Senate File ____

An Act to promote advanced nuclear energy development in Iowa by requiring Iowa State University to establish research partnerships for thorium-based technologies and small modular reactors, re-establishing a School of Nuclear Engineering, providing phased funding and cost-sharing mechanisms, establishing public engagement and oversight requirements, and making an appropriation.

BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF IOWA:

Section 1. SHORT TITLE. This Act shall be known and may be cited as the "Iowa Needs Nuclear Power Act."

Section 2. SENSE OF THE GENERAL ASSEMBLY. It is the sense of the general assembly that:

1. Iowa has a storied history of leadership in nuclear energy, including the Ames Project at Iowa State University during World War II, which developed innovative uranium purification processes and produced over 1,000 tons of high-purity uranium for the Manhattan Project, contributing to national security and the dawn of the atomic age. The Ames National Laboratory, established in 1947 as a U.S. Department of Energy facility on the Iowa State University campus, continues this legacy through advanced materials research critical to nuclear technologies.
2. Iowa is a national leader in alternative energy sources, generating over 60% of its electricity from renewables, including ranking first in ethanol production (4.7 billion gallons annually from 42 refineries) and biodiesel, and second in wind energy capacity (over 12,000 megawatts installed, providing more than 40% of the state's electricity). These achievements have positioned Iowa as a biofuels powerhouse and a model for sustainable energy.
3. To secure Iowa's long-term energy future and economic competitiveness, greater diversity in reliable, baseload energy sources is essential. Advanced nuclear technologies, such as thorium-based systems and small modular reactors, provide a safe, efficient complement to Iowa's world-class wind, solar, ethanol, and biodiesel portfolio, ensuring grid stability amid rising demands from manufacturing, data centers, and electrification.
4. This initiative will generate high-paying engineering, technology, and manufacturing jobs across Iowa, strengthen STEM workforce development, attract and retain top talent in Ames and communities statewide, and deliver lasting economic benefits through cutting-edge research and innovation.

Section 3. PURPOSE AND FINDINGS. The general assembly finds that thorium-based nuclear energy and small modular reactors, building on Iowa's proud legacy of nuclear research and renewable energy leadership, offer safe, efficient, and sustainable paths to meet the state's growing need for reliable baseload power while minimizing waste and proliferation risks. Iowa State University, through the Ames National Laboratory and its historical nuclear expertise, is positioned to lead in advanced nuclear research. A

partnership will advance clean, reliable energy innovation, create high-tech jobs, and position Iowa as a national leader, with the long-term goal of developing a full-scale working thorium reactor or small modular reactor, even if realization takes more than a decade.

Section 4. PARTNERSHIP REQUIREMENT AND EXCLUSIVE WINDOWS. Iowa State University is directed to initiate contact with Clean Core Thorium Energy (CCTE) to develop a formal research partnership agreement. CCTE shall be granted an exclusive 12-month negotiation window commencing on the effective date of this Act. If no agreement is reached within that 12-month period, Iowa State University shall then initiate contact with NuScale Power to develop a formal research partnership agreement, granting NuScale an exclusive 12-month negotiation window commencing immediately upon expiration of the CCTE window. If no agreement is reached with NuScale Power within its 12-month window, negotiations shall open to other U.S. companies or entities developing alternative nuclear technologies with direct ties and approvals from the United States Department of Energy (DOE), such as those advancing thorium fuels, molten salt reactors, small modular reactors, or related innovations.

Section 5. SCOPE OF RESEARCH PARTNERSHIP — INITIAL PHASES. The partnership shall commence with the following research efforts, integrated with the re-established School of Nuclear Engineering:

1. Fuel fabrication and materials development, including synthesis and testing of thorium-based fuel pellets and compounds.
2. Irradiation testing and performance analysis, encompassing burnup experiments, post-irradiation examinations, and assessments of fuel stability and safety.
3. Neutronic and thermal-hydraulic modeling, including computational simulations to optimize thorium fuel designs for reactor performance, efficiency, and safety.
4. Supply chain and resource development, focusing on domestic sourcing, extraction, purification, and sustainable processing of thorium and uranium materials, as well as modular reactor components.
5. Additional studies on safety, economics, and nonproliferation, conducted through the Ames National Laboratory, including risk assessments, economic viability analyses, and evaluations of proliferation resistance in thorium fuel cycles.
6. Cost optimization and efficiency studies for small modular reactors, including refueling protocols, staffing models, and capital cost reductions.

Section 6. RE-ESTABLISHMENT OF SCHOOL OF NUCLEAR ENGINEERING. The partnership shall support the re-establishment of a School of Nuclear Engineering at Iowa State University, with an emphasis on thorium reactor technology and small modular reactor design and operations. This school shall oversee initial research phases, provide educational and training opportunities in thorium technologies and small modular reactor design/operations, facilitate collaborations within the Big 12 Engineering Consortium for shared resources, curricula, and joint projects, and prioritize recruitment of Iowa students.

The school shall develop outreach programs to high schools across the state to promote STEM education in nuclear technologies.

Section 7. LONG-TERM DEVELOPMENT OF THORIUM REACTOR OR SMALL MODULAR REACTOR. Subject to federal regulatory approvals from the DOE, the Nuclear Regulatory Commission, and other relevant agencies, the partnership shall progress toward the long-term goal of designing, constructing, and operating a full-scale working thorium reactor or small modular reactor. The reactor shall be sited on the south side of the Iowa State University Research Park in Ames, Iowa, with provisions for environmental impact assessments, security measures, community engagement, and public hearings. No state funds appropriated under this Act shall be used for reactor design, construction, or licensing activities until the Nuclear Regulatory Commission has issued a clear licensing pathway or framework for thorium-based or small modular reactor technologies.

Section 8. OVERSIGHT, FUNDING, AND COST-SHARING.

1. The Iowa Economic Development Authority, in coordination with the Board of Regents and the Iowa Utilities Board, shall oversee the partnership and implementation of this Act.
2. There is appropriated from the state general fund to the Iowa State University Board of Regents the sum of six million three hundred thousand dollars ($6,300,000), to be distributed in three annual installments as follows: one million one hundred thousand dollars ($1,100,000) for the fiscal year beginning July 1, 2026; two million dollars ($2,000,000) for the fiscal year beginning July 1, 2027; and three million two hundred thousand dollars ($3,200,000) for the fiscal year beginning July 1, 2028; or so much thereof as may be necessary, solely for the re-establishment of the School of Nuclear Engineering at Iowa State University with an emphasis on thorium reactor technology. Each annual installment shall be contingent upon the university securing matching non-state funds of at least one dollar for every one dollar appropriated from sources including federal grants, endowments, or contributions from partnering entities or the Big 12 Engineering Consortium, including small modular reactor developers. Any unmatched or unexpended funds shall revert to the state general fund. This appropriation shall be used solely for costs associated with faculty salaries, staff, curriculum development, laboratory equipment, and related operational expenses for the school. All other costs associated with the partnership, research phases beyond the school's operations, and reactor development shall be incurred by the partnering entity (e.g., CCTE, NuScale Power, or subsequent partners), through new or existing endowments, DOE grants, or partnerships within the Big 12 Engineering Consortium.
3. Iowa State University shall: a. Achieve measurable milestones within the three-year funding period, including hiring at least five full-time faculty with nuclear expertise, launching at least two thorium-related graduate courses and one undergraduate minor, developing at least one certificate program in small modular reactor operations, securing at least one DOE grant or industry partnership beyond the initial partner, and publishing or presenting at least three peer-reviewed papers or

conference presentations on thorium research. b. Submit an annual report to the general assembly by January 1 each year, detailing progress, expenditures, milestones achieved, federal regulatory status, and any challenges encountered.

Section 9. PUBLIC ENGAGEMENT AND TRANSPARENCY. Iowa State University shall:

1. Hold at least two public information sessions per year during the initial three-year period, open to the public and livestreamed, to share progress and receive community input.
2. Commission an independent third-party safety and environmental review by a qualified national laboratory or accredited consultant prior to any reactor-related activities.
3. Publish annual public reports on radiation monitoring (even if zero at the research stage) and summaries of community feedback.

Section 10. SEVERABILITY. If any provision of this Act or its application to any person or circumstance is held invalid, the invalidity does not affect other provisions or applications of the Act that can be given effect without the invalid provision or application, and to this end the provisions of this Act are severable.

Section 11. EFFECTIVE DATE. This Act, being deemed of immediate importance, takes effect upon enactment.