ALASKA STATE LEGISLATURE
SENATE COMMUNITY AND REGIONAL AFFAIRS STANDING COMMITTEE
March 8, 2022
3:30 p.m.

MEMBERS PRESENT

Senator Shelley Hughes, Chair
Senator Robert Myers, Vice Chair
Senator David Wilson
Senator Elvi Gray-Jackson

MEMBERS ABSENT

Senator Lyman Hoffman

COMMITTEE CALENDAR

SENATE BILL NO. 177
"An Act relating to microreactors."

- MOVED SB 177 OUT OF COMMITTEE

PREVIOUS COMMITTEE ACTION

BILL: SB 177
SHORT TITLE: MICROREACTORS
SPONSOR(s): RULES BY REQUEST OF THE GOVERNOR

02/01/22	(S)	READ THE FIRST TIME - REFERRALS
02/01/22	(S)	CRA, RES
02/15/22	(S)	CRA AT 3:30 PM BELTZ 105 (TSBldg)
02/15/22	(S)	Heard & Held
02/15/22	(S)	MINUTE(CRA)
02/17/22	(S)	CRA AT 3:30 PM BELTZ 105 (TSBldg)
02/17/22	(S)	Heard & Held
02/17/22	(S)	MINUTE(CRA)
03/08/22	(S)	CRA AT 3:30 PM BELTZ 105 (TSBldg)

WITNESS REGISTER

TRAVIS MILLION, Chief Executive Officer
Copper Valley Electric Association
Glennallen, Alaska

POSITION STATEMENT: Participated in the update on the feasibility study for a microreactor in Alaska during the hearing on SB 177.

CRISTIAN RABITI, Director of Technology Strategy
Ultra Safe Nuclear Corporation
Idaho Falls, Idaho
POSITION STATEMENT: Co-presented a slideshow about the Ultra Safe Nuclear Corporation during the hearing on SB 177.

MARY WOOLLEN, Director of Stakeholder Engagement
Ultra Safe Nuclear Corporation (USNC)
Minneapolis, Minnesota
POSITION STATEMENT: Co-presented a slideshow about the Ultra Safe Nuclear Corporation during the hearing on SB 177.

JUDI GREENWALD, Executive Director
Nuclear Innovation Alliance
Washington D.C.
POSITION STATEMENT: Testified in support of SB 177.

MICHAEL WELCH, Mayor
North Pole, Alaska
POSITION STATEMENT: Stated support for exploring the use of microreactors in Alaska, during the hearing on SB 177.

JAMES GEIB, Representing Self
Copper Center, Alaska
POSITION STATEMENT: Testified in support of SB 177.

BENJAMIN COOK, Representing Self
Anchor Point, Alaska
POSITION STATEMENT: Stated opposition to SB 177.

ALAN AHN
Senior Resident Fellow
Climate and Energy Program
Third Way
Washington D.C.
POSITION STATEMENT: Testified in support of SB 177.

CARRIE HARRIS, Representing Self
Anchor Point, Alaska
POSITION STATEMENT: Testified in opposition to SB 177.

MICHAEL ROVITO, Deputy Director
Alaska Power Association

Anchorage, Alaska
POSITION STATEMENT: Testified in support of SB 177.

CHARLES PERRETT, Representing Self
Glenallen, Alaska
POSITION STATEMENT: Testified that he was leaning toward no or undecided about SB 177.

CYRIL DRAFFIN, Senior Fellow for Advanced Nuclear
US Nuclear Industry Council
Bethesda, Maryland
POSITION STATEMENT: Stated strong support for SB 177.

MARGARET TARRANT, Environmental Justice Organizer
Alaska Community Action on Toxics
Anchorage, Alaska
POSITION STATEMENT: Testified in opposition to SB 177.

SPENCER NELSON, Managing Director
Research and New Initiatives
ClearPath
Washington D.C.
POSITION STATEMENT: Testified in support of SB 177.

GARY NEWMAN, Representing Self
Fairbanks, Alaska
POSITION STATEMENT: Offered suggestions on how to improve SB 177.

CHRISTINA CARPENTER, Director
Division of Environmental Health
Department of Environmental Conservation (DEC)
Anchorage, Alaska
POSITION STATEMENT: Provided information during the hearing on SB 177.

ACTION NARRATIVE

3:30:31 PM
CHAIR SHELLEY HUGHES called the Senate Community and Regional Affairs Standing Committee meeting to order at 3:30 p.m. Present at the call to order were Senators Myers, Wilson, Gray-Jackson, and Chair Hughes.

SB 177-MICROREACTORS

3:31:00 PM
CHAIR HUGHES announced the consideration of SENATE BILL NO. 177 "An Act relating to microreactors." She stated that the old legacy nuclear reactors or much different than microreactors.

She noted that this was the third hearing of this governor's bill. The intention was to hear an update on the feasibility study for a microreactor in the Valdez area. She highlighted the safety features of the new microreactors that are very different than the legacy reactor in Ukraine that is in jeopardy after the recent Russian invasion of that country. She urged the presenters to speak to that as well.

3:33:11 PM
TRAVIS MILLION, Chief Executive Officer, Copper Valley Electric Association (CVEA), Glennallen, Alaska, stated that CVEA has been working with the Ultra Safe Nuclear Corporation on the feasibility study for using a micronuclear reactor as a solution to wintertime energy issues in the Copper River Basin and Valdez. CVEA enjoys abundant hydroelectric power during the summer and is able to provide power at about $0.18/kWh. Most of that water source freezes in the fall and winter, so about 80 percent of the power generated during that time comes from fossil fuels.

He relayed that CVEA has kept an eye on the smaller reactors, but the technology wasn't sufficiently advanced to make any sense in this application until a few years ago. This spring CVEA held a planning session to look at how to eliminate its dependence on liquid fossil fuels and further reduce its carbon footprint and greenhouse gas emissions. This spring they started working with Ultra Safe in hopes that the new microreactor technologies will be the solution so that CVEA can provide predictable rates so members can plan on stable energy rates year around. He opined that the feasibility study will provide answers to many of the questions.

3:37:42 PM
CHAIR HUGHES asked what communities and areas the Copper River Valley Association covers.

MR. MILLION answered that CVEA is not interconnected to any other utility, so it generates all its own electricity and has its own transmission and distribution systems. The service territory stretches along the Richardson Highway from Valdez in the south to just short of Paxson Lake in the north. The service area runs out the Tok Cutoff Highway to about Mile 13, which is

just past the HAARP facility, then to Caribou Creek. The service area also goes out the Edgerton Highway about 17 miles close to Kenny Lake. The communities of Glennallen, Tazlina, Copper Center, Gakona, Gulkana, Valdez and the surrounding area are within CVEA's service territory.

3:39:10 PM
CHAIR HUGHES asked for the estimated number of Alaskans that live in the CVEA service area.

MR. MILLION estimated the population was 8,000 with 3,900 meters on the CVEA system.

SENATOR MYERS asked whether CVEA rate payers are eligible for the Power Cost Equalization (PCE) Program.

MR. MILLION answered no. When the state acquired the Solomon Gulch Project and transferred it to the Four Dam Pool Power Agency (FDPPA), it eliminated eligibility for CVEA to participate in PCE.

SENATOR MYERS asked if he had an estimate of what the electrical rates would be if a microreactor were to be put online.

MR. MILLION answered that it was too early to tell, but the rough numbers are in the neighborhood of $0.20 to $0.30/kWh range. That's more than the cost of the hydroelectric power, but less than the cost of diesel generation.

CHAIR HUGHES asked if shifting from diesel to a microreactor in the winter, would decrease the cost of generation in the winter from about $0.40/kWh to about $0.20/kWh.

MR. MILLION answered that is correct. The plan would be to avoid running diesel except for outage restoration. CVEA would maximize the cheapest power generation resource, which is hydro, then utilize nuclear in the winter months when there is insufficient hydro power.

3:41:21 PM
SENATOR GRAY-JACKSON asked him to talk about the difference in safety between the legacy reactors and these new microreactors.

MR. MILLION deferred the question to the technical experts to discuss during their presentation.

3:42:14 PM

SENATOR D. WILSON asked, if a decision is made to move forward with a microreactor, would CVEA consider an intertie with another power grid to offset the cost.

MR. MILLION answered that SJR 11 advocates for the development of a Road Belt electrical intertie from Palmer to Glennallen to Tok, then on to Delta to provide a new feed to the existing transmission infrastructure in the state. CVEA supports such an intertie, he said.

CHAIR HUGHES asked when CVEA first engaged with vendors to look at microreactors as a potential electric power source, when the feasibility study started, the timeline for making a decision, and when a microreactor potentially could be installed. She noted that this could be the first microreactor installed in a community in the state.

3:44:30 PM
MR. MILLION answered that CVEA began working with USNC and the Alaska firm Electric Power Systems early last fall to develop a plan for the feasibility study. The study itself should be completed in June or July. The study will be reviewed and brought before the board if it pencils out. If the board is comfortable and passes a resolution to move forward with the project, the best case scenario is that the project could come online in 2027.

CHAIR HUGHES asked when the community engagement will take place.

MR. MILLION answered that it has started already and Mary Woollen will discuss that in her part of the presentation.

CHAIR HUGHES thanked Mr. Million and welcomed the presenters from Ultra Safe Nuclear Corporation.

3:47:02 PM
At ease.

3:48:06 PM
CHAIR HUGHES reconvened the meeting.

3:48:26 PM
CRISTIAN RABITI, Director of Technology Strategy, Ultra Safe Nuclear Corporation, Idaho Falls, Idaho, began the presentation by introducing Dr. Francesco Venneri, the CEO of Ultra Safe Nuclear Corporation. He explained that in 2011, shortly after

the Fukushima nuclear disaster, Dr. Venneri began to wonder about the possibility of creating a fuel that would withstand the chain reaction like was seen in Fukushima. This led to the creation of the prototype fully ceramic micro-encapsulated (FCM) fuel, which is based on the TRISO fuel technology where the uranium is layered in silicon carbide and carbon. What makes this fuel a standout is that TRISO fuel is fully encapsulated in a dense matrix of silicon carbide, the third hardest material known.

MR. RABITI stated that the FCM fuel is the basis for the Micro Modular Reactor (MMR) technology. He directed attention to the 2-unit schematic for a nuclear plant and adjacent non-nuclear plant on slide 7. The footprint is just 150 by 200 yards. He explained that the MMR technology is different than a classic light water reactor because the fission products are locked inside the fuel. The reactor core has a low power density and a high heat capacity resulting in very slow and predictable temperature changes. Furthermore, refueling isn't needed for 10-14 years, which makes the whole installation much safer

MR. RABITI highlighted the two projects under development depicted on slide 8, the first of which is the Chalk River project in Canada. USNC will build its first reactor using the MMR technology on this site. It is projected to come online in 2026. The picture on the right illustrates the site on the University of Illinois campus where the MMR technology will be demonstrated in a fully commercial application. He said the fact that the reactor will be on campus is a clear sign of its level of safety.

MR. RABITI advanced to slide 9, "Why the MMR is Right for Alaska." He explained that the MMR technology was designed to address the energy needs for remote mines, and those needs are in line with the need for remote power in Alaska. He highlighted that the price of electricity is very stable when the reactor only needs to be refueled every 10-14 years. The construction time also fits the Alaska niche. The reactor is assembled primarily on site and generally can be completed in one season. Further, multiple units of this reactor can be stacked as the need for additional electricity grows.

3:55:39 PM
MR. RABITI advanced to slide 10 and reviewed the questions the CVEA/USNC feasibility study will answer:

[Original punctuation provided.]

- Is there anything that would prevent siting an MMR here?
- What are the preferred sites and their characteristics?
- What are the cost parameters and decision points?
- What are the benefits, concerns, and issues for the community?
- What operating specifics might apply in locating an MMR here?

MR. RABITI advised that the expectation is to finish the feasibility study by the end of summer 2022, after which discussions will continue with CVEA.

He yielded to Mary Woollen to continue the presentation.

3:56:53 PM
MARY WOOLLEN, Director of Stakeholder Engagement, Ultra Safe Nuclear Corporation (USNC), Minneapolis, Minnesota, advanced to slide 11 to discuss the important points about stakeholder engagement, particularly on the polarizing topic of nuclear energy:

What is engagement?

Early: Stakeholder Engagement is a core competency for USNC

Identification of range of stakeholders

Outreach- contact, establish best means of connection

Meet, listen, 2-way dialogue

Ability to hear 'No'

MS. WOOLLEN directed attention to the chart she uses to inform public engagement from the International Association for Public Participation. She spoke to the five categories that define the public's role in any public participation process:

Public Participation Goal

Inform

To provide the public with balanced and objective information to assist in understanding the problem, alternatives, opportunities and/or solutions.

Consult
To obtain public feedback on analysis, alternatives and/or decisions.

Involve
To work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered.

Collaborate
To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution.

Empower
To place final decision making in the hands of the public.

4:04:17 PM
MS. WOOLLEN advanced to slide 12, CVEA & USNC Engagement, to emphasize the importance of early, meaningful, and sustained engagement. She relayed that she and Mr. Rabiti come to Alaska last summer and talked to any of the potential stakeholders who would listen about having a microreactor in the state. This was a unique experience because the person who does stakeholder engagement is usually brought in late in the process after the major decisions have been made. She relayed that they also made a trip to Alaska in the winter to look at and try to understand the very different landscape and to inform people about the feasibility study. She pointed to the list of entities she and Mr. Rabiti spoke with:

- Valdez
  - City Council
  - Ports and Harbor
  - Police, Fire
  - School Board

  - Prince William Science Center
  - Valdez Fisheries Development Association

  - Alaska Native Corporations (3)
  - Alaska Federation of Natives

- Alaska Native Village Corporation Association
- ANCSA Regional Association

4:07:20 PM
MS. WOOLLEN advanced to slide 13, Federal Pathway to Deployment. She explained that the chart is intended to show the rigorous process to get licensed by the Nuclear Regulatory Commission (NRC), starting with the feasibility study. She noted that the opportunities for formal and informal public engagement, from the feasibility study to the regulatory consultation and beyond, are represented by the yellow boxes on the chart. Meaningful engagement involves communities in order to build support for development and co-create mutually beneficial plans and solutions.

4:09:32 PM
SENATOR GRAY-JACKSON asked what the difference in safety is between microreactors and traditional nuclear reactors.

MR. RABITI answered that there are two main differences. First, the fuel is an entirely new type that has two layers of safety. It uses the very safe TRISO fuel that is encapsulated in a silicon carbide matrix. Second, microreactors operate at a much lower level of power and temperature. The MMR reactor is a walk-away safe reactor because all the heat dissipates passively so it cannot melt down.

4:11:31 PM
CHAIR HUGHES relayed that SB 177 and the presentations by several companies on microreactors are sending a market signal that Alaska is open for business and that this might be a good place to debut microreactors. It puts the state on the cutting edge of innovation, which she likes.

CHAIR HUGHES noted that she had several questions that she was asking on behalf of a concerned citizen who lives in the CVEA service area. First, could the high-assay low-enriched uranium (HALEU) fuel that is used in some microreactors be captured by bad actors and weaponized. She also asked him to talk about how TRISO fuel compares to HALEU fuel, and if there is a risk associated with the use of either of these fuels.

4:13:45 PM
MR. RABITI clarified that TRISO is a form in which HALEU is contained; a TRISO particle may have HALEU inside. HALEU is uranium that is laboratory enriched, but deemed safe. Furthermore, it is virtually impossible to gain access to the

fuel inside an MMR reactor. The silicon carbide is an ultra-hard material and trying to break each TRISO fuel particle individually makes that uranium unattractive for most any purpose other than in the reactor.

CHAIR HUGHES asked if he agreed with the Alaska Center for Energy and Power that the estimated spread of nuclear material would cover a 10-mile radius if an accident occurred at a microreactor site.

4:15:57 PM
MR. RABITI answered that a feature of the micro modular reactor technology is that the emergency planning zone will be the footprint of the plant. USNC has every confidence this can be achieved due to the small size and low power density of the reactor. To the question about a bad actor potentially attacking the plant, he pointed out that the reactor is sited underground and the FCM fuel is blast safe. This means that no dust or plume would be released even if a pellet of fuel is broken because the TRISO would still be intact.

CHAIR HUGHES asked if the feasibility study includes the consideration that the terminus for the Trans Alaska Pipeline System in Valdez is in the Copper Valley Electric Association (CVEA) service area.

MR. RABITI answered all possibilities related to the plant have to be considered for licensing. He yielded to Ms. Woollen for further response.

4:18:09 PM
MS. WOOLLEN said that while she and the other presenters could begin to respond to the questions from the concerned citizen in this venue, she would suggest sending those and other questions directly to a portal on the USNC website.

She deferred the question about the terminus at the Port of Valdez to Mr. Million.

4:19:04 PM
TRAVIS MILLION, CEO of Copper Valley Electric Association stated that the entire Dayville Road area in Valdez is an industrial facility and CVEA/USNC would be engaging with Alyeska Pipeline Services Company and the other entities along that corridor both before the feasibility study is underway and after if that location is selected as a top site for this project. He agreed with Mr. Rabiti that the safety concerns for locating the

microreactor in this area were very low. He also highlighted that in addition to the electrical benefits of the microreactor, the heat could also be used for industrial processes or other applications like a residential heating loop.

4:20:56 PM
CHAIR HUGHES asked Ms. Woolen if there already was a website or portal that Alaskans, particularly those in that service area, could submit questions directly to USNC.

MS. WOOLLEN answered that her thought originally was to create a website specific to the project once it moved forward to licensing. However, it's clear that something needs to be done sooner than that. She committed to provide a site either through the USNC site or CVEA for those and other questions. She said she would communicate the progress through Mr. Million.

4:22:28 PM
At ease.

4:23:00 PM
CHAIR HUGHES reconvened the meeting and opened public testimony on SB 177.

4:23:52 PM
JUDI GREENWALD, Executive Director, Nuclear Innovation Alliance (NIA), Washington D.C., testified in support of SB 177. She stated that NIA is focused on creating successful conditions for advance nuclear energy to be a climate solution. Microreactors provide the opportunity to reimagine nuclear energy. Their small size and suitability for use in remote locations can help reduce Alaska's dependence on carbon-emitting energy while still ensuring a reliable and resilient source for energy and heat. She said microreactors can readily integrate with other zero carbon energy sources as part of a broader, cleaner energy strategy in Alaska. With incremental additions, small reactors are also capable of meeting communities' growing energy needs over time. They can be manufactured in factories and shipped to remote sites, which reduces the onsite time needed for installation compared to conventional nuclear energy.

MS. GREENWALD stated that the inherent safety of microreactors reduces the burden on surrounding communities and justifies the simplification of siting requirements. She pointed out that microreactors are subject to review by the Nuclear Regulatory Commission, so they will meet or exceed the safety standards for nuclear energy in the US. She said SB 177 makes siting of

microreactors more efficient while ensuring that they will be subject to robust safety reviews and regulatory oversight. She opined that the microreactors currently under development will be ready for commercial deployment this decade. SB 177 removes barriers to these technologies. This is a signal that Alaska is ready to lead on nuclear energy innovation and will make it possible for Alaskans to explore the economic and environmental benefits of microreactors.

4:26:21 PM
MICHAEL WELCH, Mayor, North Pole, Alaska, stated support for exploring the use of microreactor technologies in Alaska, given the more relaxed regulations proposed in SB 177. However, for the City of North Pole he advocated for a coal and natural gas fueled centralized heat plant as a less expensive alternative. He related that he had been working on this since November 2020 and the cost would be a fraction of a microreactor. It would also provide CO2 for greenhouse use that would offer the potential to market byproducts as well as provide a sustainable food source. He said redundancy is another consideration; any microreactor that is installed in Alaska would still need to be backed up with a fossil fuel plant. The coal/natural gas heat plant for North Pole is being designed for reliability and redundancy to ensure power is available under all conditions. This design will allow the production of electricity for sale by the local electric cooperative at $0.10-$0.12/kWh in any season and waste heat can be sold for $15/MMBTU, which is half the current cost of diesel.

4:29:43 PM
JAMES GEIB, Representing Self, Copper Center, Alaska, testified in support of SB 177. He grew up near Three Mile Island and in spite of that accident he supports the new microreactor technologies. The advanced fuels used in the new microreactors are safer and cleaner and many times more efficient than anything he'd experienced in the past. His belief is that that the extensive work done by the Department of Energy provides an energy roadmap for the future of Alaska. Microreactors show specific characteristics to stand the region's harsh winter climate and they generate very little waste. Because fossil fuel is a finite resource, it would be unwise to let this technology and opportunity pass the state by. He acknowledged that some people were worried about accidents like Chernobyl and Fukushima, but microreactor facilities are as different from legacy reactors as today's automobiles are compared to automobiles manufactured in the '40s. He urged the committee to support SB 177 and the installation of microreactors as a much

needed option to supply Alaskans with the reliable power they need.

4:31:27 PM
BENJAMIN COOK, Representing Self, Anchor Point, Alaska, stated that he did not support SB 177.

4:32:11 PM
ALAN AHN, Senior Resident Fellow, Climate and Energy Program, Third Way, Washington D.C., testified in support of SB 177. He stated that Third Way is a national think tank that champions the zero emissions goal. Third Way's Climate and Energy Program designs and advocates for policies that seek the fastest and fairest path to net zero emissions. They firmly believe that it will be necessary to employ all available low-carbon solutions and technologies, including nuclear. He opined that nuclear will play an essential role in combating climate change and reducing emissions from power generation, industry and the economy overall.

MR. AHN highlighted the large financial and logistical advantage of deploying microreactors in off grid and remote communities in Alaska compared to relying on shipments of diesel and fuel oil, and the local environmental benefit of not exposing these local communities to fossil fuel emissions and air pollution. He noted the detailed oversight of the US Nuclear Regulatory Commission and related Third Way's support for the advanced microreactors currently under development. They represent significant improvements over the conventional nuclear power plant technology in terms of deployability, flexibility, economics, passive safety, uranium, and resource utilization. He urged anyone with questions to visit Third Way's website.

4:35:28 PM
CARRIE HARRIS, Representing Self, Anchor Point, Alaska, stated that she was a big no on SB 177. Major questions that need to be answered include: exactly what fuel is being used, what is the half-life of that fuel, and how far will it spread if there is an accident. She suggested that it would be better to test this cutting edge technology in China. She pointed out that the HALEU that will be used in the fuel is limited to just 19 percent and the half-life of uranium 235 is 705.8 million years. That’s how long it would take for the environment to clear if an accident were to occur. She said it’s time to look at the big difference between what is “green” and what is cheap. Green would be to turn off your lights at night and tamp down on consumerism. She reiterated that she was a no on SB 177.

4:38:45 PM
ALLISON NATCHER, State Liaison Officer to the U.S. Nuclear Regulatory Commission, Department of Environmental Conservation, Anchorage, Alaska, stated that she was available to answer questions.

4:39:12 PM
MICHAEL ROVITO, Deputy Director, Alaska Power Association (APA), Anchorage, Alaska, stated that APA is the statewide trade association for electric utilities throughout Alaska, and one of its members is Copper Valley Electric Association. He urged passage of SB 177 so that electric utilities considering microreactors will be able to move forward with confidence that a portion of the permitting process has been streamlined. He said APA's members are continually innovating and integrating new technologies in support of their mission to provide safe, reliable and affordable power. He posited that microreactors have the potential to reliably lower the cost of energy for Alaskans, decrease dependency on diesel, position the state for economic development opportunities, and raise Alaska's profile as a hub of energy innovation and independence.

MR. ROVITO pointed out that electric utilities seeking to permit microreactors will still have to satisfy state, federal, and local permitting requirements before the projects can be constructed. SB 177 helps to streamline the process by exempting microreactors that are smaller than 50 megawatts from legislative siting authority and the numerous ongoing study requirements. He said the electric utilities in Alaska provide power amid harsh conditions, vast distances, and a lack of interconnection to Lower 48 grids. He concluded that passing SB 177 will make it easier for the state's electric utilities to access a viable option for providing safe, reliable and affordable power in the Last Frontier.

4:41:10 PM
CHARLES PERRETT, Representing Self, Glenallen, Alaska, stated that he was leaning toward no or undecided on SB 177. He expressed concern about the speed that nuclear energy was being pushed on Alaska and instead urged a cautious and more responsible approach. He said one of his largest concerns is about the amount of nuclear waste that would be generated because the US is already producing 2,000 tons a year. He recounted the following questions: how will we dispose of it, where will we dispose of it, what's the half-life of the waste, and how will we transport it.

MR. PERRETT said it's easy to call something safe and green, but these microreactors are untested so caution is warranted. Before SB 177 passes he'd like to see regulations that state that the waste must be dealt with in a responsible manner. He highlighted that the federal government currently is so far behind the eight ball in its attempts to deal with nuclear waste that's being generated that is not even funny. He concluded his testimony saying that without a plan in place to deal with the waste, microreactors are neither green nor easy.

4:43:21 PM
CYRIL DRAFFIN, Senior Fellow for Advanced Nuclear, US Nuclear Industry Council (USNIC, Bethesda, Maryland, stated that USNIC strongly supports passing SB 177 and other initiatives to facilitate the deployment of micro and other reactors in Alaska. He opined that the advanced innovations in nuclear technology are a key to address climate change and provide reliable, cost-competitive, safe zero-carbon energy 24/7. The isolated and remote communities in Alaska that rely on high-cost fuels will benefit from the installation of microreactors both in terms of environmental costs and reliability. Advanced reactors are important in terms of security and can help support military bases like Eielson. He said USNIC represents more than 80 companies that are engaged in nuclear innovation and supply chain development, many of which use TRISO fuel. He concluded his testimony relaying that the Nuclear Regulatory Commission expects more than 2,000 people to attend the upcoming regulatory information conference, which suggests that nuclear is important worldwide.

4:45:34 PM
MARGARET TARRANT, Environmental Justice Organizer, Alaska Community Action on Toxics (ACAT), Anchorage, Alaska, stated opposition to SB 177 because it exempts microreactors from certain siting and permitting regulations, which allows them to be constructed on land that has not been designated by the legislature. She described microreactors as a false solution for current energy needs and the climate crisis. She pointed out that nuclear power is destructive throughout its lifecycle from the mining of uranium, through the enrichment process, to the untenable problems of disposal of the radioactive waste.

MS. TARRANT highlighted that on January 6 2022 the Nuclear Regulatory Commission determined that Oklo failed to provide sufficient information on potential accidents and certain safety

systems. She also noted that microreactor vendors were advocating the reduction or elimination of nuclear operators and security officers. None of these reactors have demonstrated they are safe and the Union of Concerned Scientists determined that it is unsafe to leave a microreactor without a guard.

CHAIR HUGHES asked her to wrap up her testimony.

MS. TARRANT stated that the UCS report found that nuclear technology has fundamental safety and security disadvantages compared with other low-carbon renewable sources. She said it is unwise and dangerous to reopen the door to nuclear power in Alaska. The state is still adjusting to the massive radioactive contamination from the failed SM-1A nuclear reactor at Fort Greely. As the Union of Concerned Scientists noted in its report that evaluated advanced nuclear technologies, "Advanced isn't always better."

4:48:54 PM
SPENCER NELSON, Managing Director of Research and New Initiatives, ClearPath, Washington D.C., said ClearPath is an advocacy organization that is focused on advancing clean energy policy. It receives no funding from industry. He said he supports SB 177 because he believes that microreactors can provide significant benefit to the state, including significantly reduced emissions. Alaska has long been on the leading edge of clean energy innovation and it now has the opportunity to benefit from early deployment, which can cut costs.

MR. NELSON said it's well known that reliance on diesel generators has made heating and electricity costs in Alaskan villages among the highest in the country. These costs are also volatile due to the global oil market. Microreactors offer a way to decouple high oil prices from high electricity prices and ensure that the volatility in the oil market doesn't lead to volatility in people's pocketbooks. He said this bill gives Alaskan communities the opportunity decide whether or not to choose nuclear. It also ensures that all reactors are developed under state and federal regulatory requirements that adhere to the NRC gold standard. It doesn't reduce any regulations on the construction or operation of the microreactors. It simply allows communities to make a decision without a paternalistic legislature.

4:51:09 PM

GARY NEWMAN, Representing Self, Fairbanks, Alaska, stated that he had a long history working in and closely following energy technology and policy. He relayed that he serves on the Golden Valley Board of Directors, but he was speaking for himself. He focused his comments on SB 177 to three areas:

First is removing the legislature from site approval for microreactors that are smaller than 50 megawatts. He supports that because it's more logical for that authority to reside with the appropriate state agencies in conjunction with the Regulatory Commission of Alaska. He said that should be clear.

Second is removing the requirements for ongoing studies otherwise required in AS 18.45.030. He said that is problematic for several reasons and he would suggest just modifying the applicability by removing the term "ongoing" from that description.

Third is the definition of microreactor, which is housekeeping.

MR. NEWMAN said he hadn't seen any discussion of what AS 18.45.030 contains, but he would urge the committee to take a look at it. The micro and small modular nuclear industry is in its infancy and most of the proposed designs are conceptual. There are no commercially available units and none are expected for six to seven years. He agreed with Gwen Holdmann and other experts who indicated that there are many questions and issues with deployment of the micro nuclear units that are yet to be resolved. The Nuclear Regulatory Commission (NRC) will evaluate these units from the federal perspective, but the state has a responsibility for the health and welfare of the state and its citizens. Clearly, the State of Alaska should exercise due diligence and build expertise and knowledge across the relevant departments on this conceptual technology as it moves to experimentation. For example, the state should have the expertise to weigh in on the Department of Defense pilot project at Eielson that is estimated to be functional by 2027.

MR. NEWMAN pointed out that state and local government bodies have not dealt with microreactors so he didn't know what permitting might be required by current state statutes or regulations. Legislative committees have focused predominately on industry promises and beliefs. He suggested that instead of treating micronuclear as a shiny new penny, the committees should focus on the text of the bill and what it does. In addition to there being no proven designs, he said there are issues of transportation, refueling security, workforce and

operational capacity, and what to do with spent fuel. Many of these are state responsibilities that could be tailored to work with the NRC licensing process. He suggested the Department of Defense provide some transparency with the pilot project at Eielson, Copper Valley Electric continue to pursue a feasibility study, and the state take part in the evaluation and operation of this still conceptual power generation.

CHAIR HUGHES asked the last testifier to submit his testimony in writing because the committee was up against the clock.

4:55:26 PM
At ease.

4:55:40 PM
CHAIR HUGHES reconvened the meeting and advised that written comments could be submitted to scra@akleg.gov. She asked Ms. Holdmann and Ms. Carpenter to give closing comments.

4:56:47 PM
GWEN HOLDMANN, Director, Alaska Center for Energy and Power (ACEP) University of Alaska Fairbanks (UAF), reminded the committee that ACEP works with Alaskan individuals, communities, and businesses to explore options for sustainable energy development. They strive to provide neutral and unbiased information to all Alaskan stakeholders. At the legislature's request, ACEP has been studying microreactors and the application for this type of reactor technology for more than ten years. A number of studies on this technology have been done and those reports are on ACEP's website. She suggested that a number of the questions asked today could be answered by looking at those reports. ACEP also held a workshop last month that answered many questions about the state of the technology, the safety features, the economics, and whether this would be a responsible technology to deploy in Alaska. The workshop sessions are available on ACEP's YouTube site. She noted that ACEP also has a working group that interested parties are welcome to join. She encouraged Alaskans to participate.

4:58:31 PM
CHRISTINA CARPENTER, Director, Division of Environmental Health, Department of Environmental Conservation (DEC), Anchorage, Alaska, reminded the committee that SB 177 updates the existing statutes on nuclear technology to reflect the needs of these new microreactors. She stated that she looks forward to continuing the conversation in the next committee of referral.

CHAIR HUGHES stated that the Senate Resources Committee would be a good venue to discuss questions brought up today such as the half-life [of uranium 235] and waste disposal. She encouraged open discussions on these and other topics related to deploying microreactors in Alaska.

CHAIR HUGHES found no questions or comments and solicited the will of the committee.

4:59:55 PM
SENATOR MYERS moved to report SB 177, work order 32-GS2503\A, from committee with individual recommendations and attached fiscal note(s).

CHAIR HUGHES found no objection and SB 177 was reported from the Senate Community and Regional Affairs Standing Committee.

5:00:39 PM
There being no further business to come before the committee, Chair Hughes adjourned the Senate Community and Regional Affairs Standing Committee meeting at 5:00 p.m.