 board of directors consisting of ten voting members and a chair,  
25 appointed by the governor, who shall not vote, except as provided in  
26 (c) of this subsection.

27       (b) Of the ten voting members, one member must be the dean of  
28 Washington State University, one member must be the dean of the  
29 University of Washington, one member must represent Pacific Northwest  
30 National Laboratory, one member must represent an energy institute at  
31 a regional university, one member must represent the community  
32 colleges engaged in training of the next generation workforce in the  
33 relevant areas, one member must represent large industry companies,  
34 one member must represent medium industry companies, one member must  
35 represent small industry companies, one member must have professional  
36 experience in the fields of national security and energy policy, and  
37 one member shall have professional experience in innovation and  
38 development of policy to address environmental challenges.

1 (c) In the event of a tie vote among the voting members, the  
2 chair may vote to break the tie.

3 (d) The terms of the initial members must be staggered.

4 (2) The board shall hire an executive director. The executive  
5 director shall hire such staff as the board deems necessary to  
6 operate the joint center for deployment and research in earth-  
7 abundant materials. Staff support may be provided from among the  
8 cooperating institutions through cooperative agreements to the extent  
9 funds are available. The executive director may enter into  
10 cooperative agreements for programs and research with public and  
11 private organizations including state and nonstate agencies  
12 consistent with policies of the participating institutions.

13 (3) The board shall:

14 (a) Work with the clean technology and transportation industry  
15 associations and firms of all sizes to identify the research areas  
16 that will benefit the intermediate and long-term economic vitality of  
17 Washington's clean technology and transportation industries;

18 (b) Identify entrepreneurial researchers to join or lead research  
19 teams in the research areas specified in (a) of this subsection and  
20 the steps the University of Washington and Washington State  
21 University will take to recruit and retain such researchers;

22 (c) Assist firms to integrate existing technologies into their  
23 operations and align the activities of the joint center for  
24 deployment and research in earth-abundant materials with those of  
25 impact Washington to enhance services available to clean technology  
26 and transportation firms;

27 (d) Develop internships, on-the-job training, research, and other  
28 opportunities and ensure that all undergraduate and graduate students  
29 enrolled in programs for clean technology and earth-abundant research  
30 and deployment-related curriculum have direct experience with the  
31 industry;

32 (e) Assist researchers and firms in safeguarding intellectual  
33 property while advancing industry innovation;

34 (f) Develop and strengthen university-industry relationships  
35 through promotion of faculty collaboration with industry and sponsor  
36 at least one annual symposium focusing on clean energy earth-abundant  
37 research and deployment in the state of Washington;

38 (g) Encourage a full range of projects from small research  
39 projects that meet the specific needs of a smaller company to large  
40 scale, multipartner projects;

1 (h) Develop nonstate support of the center's research activities  
2 through leveraging dollars from federal and private for-profit and  
3 nonprofit sources;

4 (i) Leverage its financial impact through joint support  
5 arrangements on a project-by-project basis as appropriate;

6 (j) Establish mechanisms for soliciting and evaluating proposals  
7 and for making awards and reporting on technological progress,  
8 financial leverage, and other measures of impact;

9 (k) Allocate appropriated seed funds for at least one of the  
10 following purposes:

11 (i) Collaboration on research and product development that would  
12 further the commercialization of renewable energy and battery storage  
13 technologies that use earth-abundant materials in place of critical  
14 materials or rare earth elements;

15 (ii) Collaboration on research for joining dissimilar materials  
16 in a way that minimizes titanium content by employing earth-abundant  
17 materials for advanced manufacturing commercialization;

18 (iii) Collaboration on research and deployment of technologies  
19 and processes that facilitate reclamation and recycling of rare-earth  
20 elements from existing products; ~~((and))~~

21 (iv) Providing assistance to community colleges and trade schools  
22 in program development and equipment for training the skilled  
23 workforce necessary for the successful commercialization and  
24 integration of earth-abundant technologies, as the workforce training  
25 needs are defined by forthcoming deployment opportunities; and

26 (v) Collaboration on research of methods and technologies that  
27 will allow for the economical extraction of metals, minerals, and  
28 rare earth elements from underground fluids brought to the surface by  
29 geothermal power plants;

30 (l)(i) By December 1, 2015, develop an operating plan that  
31 includes the specific processes, methods, or mechanisms the center  
32 will use to accomplish each of its duties as set out in this  
33 subsection (3);

34 (ii) The operating plan must also include appropriate performance  
35 metrics to measure total research dollars leveraged, total  
36 researchers involved, total workforce trained, and total number of  
37 products or processes that have progressed to commercialization and  
38 private sector deployment; and

39 (m)(i) Report biennially to the legislature and the governor  
40 about the impact of the center's work on the state's economy and the

1 development of next generation clean energy and transportation  
2 technologies in Washington using earth-abundant materials. The report  
3 must include performance metrics results, projections of future  
4 impact, indicators of its current impact, and ideas for enhancing  
5 benefits to the state.

6 (ii) The report must be coordinated with the governor's office  
7 and the department of commerce.

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