Date of Hearing: August 20, 2025

ASSEMBLY COMMITTEE ON APPROPRIATIONS
Buffy Wicks, Chair
SB 80 (Caballero) – As Amended June 27, 2025

Policy Committee: Utilities and Energy Vote: 18 - 0

Urgency: No State Mandated Local Program: No Reimbursable: No

SUMMARY:

This bill creates the Fusion Research Development and Innovation Hub Program (Fusion Hub Program) to, as the bill states, accelerate the development and growth of fusion energy by advancing fusion science and technology with the goal of delivering the world's first fusion energy pilot plant, in California, by the 2040s.

Specifically, this bill, among other things:

1) Creates the Fusion Hub Program within the California Energy Commission (CEC).

2) Directs CEC—in consultation with the Governor's Office of Business and Economic Development (GoBiz), the President of the University of California (UC), the California Independent System Operator (CAISO) and the California Public Utilities Commission (CPUC)—to (a) designate three fusion research and development innovation hubs representing the geographical regions of southern California, the Central Valley, and the San Francisco Bay area and (b) oversee, coordinate and provide assistance to each hub.

3) Directs the hubs, subject to oversight and coordination by CEC, to (a) support the advancement of predemonstration commercial fusion energy programs by driving research and development in science, technology, academia, and workforce initiatives aligned with California's workforce goals for clean energy technologies; (b) leverage state, federal and private sector investments and incentives to advance research and technology applicable to fusion energy, including public-private partnerships and philanthropic collaborations; and (c) coordinate activities as a statewide network to facilitate a fusion energy economy.

4) Establishes the Fusion Research and Development Fund, and directs CEC to administer the Fusion Hub Program using monies in the fund, available upon appropriation and contingent upon such an appropriation, to provide grants to the hubs to (a) accelerate the deployment of new research and technology capabilities that support the commercialization of fusion energy, (b) achieve the Fusion Hub Program's goal of delivering the world's first fusion energy pilot program plant in the state by the 2040s, (c) assist hubs in achieving the outcomes described in the bill and (d) support hub projects that align with California's broader decarbonization and clean energy goals.

FISCAL EFFECT:

1) Cost pressure of an unknown but significant amount, likely in the millions of dollars, to provide money for the Fusion Research and Development Fund (General Fund, bond funds and special funds).

2) Cost to CEC of an unknown, but significant amount, likely in the mid hundreds of thousands of dollars annually, to designate three fusion hubs and to oversee, coordinate and provide assistance to each hub (Energy Resources Program Account (ERPA)). CEC estimates these costs to be approximately $350,000 to for "at least" two technical experts with nuclear fission experience, at an annual cost of $175,000 each. CEC also anticipates the need to conduct a formal rulemaking to implement the bill, though it did not provide an estimate of costs for this activity.

   ERPA is CEC's main funding source and continues to face a structural imbalance, with annual costs exceeding annual revenues.

3) Each of the state entities the bill tasks with consulting with CEC on designation of the fusion hubs—GoBiz, CPUC and UC—will likely be able to absorb the workload with existing resources.

COMMENTS:

1) **Purpose.** According to the author, fusion energy is "considered the holy grail of energy solutions" and that California "should lead the nation in fostering fusion energy." To that end, the author intends this bill to lead to state funding "to assist in closing the infrastructure gap to make fusion energy part of California's zero-carbon energy system."

2) **Background.** As explained by the U.S. Department of Energy (USDOE), nuclear *fission* is the process where the nucleus of an atom splits into two or more smaller nuclei and other particles and can release large amounts of energy in the form of heat and radiation. Nuclear fission is fully commercialized technology and is used around the world to produce electricity, as it does in California at the Diablo Canyon Nuclear Power Plant.

   In contrast, nuclear *fusion*—the subject of this bill—occurs, again according to USDOE, when two light nuclei merge to form a single heavier nucleus, a process that releases energy because the total mass of the resulting single nucleus is less than the mass of the two original nuclei, so leftover mass becomes energy. Nuclear fusion is how our sun and the stars make energy. However, there are no commercial operations that produce large amounts of energy from nuclear fusion, and the use of fusion in this way remains largely theoretical.

   Nonetheless, many see nuclear fusion as a potential source of "baseload"—that is, constant—energy that does not produce climate warming gases. There are many research facilities exploring nuclear fusion, several in California. Bill proponents hope this bill, and seed funding that may follow it, will signal to federal authorities and motivated researchers that California is serious in its efforts to explore fusion science and technology. As explained by bill proponent General Atomics:

   > the federal government has shown significant interest in establishing new partnerships with states and industry to drive investments in

research and development. In June 2024, the DOE proposed a new Public-Private Consortium Framework (PPCF) meant to amplify federal funding by catalyzing and bringing together state and local government, private entities, philanthropic funding, and partnerships to accelerate the commercialization of fusion energy.

While deployment is not immediate, it is imperative that California facilitate the development of fusion energy to support the state's existing ecosystem and remain the leader for carbon-free energy in the US and world…The Hub Program established in the bill would help leverage federal funding and private investment to complement the PPCF framework—driving new investments in academia, workforce development, science, and technology and positioning California as a partner with the DOE and foreign like-minded nations to advance fusion energy.

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