STATEMENT OF

TIM O'CONNOR

SENIOR VICE PRESIDENT AND CHIEF NUCLEAR OFFICER

XCEL ENERGY, INC.

BEFORE THE

U.S. SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

HEARING ON

THE NUCLEAR WASTE POLICY ACT AMENDMENTS ACT OF 2019

MAY 1, 2019

Chairman Barrasso, Ranking Member Carper, and distinguished members of the Committee, thank you for inviting me to testify before you today.

My name is Tim O'Connor, and I am Senior Vice President and Chief Nuclear Officer for Xcel Energy, a public utility holding company serving 3.6 million electric customers and 2 million natural gas customers through four utility subsidiaries. Headquartered in Minneapolis, we serve parts of eight Western and Midwestern states, including Minnesota, Colorado, North Dakota, South Dakota, Wisconsin, Michigan, the Texas Panhandle and Southeastern New Mexico.

I have 34 years of commercial nuclear experience at utilities across the country. I have a degree in mechanical engineering from Marquette University and currently serve as chairman of the Nuclear Energy Institute's Nuclear Strategic Issues Advisory Committee, chairman of the Used Fuel Working Group and a member of the Industry High Level Waste Management Committee.

Xcel Energy is also a member of the Nuclear Waste Strategy Coalition, which represents the collective interests of member state utility regulators, state consumer advocates, radiation control officials, tribal governments, local governments, electric utilities, and other public and private sector experts on nuclear waste policy matters.

I want to thank the members of the Committee for holding this hearing on an incredibly important topic for Xcel Energy, our customers, and our communities. I welcome the opportunity to share with you the value of nuclear energy on our system, its critical importance to our carbon reduction strategy, and how solving the used fuel challenge will help facilitate our vision for a reliable electric grid entirely run by clean energy.

1. Xcel Energy's nuclear fleet.

We operate three nuclear units on two plant sites in Minnesota, though all of our customers across the Upper Midwest portion of our service area benefit directly from the emissions-free power produced at these facilities.

The first is the Prairie Island Nuclear Generating Plant, which has two pressurized water reactors with a total output of 1,100 megawatts. These units, which began operation in 1973 and 1974 respectively, have Nuclear Regulatory Commission (NRC) licenses to operate until 2033 and 2034.

At Prairie Island, we are neighbors with the Prairie Island Indian Community, which has a long and deep history in the area. I will discuss our partnership with the PIIC, particularly with regards to used nuclear fuel, in more detail below.

Our second facility is the Monticello Nuclear Generating Station, located 40 miles northwest of the Twin Cities. Monticello's single boiling water reactor has a capacity of 671 megawatts and is licensed through 2030.

I am proud to report that these facilities have stellar operational performance due to the hard work and dedication of hundreds of men and women that work on site. The units generate electricity 24 hours a day, 7 days a week (except during refueling), even during the recent cold snap in the Upper Midwest when temperatures reached 30 degrees below zero.

2. <u>Xcel Energy's nuclear plants are critical to our carbon vision</u>.

I also take great pride in the fact that these plants operate without producing any greenhouse gas emissions and play a key role in Xcel Energy's carbon reduction strategy. We have already achieved a 38% system-wide reduction of carbon emissions from 2005 levels, but we aim to go much further. Our CEO, Ben Fowke, recently announced that we will reduce our carbon emissions 80% by 2030 and we were the first utility in the nation to announce a vision for a completely carbon-free system by midcentury.

However, even as we become increasingly carbon-free, we must continue to provide our customers with affordable and reliable electricity. In order to do this we need the ability to provide zero carbon, dispatchable and firm resources like nuclear energy. Without our Prairie Island and Monticello nuclear plants it would be impossible to even achieve our 2030 emissions reduction goals. These facilities avoid 13 million tons of carbon emissions annually, which is the equivalent of removing two million cars from the roads.

The continued availability of our nuclear facilities is key to a carbon reduction strategy that protects reliability and assures an affordable energy system. Our aggressive emission reduction targets would be prohibitively expensive without the continued operation of zero carbon, dispatchable resources. We cannot reduce carbon effectively if we simultaneously have to replace our nuclear fleet.

3. The nuclear energy industry has a long record of on-site used fuel safety performance.

One of the greatest challenges we face with continued operations of our nuclear plants is the spent fuel that is currently being stored on-site. This is not a question of safety. On-site storage is highly regulated and continuously monitored, and the Nuclear Regulatory Commission has confirmed on-site storage can be done safely for several decades if needed. The fuel is stored in heavy-duty steel and concrete containers that have been tested under extraordinary conditions. Our plants and on-site storage facilities also follow a "defense-in-depth" approach, meaning there are several independent layers of safety designed into processes, procedures and equipment. Those safety designs and oversight are backed up by our committed team of nuclear professionals. At Xcel Energy our workforce has a strong culture of safety, which is reinforced by the discipline and rigor our many military veteran employees carry with them. We execute a state-of-the art safety and security program that includes rigorous, continuous training. This Committee should feel confident in the safety of on-site storage as the nuclear energy industry has a long, proven track record of safely storing used fuel at our plants.

4. The failure of the federal government to accept our spent fuel is costing our customers hundreds of millions of dollars.

Despite this comprehensive safety regime, the fact remains that the federal government has not lived up to its obligation under the law to remove nuclear spent fuel from our facilities. As laid out in the Nuclear Waste Policy Act, our customers paid into the Nuclear Waste Fund for decades and in exchange, the federal government had the obligation to remove the spent fuel from the sites and properly dispose of it. Our customers lived up to their end of the bargain. Our Upper Midwest customers have contributed $452.1 million over time. But the 1998 deadline for the Department of Energy to begin to take title to the fuel came and went. That was 21 years ago and customers have received nothing in return for the $41 billion that sits in the Nuclear Waste Fund. Today we have about 1,500 metric tons of fuel being stored in concrete and steel casks.

Additionally, under a Minnesota statute, our customers pay a fee to store spent nuclear fuel on site- $500,000 per cask per year at Prairie Island and $350,000 per cask per year at Monticello totaling $32.5 million in 2018. These payments, which were only supposed to be of limited

duration until the DOE removed the fuel, go into a statewide renewable development account, and have cost our customers $360 million to date.

And it's not just nuclear customers that are on the hook. All federal taxpayers now have substantial liability as well. Federal courts require the government to reimburse utilities for breaching its contractual obligation to take the spent fuel. This reimbursement is supposed to help offset the substantial costs of continually storing fuel on site. Taxpayers now pay up to $800 million annually, or almost $2.2 million per day. Xcel Energy alone received approximately $15 million from this fund last year. It is my understanding that this is one of the single largest liabilities out of the Department of Justice's Judgment Fund. This is mandatory spending, adding to the deficit, that is not subject to annual congressional appropriations.

The costs of inaction are staggering, and yet spent fuel remains in Minnesota and 39 other states.

5. Local communities near the existing spent fuel storage installations are also concerned about the presence of spent fuel in their backyard.

There is, of course, another cost to the continued political stalemate over spent nuclear fuel. You have heard about concerns from communities in Nevada regarding the Yucca Mountain site, and it is important to consider those concerns as we go forward. However, the federal government should also recognize that other communities have interest in the fate of spent fuel. Those communities are near our current plant sites, and see the fuel in their back yard every day.

As I mentioned earlier, one of our nuclear facilities is located adjacent to the Prairie Island Indian Community. The tribe is our neighbor and an important stakeholder and partner on a number of important local issues, not the least of which is used fuel. They oppose the continued presence of used fuel near their community. We want to be a good neighbor and respect their wishes by removing the fuel, but the continued stalemate in Washington makes that impossible. Attached to my written testimony you will find a joint letter that Tribal Council President Shelley Buck and I sent to members of the Minnesota congressional delegation urging action on this issue.

6. Congress should allow the Yucca Mountain licensing process to proceed.

I applaud this Committee for focusing on this issue to break the stalemate and solve the problem once and for all. We urge Congress to implement the law and appropriate the funding necessary to allow the Department of Energy and the Nuclear Regulatory Commission to adjudicate the license application for a permanent repository at Yucca Mountain. At the same time, we should also move forward with consolidated interim storage (CIS).

Xcel Energy, like the Nuclear Energy Institute and the rest of the utility industry, is a strong supporter of completing the licensing process and opening Yucca Mountain. After billions of dollars, thousands of hours of review, and a comprehensive scientific, environmental and safety analysis, it is clear that Yucca would be a safe, permanent repository for the nation's spent fuel.

At the very least, by allowing the licensing process to proceed, Congress would allow the state of Nevada and Nevada stakeholders to put forward their technical and policy concerns to the agency most capable of evaluating them: the Nuclear Regulatory Commission. Under the Nuclear Waste Policy Act, Nevada would have every opportunity to adjudicate the contentions that have been filed at the NRC. The NRC has the authority and the expertise to evaluate them and balance those concerns against competing concerns arising from inaction.

The NRC process is the best path to a well-reasoned, technically sound decision on the Yucca site. Based on my years of experience in the nuclear business, I support Yucca Mountain because the DOE has demonstrated that it is a safe, permanent solution to the problem of spent fuel. It is not clear to me that throwing out the current law and reopening the entire process of finding a permanent repository site, and losing many more years in the process, would yield a more appropriate site than Yucca Mountain itself.

7. Congress should also encourage the development of interim storage sites.

While moving forward on permanent storage, Xcel Energy believes that the time has come to also develop consolidated interim storage. A CIS project could act as a temporary solution for communities and plants that are currently storing fuel on concrete pads spread across the country, and allow the possible redevelopment of those sites. It would also allow the nation to

fulfill its commitment to electricity consumers while it awaits the opening of a permanent repository.

Two such projects, near our Xcel Energy electric service territory in Texas and New Mexico, already have NRC applications pending. Their developers are undertaking a rigorous process to ensure their safety and financial viability, and like any CIS proposal, will be subject to NRC oversight. We encourage the NRC to stay on track with the licensing process which will allow the facilities to open and accept fuel in just a matter of years.

In addition, we encourage Congress to take steps to authorize interim storage facilities and fund them from the Nuclear Waste Fund, which is accumulating $1.5 billion per year in interest annually. We want a policy that moves fuel without delay.

8. <u>The transportation of spent fuel is safe</u>.

Moreover, the transport of this fuel is a safe and well-established practice. Used nuclear fuel has been safely and routinely transported across the U.S. for 50 years on railroads, barges, and trucks under the strictest of safety regulations. There have been over 3,000 shipments covering nearly 2 million miles. In all of this experience, there has never been a release of radioactive material to the public.

Xcel Energy has experience moving spent fuel ourselves; under a contract with General Electric, we moved 1,000 fuel assemblies from our Monticello plant to a facility in Morris, Illinois in the 1980s. We have also shipped used fuel from Colorado to Idaho.

These rail shipments were done safely and without issue, and Xcel Energy is taking a leadership role to ensure we do so again when the time comes to move fuel again. We are exploring the latest railcar and cask technologies, and working with the scientific community, federal, state, and local regulators, and our industry peers to develop best practices.

Additionally, on May 21, Xcel Energy will host an NEI nuclear transportation table top exercise that would simulate shipping casks across the country to an interim storage site. We have the participation of organizations that will be critical in partnering on safe fuel transportation, including utilities, the Nuclear Regulatory Commission, public utility commissions as well as the Prairie Island Indian Community to name a few. Just this week we had a dry run, and I can tell

you that I am most impressed with the professionalism and preparation of everyone involved. I can assure the members of this Committee that spent nuclear fuel has been and will continue to be safely transported.

9. Chairman Barrasso's discussion draft legislation is an important step forward in addressing the problems of spent fuel policy.

Consistent with the principles outlined above, we appreciate the Committee's consideration of this discussion draft put forward at the hearing today. Like the Nuclear Waste Policy Amendments Act of 2018 that passed the House of Representatives by a wide bipartisan margin last year, the discussion draft would restart the license application process for a permanent repository at Yucca Mountain. By providing funding for the adjudication process, the draft would enable the NRC to finish its job and complete the review of the facility. We also support the bill's approach to withdrawal of land for the Yucca Mountain project.

The bill recognizes the contributions made by electricity consumers across the nation and wisely takes action to ensure the nuclear waste fee isn't turned back on until a decision is made on the Yucca Mountain license application. The bill also respects the Standard Contracts between the nuclear generators and the federal government, which establish the terms and conditions under which the DOE will make available used fuel disposal services.

The draft legislation includes important provisions to reach out to the community near the Yucca Mountain facility. The interests of those communities are important, and it is critical that Congress balance those interests with those of other communities, such as the Prairie Island Indian Community, concerned about spent fuel stored near operating plants.

Together, these provisions would enable the NRC to fulfill its obligation to both the industry and nearby communities to assure that Yucca Mountain is safe, reliable, and available for spent fuel disposal.

We also appreciate the draft legislation's approach to interim storage moving in parallel to a permanent repository. By directing the Department of Energy to contract with a non-federal entity to develop a CIS facility, the bill would help enhance this important step in the fuel management process. As I previously mentioned, there are two sound CIS proposals in our

backyard in the Southwest. This bill would help enable the development of those facilities as a first step toward a permanent spent fuel solution.

To conclude, while nuclear spent fuel is safe and secure at our plant sites, the fact that it remains in Minnesota rather than stored at a permanent repository is a political, not a scientific or engineering failure that is costing consumers and taxpayers millions of dollars every year. Our communities are ready for the fuel to move and our electricity consumers alone have paid almost a billion dollars into the Nuclear Waste Fund. It is time for Congress to act.

Thank you again for the opportunity to testify. I would be happy to answer your questions.

Attachments:

Letter from Prairie Island Indian Community and Xcel Energy

Tim O'Connor biography

November 16, 2018

The Honorable Amy Klobuchar
US Senate
302 Hart Senate Office Building
Washington, DC 20510

The Honorable Tina Smith
US Senate
309 Hart Senate Office Building
Washington, DC 20510

Dear Senators Klobuchar and Smith:

We are writing to you today as the elected representatives of the Prairie Island Indian Community (PIIC) and representatives of Xcel Energy to express our mutual support for immediate Congressional legislative action to resolve the Nation's spent nuclear fuel impasse.

The Prairie Island Indian Reservation is located with the ancestral homeland of the Mdewakanton Dakota in southeastern Minnesota. The Reservation is located primarily on an island off of the Mississippi River, which is also called Prairie Island. The Mdewakanton, "those who were born of the waters," have lived on Prairie Island for countless generations.

Xcel Energy owns the Prairie Island and Monticello nuclear plants and the Prairie Island plant is immediately adjacent to the Prairie Island Indian Community. Xcel Energy has been storing used nuclear fuel at the plants in Minnesota since they began operating in the early 1970s. When the Nuclear Waste Policy Act (NWPA) was passed, it was envisioned that the federal government would begin accepting the used nuclear fuel at a national repository in 1998. As you know, that date has come and gone, with no future date on the horizon. To keep the plants operational, it was necessary for Xcel Energy to begin storing the used fuel in dry storage containers starting in 1995. Xcel Energy is currently storing used fuel in the fuel pools and in 44 dry storage containers at the Prairie Island plant and 28 dry storage containers at the Monticello plant. Without a permanent or interim storage location, spent nuclear fuel will be indefinitely stranded at both sites.

We strongly support bipartisan efforts in Congress to advance both a permanent repository and a Consolidated Interim Storage (CIS) location. This legislation should reaffirm the commitment of the federal government to proceed with the review and determination of the Yucca Mountain repository.

We encourage the Nuclear Regulatory Commission (NRC) to complete its review of the Department of Energy (DOE) license application for the repository. Adequate funds must be appropriated to both agencies to complete their review and adjudication of the Yucca Mountain license application, as required by the NWPA.

The Nation's electric utility customers have already paid for the disposal of the used nuclear fuel through a $.001/kWh of nuclear-generated electricity fee into the Nuclear Waste Fund (NWF). Those customers have paid over $40 Billion (including interest) and Minnesota customers have paid in $940 Million, yet very little of the NWF has been used for the purpose for which it was collected. We support the approach that provides access to the NWF for the used fuel management program.

It is imperative that we continue progress on used fuel transportation, which is needed regardless of whether the fuel is moved to Yucca Mountain, a Consolidated Interim Storage (CIS) facility or both. We would like to see additional funding for DOE to build, test and certify rail cars and license transportation casks and components. Allocating consistent financial and technical resources to tribal, state and local governments to prepare for the transportation activities is vital.

We believe it is a critical time for the federal government to remove the used nuclear fuel from the plant sites, as mandated by the NWPA. It has been over 20 years since we passed the NWPA-mandated removal date of 1998. Nuclear fuel is piling up at communities across the United States including the Prairie Island Nuclear plant which is just 600 yards away from PIIC. There is no other community in the United States as close to a nuclear spent fuel storage facility than PIIC. The reasons why spent fuel should be moved away from the tribe are self-evident.

In summary, we believe it is important to support the legislation that makes progress toward resolving the Nation's used nuclear fuel issue. The NWPA is still the law of the land and we urge the Congress to act accordingly.

As always, we would welcome any opportunity to further discuss our position.

Sincerely,

Tim O'Connor
Chief Nuclear Officer
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Minneapolis, MN 55401

Shelley Buck
Tribal Council President
Prairie Island Indian Community
5636 Sturgeon Lake Road
Welch, MN 55089



Tim O'Connor

Senior Vice President and Chief Nuclear Officer

Tim O'Connor was appointed senior vice president and chief nuclear officer for Xcel Energy in 2012. He is responsible for the Xcel nuclear strategic direction, business plans, finance and operations in the various operating jurisdictions for the company. Currently that includes corporate, the operations of the Monticello and Prairie Island nuclear generating plants as well as the decommissioning and nuclear fuel storage.

O'Connor joined Xcel Energy in 2007 as site vice president at the Monticello plant. During the period of 2007 to 2012 the site was recognized by the Institute of Nuclear Power Operations for exemplary plant operations. In June 2012 he was appointed vice president of corporate engineering/nuclear regulatory compliance and licensing for the nuclear fleet. In September 2012 he was named acting Senior Vice President and Chief Nuclear Officer and then made permanent in February 2013.

He has over 34 years of commercial nuclear experience with both boiling water and pressurized water reactors. O'Connor, over that period, held a variety of leadership positions in very complex situations.

He served as site vice president at Constellation Energy Group's Nine Mile Point station in New York; vice presidential roles at the Public Service Enterprise Group (PSEG) for the Hope Creek and Salem plants. Other roles were with Exelon as plant manager at the LaSalle station and operations manager at Dresden and Zion plants as well as other senior management positions in maintenance, operations, and engineering. O'Connor held a position with the Institute of Nuclear Power Operations (INPO) as a nuclear plant evaluation team manager on a reverse loaned assignment.

O'Connor received his mechanical engineering degree from Marquette University in Milwaukee, WI and has completed several executive business programs with the Chicago Kellogg School of Business and GAP International. O'Connor serves on the USA Board of Directors, is Chairman of the NEI NSIAC and a member of the Industry High Level Waste Management (Nuclear Fuel) Committees. O'Connor is on the executive advisor group for the DOE - Light Water Reactor Sustainability program. O'Connor also serves as a Board of Directors member for the Minneapolis St. Paul Jeremiah charitable organization.