

**ALASKA STATE LEGISLATURE
SENATE RESOURCES STANDING COMMITTEE**

March 18, 2024

4:21 p.m.

MEMBERS PRESENT

Senator Click Bishop, Co-Chair
Senator Cathy Giessel, Co-Chair
Senator Bill Wielechowski, Vice Chair
Senator Scott Kawasaki
Senator James Kaufman
Senator Forrest Dunbar
Senator Matt Claman

MEMBERS ABSENT

All members present

COMMITTEE CALENDAR

PRESENTATION: THE MICRO-REACTOR PILOT PROGRAM AT EIELSON AIR
FORCE BASE

- HEARD

SENATE BILL NO. 168

"An Act relating to wrongfully seized game."

- BILL HEARING CANCELED

PREVIOUS COMMITTEE ACTION

No previous action to record

WITNESS REGISTER

NANCY BALKUS, Deputy Assistant Secretary
Air Force for Environment, Safety, and Infrastructure (SAF/IEE)
United States Department of the Air Force
Arlington, Virginia

POSITION STATEMENT: Presented an overview of the Micro-reactor
Pilot Program at Eielson Air Force Base.

ANDREA KINCAID, Contracting Officer
Defense Logistics Agency (DLA) Energy

Fort Belvoir, Virginia

POSITION STATEMENT: Answered questions related to the Micro-Reactor Pilot program.

ACTION NARRATIVE

[4:21:12 PM](#)

CO-CHAIR CLICK BISHOP called the Senate Resources Standing Committee meeting to order at 4:21 p.m. Present at the call to order were Senators Kawasaki, Claman, Co-Chair Bishop, and Co-Chair Giessel. Senators Wielechowski, Kaufman, and Dunbar arrived thereafter.

PRESENTATION: THE MICRO-REACTOR PILOT PROGRAM
AT EIELSON AIR FORCE BASE

[4:21:48 PM](#)

CO-CHAIR BISHOP announced the consideration of a presentation on the Micro-reactor Pilot Program at Eielson Air Force Base.

[4:22:04 PM](#)

SENATOR WIELECHOWSKI joined the meeting.

[4:23:38 PM](#)

NANCY BALKUS, Deputy Assistant Secretary, Air Force for Environment, Safety, and Infrastructure (SAF/IEE), United States Department of the Air Force, Arlington, Virginia, moved to slide 2 and detailed the Micro-reactor Pilot Program at Eielson Air Force Base, sponsored by the U.S. Department of the Air Force. She explained her role as Deputy Assistant Secretary of the Air Force for Environment, Safety, and Infrastructure (SAF/IEE), with installation energy being a key focus. The program aims to assess two primary factors: the viability of micro-reactor technology and to determine the potential for its scalability across Alaska. She introduced her "3P" framework for understanding the program:

1. **Pilot:** The Eielson micro-reactor is a pilot initiative, marking the first time advanced nuclear technology is being pursued in a micro-reactor format through a power purchase agreement.
2. **Partnership:** The program requires substantial partnerships across federal, tribal, state, local, industry, academic, and community sectors. These partnerships are essential for the program's success.

3. **Pathfinder:** The initiative serves to blaze a trail for licensing a micro-reactor through collaboration with the Nuclear Regulatory Commission (NRC) and the Defense Logistics Agency (DLA). The goal is to create a playbook to demonstrate how villages, communities, and cities in Alaska, as well as others, can pursue safe, clean, and affordable energy through a micro-reactor.

[4:25:27 PM](#)

MS. BALKUS said her team is working tirelessly with the Defense Logistics Agency, which handles acquisitions, and the Nuclear Regulatory Commission, responsible for licensing the reactor. The Department of Energy (DOE) is also involved to ensure success at the federal level. The Air Force has partnered with state and local partners including the Tanana Chiefs Conference, the Alaska Department of Environmental Conservation (DEC), the University of Alaska Fairbanks (UAF), the Fairbanks North Star Borough, the Greater Fairbanks Chamber of Commerce, and the Alaska State Legislature. She thanked the committee for their efforts in supporting the advanced nuclear facility deployment in Alaska through Senate Bill 177, which eases the regulatory burden while upholding safety and environmental standards. This initiative aims to provide communities across Alaska with a reliable and cost-effective power source. Collaboration with DEC has been crucial for the success of state regulatory processes for the micro-reactor and to address other joint environmental challenges. Governor Dunleavy has described the micro-reactor opportunity as a potential game-changer for energy generation in Alaska. She expressed gratitude for the opportunity to partner with key stakeholder groups to pilot this initiative. The Air Force has been prioritizing investment in critical capabilities and innovative technologies to increase resilience at its installations for several years. However, these efforts have been bolstered by the Secretary of the Air Force's emphasis on aligning the department for the next Great Power Competition. This competition describes the strategic environment that focuses on the pacing threat posed by the People's Republic of China (PRC) and the acute threat from Russia, both of which impact the Arctic region where Alaska is located. Alaska is of immense strategic significance, serving as a key location for global power projection due to its two large bases, Joint Base Elmendorf-Richardson (JBER) and Eielson Air Force Base, and other strategic facilities. Alaska offers the quickest flight access to both the Indo-Pacific region and western Russia, making it a critical location for projecting air and space power into those two critical theaters. She highlighted the impact of changing environmental conditions. The National Strategy for the

Arctic Region calls for investments in new infrastructure and to pursue energy security and affordability through the development of clean technologies that reduce the environmental footprint. In response, the Air Force has developed an Arctic strategy that includes an installation investment plan to increase resilience at Alaska's bases. This plan focuses on investments in power production, distributed and renewable energy, and technologies that reduce greenhouse gas emissions, such as micro-reactors. The technology's ability to deliver power directly where needed, including both electricity and heat, makes it ideal for isolated communities, universities, mining operations, industrial centers, data centers, and defense facilities. She illustrated a potential future where communities could grow fresh produce in greenhouses powered by micro-reactors, even in the middle of winter, or save thousands of dollars annually in fuel costs by localizing power to a central, reliable micro-reactor. Many other states are closely watching Alaska's progress in piloting the micro-reactor at Eielson Air Force Base, as this program could serve the Department of Defense (DOD) for the benefit of Alaskans.

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SENATOR DUNBAR joined the meeting.

[4:26:13 PM](#)

SENATOR KAUFMAN joined the meeting.

[4:30:41 PM](#)

MS. BALKUS moved to slide 3 and summarized the Micro-Reactor Pilot program:

[Original punctuation provided.]

Micro-Reactor Pilot Program

Pilot program will assess viability of micro-reactor technology to determine potential for scalability across Alaska

- Strategic Importance:
 - Pilot is paving the way to meet challenges of Great Power Competition and achieve Department of the Air Force Climate Action Plan objectives
 - Pilot will meet requirements of Executive Order 13972, Fiscal Year 2019 National

Defense Authorization Act, and Department of
the Air Force Arctic Strategy

- Partnering with Defense Logistics Agency Energy Office (DLA) to execute a 30-year power purchase agreement via 10 U.S.C. 2922a
- Commercial vendor will license, own, and operate 5 MWe micro-reactor to deliver electricity and steam to Eielson Air Force Base

(TIMESTAMP)

MS. BALKUS said these directives are specifically focused on DOD needs, which is why the Air Force is leading this effort rather than DOE. The third-party developer will be responsible for licensing and operating the micro-reactor, which will deliver both electricity and steam to Eielson Air Force Base. In return, the Air Force will commit to a long-term purchase of the energy produced. A power purchase agreement was determined to be the best contractual vehicle for this initiative, as it is the first of its kind and aims to demonstrate the potential benefits for the Air Force, DOD, and the state of Alaska. The selected third-party developer will assume the risk associated with the reactor's design, development, licensing, operation, and decommissioning. This arrangement is considered an investment in technology maturation and business development. Licensing of the reactor will be conducted by the Nuclear Regulatory Commission, ensuring that oversight is not solely in the hands of the third-party developer. Eielson Air Force Base was chosen as the preferred location for this pilot due to its mission compatibility and strategic location in the Arctic, an area with higher energy costs, making it an ideal region. The installation has volunteered to support and host the pilot project.

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CO-CHAIR GIESSEL inquired about the basic terms of the 30-year Power Purchase Agreement (PPA) mentioned on slide 3. She sought clarification on the reference to a commercial vendor, specifically asking if the company Oklo is still the selected vendor. She noted that the company had previously been withdrawn due to procurement challenges and wondered if it had been chosen again as the vendor for a second time.

[4:33:26 PM](#)

MS. BALKUS replied that the PPA was identified as the most viable approach due to the high costs associated with creating the first micro-reactor technology. This agreement places the investment risk on the third-party developer, who would be responsible for developing and designing the micro-reactor. The

30-year term of the PPA was chosen to allow the company to spread the capital costs over a period. Regarding the commercial vendor, she confirmed that a notice of intent to award had been issued in September. However, a protest was filed with the U.S. Court of Federal Claims by another bidder, leading to a rescission of the initial notice. The notice was reissued in February, but another bidder submitted a protest to the Government Accountability Office (GAO) in March. The bid protest with the GAO is ongoing, with a resolution due by June 20. Protests of this nature typically take up to 100 days to resolve.

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CO-CHAIR GIESSEL mentioned that she had been informed that the vendor would be required to meet the cost of power generated by coal and asked if this was the criteria specified in the power purchase agreement.

[4:35:26 PM](#)

MS. BALKUS replied that the question is difficult to answer. She explained that the agreement is structured to allow the company to determine the cost over a 30-year contract, but it would not have reached that stage yet. The agreement would eventually be a firm fixed-price contract, but they need to complete the design and licensing phases before developing the cost. She deferred to Andrea Kincaid, the acquisition partner, to correct or provide additional details if needed.

[4:36:26 PM](#)

ANDREA KINCAID, Contracting Officer, Defense Logistics Agency (DLA) Energy, Fort Belvoir, Virginia, answered questions related to the Micro-Reactor Pilot program.

[4:36:34 PM](#)

CO-CHAIR GIESSEL asked for clarification about the contract awarded to the vendor. She noted that it seemed like there was a second protest related to the awarding of the contract and requested further details.

[4:36:54 PM](#)

MS. BALKUS explained that the most recent protest was filed with GAO and has up to 100 days to be resolved. She indicated that she is not yet ready to disclose the nature of the protest, as she has only reviewed the publicly available notice.

[4:37:34 PM](#)

SENATOR CLAMAN asked whether this is currently the only micro-reactor program going forward in the nation.

[4:37:46 PM](#)

MS. BALKUS replied that she is aware of other approaches being explored, but none so far involve a power purchase agreement. This makes the initiative unique.

[4:38:02 PM](#)

SENATOR CLAMAN asked if this project is likely to comprise of the first micro-reactor on a military base in the country.

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MS. BALKUS confirmed that it is planned.

[4:38:16 PM](#)

SENATOR CLAMAN asked about the timeline for seeing additional micro-reactors at other military bases or locations in the country, assuming the current project in Alaska proceeds as planned.

[4:38:33 PM](#)

MS. BALKUS explained that she cannot provide a specific timeline for additional micro-reactors at other military bases or locations. The current projection on slide four estimates a 10-year timeline from start to finish, though the slide shows eight years. The goal of the pilot program is to demonstrate the licensing process through the Nuclear Regulatory Commission (NRC) to get one approved. The NRC is updating its licensing process to be more streamlined for micro-reactors, which are significantly different from two or three times larger nuclear power plants. The focus is on the first micro-reactor, and the experience gained will help expedite the implementation of subsequent reactors. However, until the first reactor is completed, a predictable timeline for additional reactors cannot be established.

[4:40:10 PM](#)

MS. BALKUS moved to slide 5 and highlighted the importance of partnerships:

[Original punctuation provided.]

Partnerships

- Executing DAF 3 P's: Pilot, Partnerships, and Pathfinder

- Early engagement with public and pilot stakeholders through Council for Alaska Micro-reactor Program
- Continued, meaningful, and robust consultation and coordination with Alaska Native Tribes and communities to ensure alignment with values of Alaskans
- Consultation with Alaska Department of Environmental Conservation (ADEC) on environmental considerations
- National Environmental Policy Act (NEPA) agreement with Nuclear Regulatory Commission (NRC)
- Idaho National Lab facilitating technology demonstrations

MS. BALKUS highlighted the significance of partnerships in the pilot program. These initiatives are multi-year efforts requiring the engagement of various staff, functions, and organizations. She reiterated the importance of partnerships. Local community members will also play a critical role. During the environmental impact study and the National Environmental Policy Act (NEPA) process, the local community will have an opportunity to ask questions and raise concerns, of which the Nuclear Regulatory Commission will take into consideration. The project is crucial for energy, which powers everyday services and facilities. Conducting the pilot at Eielson Air Force Base is strategic due to its shared challenges. While the Air Force will assume most of the risk and cost, it anticipates questions and skepticism, and is prepared to develop partnerships. The goal is to maintain open and transparent dialogue to address concerns about the technology and process. Feedback and input from the legislature will be valuable in enriching the decision-making process to ensure an environmentally responsible approach. She noted that the list of partners demonstrates the national effect and interest in this project.

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CO-CHAIR GIESSEL inquired about the anticipated cost for the micro-reactor.

[4:43:22 PM](#)

MS. BALKUS replied that there is no cost figure available at this time. However, a firm fixed value will be negotiated with the vendor once they complete the design and licensing process.

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MS. BALKUS continued speaking to slide 5. She mentioned the establishment of the Council for the Alaska Micro-Reactor Program (CAMP), which meets quarterly to update the Fairbanks community on the pilot program. She invited any interested committee members to join the program. Currently, participants include representatives from the Governor's office, ADAC, the local mayors, UAF, the Tanana Chiefs Conference, and Eielson Air Force Base leadership. So far, one public town hall meeting has been held, with plans for more during the environmental impact study process to ensure community engagement. The council also includes federal partners such as DLA, the Nuclear Regulatory Commission, and DOE. The goal is to involve all stakeholders in the development and implementation of this new technology and approach.

[4:45:19 PM](#)

MS. BALKUS moved to slide 6 and outlined the communication strategies:

[Original punctuation provided.]

Communication Methods

- Communication Tool(s)
- Eielson Micro-reactor Webpage
- Council for the Alaska Micro-reactor Program (CAMP) Meetings
- Outreach Videos
- Newsletters
- Media Engagements

Strategic Intent

- "One stop shop" for micro-reactor pilot information
- Strengthen transparency and coordination among federal, state, local, and Tribal stakeholders
- Strengthened trust, transparency, and community awareness
- Delivery of important project updates
- Ensure widest dissemination of information to expand audience and message accessibility

MS. BALKUS noted that communication for the micro-reactor program is important due to the introduction of new technology. She said emphasis is placed on three key pillars: transparency, frequency, and active partnership. Transparency involves making sure that all stakeholders are aware of what is happening and how it is being executed. Frequency ensures that updates are clear and regular to keep everyone informed. Active partnership is about ensuring that all stakeholders have a voice in the process. To support these pillars, several engagement strategies have been implemented. A dedicated micro-reactor webpage on Eielson Air Force Base's site provides ongoing updates. CAMP holds regular meetings to keep the community informed. Educational outreach is supported by videos developed with a national lab, which are available on the webpage. Additionally, a quarterly newsletter will be issued to reach a broader audience as the project progresses.

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CO-CHAIR BISHOP inquired about operation specifics of the five-megawatt micro-reactor concerning fuel or "battery" change-out intervals.

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MS. BALKUS replied that the advanced reactor design is still under development, but current estimates suggest that the reactor will need refueling approximately every eight to ten years. Initially, the reactor will be delivered to the site as a pre-fueled assembly, which will then be placed into operation. After the initial deployment, refueling will not be required until the eight to ten-year mark. The specific process for handling used fuel has yet to be determined, as the design details are not finalized. Options being considered include whether the entire reactor assembly will be returned to the manufacturing plant for refueling or if a new unit with pre-loaded fuel will replace the old one. These details will be clarified as the design and operational plans progress.

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CO-CHAIR BISHOP asked if the speaker was aware of the previous operational nuclear power plant at a military installation in Alaska.

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MS. BALKUS replied yes, but noted that it used different technology.

[4:48:44 PM](#)

CO-CHAIR BISHOP noted that the state installed an "off-the-shelf A-Model" and asked if there were any lessons learned that could guide the current process.

4:49:00 PM

MS. BALKUS replied that DOD has been studying nuclear power plants both in the United States and worldwide. It is collaborating closely with Idaho National Labs, which is testing three different approaches to advanced nuclear reactors. This partnership ensures that they incorporate the best practices and lessons learned into the development of the technology.

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CO-CHAIR BISHOP acknowledged that the proposed timeline for the micro-reactor project is aggressive but expressed support for the initiative given the thorough checks and balances in place. He highlighted historical examples to emphasize the importance of rapid action, noting that during World War II, Eielson Air Force Base was surveyed and a contract was executed within two weeks under wartime conditions. He referenced the swift production of the North American P-51 Mustang, built in 90 days, which played a crucial role in the Allied victory over Germany. He stressed the importance of leveraging historical lessons and adapting to current global threats, such as those posed by China, to accelerate the process safely and efficiently.

4:51:19 PM

MS. BALKUS addressed a question about the power output of the pilot project, clarifying that the initial micro-reactor will be designed to produce five megawatts. The installation currently consumes between 15 to 18 megawatts of power. The pilot will start with this smaller scale to prove the technology, with plans to scale up after demonstrating its effectiveness and safety. She emphasized that the goal is to be cautious and effective while keeping the option to expand the system once its success is established.

4:52:39 PM

There being no further business to come before the committee, Co-Chair Bishop adjourned the Senate Resources Standing Committee meeting at 4:52 p.m.