Washington State
House of Representatives
Office of Program Research

BILL ANALYSIS

Technology & Economic Development Committee

HB 1897

Brief Description: Creating the joint center for deployment and research in earth-abundant materials.

Sponsors: Representatives Smith, Morris, Tarleton, Young, Hayes, Haler, Sells, Buys, Fagan and Short.

Brief Summary of Bill

- Creates the Joint Center for Deployment and Research in Earth-Abundant Materials (JCDREAM) as a multi-institutional education and research center.
- Provides for the JCDREAM to be under the joint authority of the University of Washington and Washington State University.
- Establishes a board of directors to exercise the powers of the JCDREAM.

Hearing Date: 2/10/15

Staff: Kirsten Lee (786-7133).

Background:

There are 17 rare earth elements (REEs), which may be moderately abundant in the earth's crust, but are not concentrated enough to make them easily exploitable economically. Major end uses for REEs include automotive catalytic converters, phosphors in flat panel displays, permanent magnets and rechargeable batteries for hybrid and electric vehicles, generators for wind turbines, and numerous medical devices. In addition, REEs and certain other critical materials are important in a number of defense and aerospace applications. China is the largest supplier of REEs.

According to the Department of Energy (DOE), there is potential for supply disruptions of REEs and other critical materials in United States. The United States is heavily import-dependent.

This analysis was prepared by non-partisan legislative staff for the use of legislative members in their deliberations. This analysis is not a part of the legislation nor does it constitute a statement of legislative intent.

DOE has developed and recommended strategies to expand the supply chain, fund research to find substitutes for REEs, and promote research the recycling of REEs. The supply chain includes processing, workforce development, and research and development. The DOE has determined that development of downstream activities such as refining, rare earth metals alloying, and permanent magnet manufacturing may require large amounts of financing, a skilled workforce, and a sizeable domestic market. The Department of Energy has started to award funding for projects that can enhance the ability of the United States to continue deploying clean technologies and other advanced technologies currently dependent on REEs and other critical materials.

One of these projects funded by DOE is the Critical Materials Institute (CMI), facilitated by the Ames National Laboratory, which is focusing on addressing issues of supply, substitution and recycling through research and development of critical materials to grow clean energy technologies. Critical materials are elements, including some REEs, dysprosium, terbium, europium, neodymium, and yttrium that possess unique magnetic, catalytic, and luminescent properties used for clean energy technologies. The CMI is one the DOE's five Energy Innovation Hubs.

The CMI is one example of a more concerted international, national, and local effort to address the REE and critical material supply chain issues. One approach to addressing such issues may be developing technologies reliant on earth-abundant materials that are more sustainable and more easily exploited economically.

Summary of Bill:

The Legislature intends to fund research into earth-abundant materials that can substitute for REEs or other critical materials and the REEs.

The Joint Center for Deployment and Research in Earth-Abundant Materials (JCDREAM) is created. The JCDREAM is a multi-institutional education and research center under the authority of the University of Washington and Washington State University. The JCDREAM's purpose is to:

- establish a transformative program in earth-abundant materials to accelerate the development of next generation clean energy and transportation technologies in Washington;
- establish a coordinated framework and deploy resources that can facilitate and promote multi-institution collaborations to drive research, deployment, and deployment efforts in the use of earth-abundant materials for manufactured clean technologies or recycling of advanced materials used in clean technologies; and
- promote environmentally responsible processes in the areas of manufacturing and recycling of advanced materials.

A board of directors (Board) is established, consisting of nine voting members and one non-voting chair. The Board consists of the deans from each university authority; a representative from the Pacific Northwest National Laboratory and community colleges; one representative each from large, medium, and small industry companies; one member with experience in national security and energy policy, and one member with experience in innovation and

development of policy to address environmental challenges. The members, including a chair, are appointed by the Governor.

The Board's duties include working with clean technology and transportation industry associations and firms of all sizes to identify the research areas that will benefit the intermediate and long-term economic vitality of Washington's clean technology and transportation industries, identifying entrepreneurial researchers to join or lead research teams, and developing internships and other opportunities for students enrolled in programs for clean technology and earth-abundant research.

The Board must hire an executive director and may hire staff. The initial administrative offices must be west of the Cascades. The JCDREAM must make its facilities and resources available to all four-year institutions of higher education. The JCDREAM may solicit and receive gifts and grants from public and private sources.

The Board must develop an operating plan by December 1, 2015 and report biennially to the Legislature and Governor.

Appropriation: None.

Fiscal Note: Requested on February 5, 2015.

Effective Date: The bill takes effect 90 days after adjournment of the session in which the bill is passed.