JULIAN BRADLEY
WISCONSIN STATE SENATOR

Senate Committee on Utilities and Tourism
Wednesday, April 30th, 2025

Senate Bills 124 & 125

Thank you, members of the Committee on Utilities and Tourism, for taking time to hear testimony today on Senate Bills 124 (AB 124) and 125 (SB 125). Wisconsin has growing energy needs that must be met and we want to ensure our state stays on the forefront with nuclear innovation. These forward thinking, bipartisan bills work to achieve just that.

Nuclear power, and in particular next generation reactor technology, is the surest way to guarantee that we meet our baseload energy generation needs. In addition, expanding our nuclear portfolio will help us continue to attract energy-intensive new developments – like data centers. Senate Bill 125 requires that our state conduct a nuclear power siting study. This will ensure that Wisconsin is poised to take advantage of future nuclear expansion and investment.

Specifically, this study is designed to identify opportunities for nuclear development, including the location of sites suitable for nuclear fission or fusion technologies. Additionally, SB 125 develops guidance for advanced nuclear fission and fusion reactors – including small modular reactors and fusion technologies. This bill also requires the Public Service Commission (PSC) to adopt an expedited nuclear facility approval process, trimming the standard 180-day application period to 150-day. This timeline adjustment is intended to make our state more attractive for development than our neighbors, with whom we will no doubt be competing.

To further demonstrate that our state is a national leader in this effort, Senate Bill 124 establishes Wisconsin as a host for a Nuclear Power Summit. This allows us to bring together experts in the nuclear field and showcase how our state is leading the way in the next chapter of energy generation. SB 124 also creates the Wisconsin Nuclear Power Summit Board made up of legislators, administration representatives, and industry and economic development experts. The board will be responsible for organizing, promoting and hosting the summit with support from the Wisconsin Economic Development Corporation (WEDC).

I'd like to note that the date of the summit is set to coincide with the opening of the new College of Engineering building at UW-Madison. This enables us to showcase this state-of-the-art facility and its role in nuclear research. It's the perfect location to display Wisconsin's commitment to leading the way in the development of this safe and reliable energy.

Together, we can make sure that Wisconsinites have their growing energy needs met through safe, clean, and reliable baseload energy production from nuclear fission and fusion technology. I want to again thank committee members for the opportunity to testify today. I ask that you join us in supporting these bi-partisan proposals for a brighter Wisconsin future.

WISCONSIN STATE CAPITOL
PHONE: (608) 266-5400 P.O. Box 7882, Madison, WI 53707 EMAIL: Sen.Bradley@legis.wi.gov

DAVID STEFFEN

STATE REPRESENTATIVE • 4th ASSEMBLY DISTRICT

April 30, 2025

Testimony to the Senate Committee on Utilities and Tourism on Senate Bill 125

Chairman Bradley and Committee Members,

Thank you for the opportunity to provide testimony in favor of Senate Bill 125, a bipartisan proposal that requires Wisconsin to conduct a nuclear power siting study.

Wisconsin must be prepared to meet soaring energy demands that will be driven by the development of data centers and other energy-intensive economic development. Nuclear power, especially next-generation reactors, will be a viable, carbon-free, domestically sourced option to meet those demands. Laying the groundwork for nuclear energy investments and options today will bolster the safe, reliable and affordable energy of tomorrow.

Under SB 125, the Public Service Commission will conduct (or contract) a nuclear power siting study. The study will:

- Identify nuclear power generation opportunities on both existing nuclear and nonnuclear power generation sites
- Identify new nuclear power and fusion energy generation sites that aren't currently dedicated to power generation
- Identify sites for the development of nuclear fission and fusion technologies
- Develop guidance for advanced nuclear fission and fusion reactors (including small modular reactors and fusion technologies)

A nuclear siting study will strengthen Wisconsin's ability to meet our state's growing energy demands. Thank you for the opportunity to provide written testimony in favor of this bill. I encourage you to join me in supporting this legislation.

David Steffen
State Representative
4th Assembly District

Wisconsin State Capitol • Post Office Box 8953 • Madison, WI 53708-8953 • (608) 237-9104 • Rep.Steffen@legis.wi.gov

SHAE SORTWELL

STATE REPRESENTATIVE • 2nd ASSEMBLY DISTRICT

Hearing Testimony
Senate Committee on Utilities and Tourism
April 30, 2025
Senate Bill 125

Chairman Bradley and members of the Senate Committee on Utilities and Tourism – Thank you for giving me the opportunity to speak on SB 125, relating to conducting a nuclear power siting study.

Wisconsin must be prepared to meet soaring energy demands that will be driven by the development of data centers and other energy-intensive economic development. Nuclear power, notably its next generation of small modular reactors, will be a viable, carbon-free, domestically sourced option to meet those demands. Laying the groundwork for nuclear energy investments and options today will bolster the safe, reliable, and affordable energy of tomorrow.

Under SB 125, the Public Service Commission (PSC) will conduct (or contract) a nuclear power siting study. The study will:

- Identify nuclear power generation opportunities on both existing nuclear and non-nuclear power generation sites.
- Identify new nuclear power and fusion energy generation sites that aren't currently dedicated to power generation.
- Identify sites for the development of nuclear fission and fusion technologies.
- Develop guidance for advanced nuclear fission and fusion reactors (including small modular reactors and fusion technologies).

Furthermore, some technical adjustments have been made with SA1 after my co-authors and I met with PSC. They have been involved throughout the drafting process, and we have incorporated their input.

A nuclear siting study coupled with a streamlined state-level approval process will strengthen Wisconsin's ability to meet the inevitable growth in energy demands.

I appreciate the opportunity to testify on this legislation and would gladly answer any questions the committee may have.

P.O. Box 8953 • Madison, WI 53708-8953 • (608) 266-9870 • Toll Free: (888) 534-0002
Rep.Sortwell@legis.wi.gov

Public Service Commission of Wisconsin

Summer Strand, Chairperson
Kristy Nieto, Commissioner
Marcus Hawkins, Commissioner

4822 Madison Yards Way
P.O. Box 7854
Madison, WI 53707-7854

April 29, 2025

RE: PSC Support of SB 125 relating to a nuclear power siting study, and SB 124 relating to the creation of a Nuclear Power Board and Summit

Dear Chair Bradley, Vice-Chair Feyen, and Members of the Senate Committee on Utilities and Tourism:

As the Chair of the Public Service Commission of Wisconsin (PSC), I am writing to express the agency's support of Senate Bill 124, Senate Bill 125, and the proposed amendments to these bills.

I commend Governor Evers and the authors — Senator Bradley and Representatives Steffen, Wittke, and Sortwell for their foresight and proactive engagement on these important issues. I would also like to thank the authors for soliciting PSC feedback and working with us to incorporate some minor modifications through the proposed amendments.

From the breadth of expertise and research occurring at the University of Wisconsin-Madison, to the burgeoning, Wisconsin-based fusion energy companies investing in and developing deployable uses of their innovations, our state is uniquely positioned to be a global leader in nuclear and fusion energy. These bills capitalize on that strong foundation by signaling broad support and creating exciting opportunities for in-depth study and crucial collaboration.

One of the PSC's core responsibilities is to review and consider applications for the construction and siting of energy facilities in Wisconsin. Utilities and wholesale merchant developers are required to apply for and obtain a Certificate of Public Convenience and Necessity (CPCN) for proposed large electric generation facilities, statutorily defined as 100 megawatts or more of capacity. The PSC does not mandate or direct these applicants to construct a specific type or source of energy facility, nor do we pre-judge applications. Instead, we review the record of evidence gathered, analyze it within applicable statutes and administrative rules/regulations, and render a decision. The Commission strives to ensure we are adequately prepared and informed to review applications of all types of facilities.

Currently, the Point Beach Nuclear Plant is the only operational nuclear power facility in Wisconsin. Construction on Point Beach began in 1966, and it was first placed into commercial operation in 1970. Since then, extensive research, development, and technological advancements have occurred in the nuclear and fusion energy fields. The fact that a nuclear power plant has not been constructed in Wisconsin in over 50 years illustrates the importance of SB 125's proposed undertaking of an in-depth study of nuclear power and fusion energy siting. The study would include relevant, up-to-date information to help ensure that the PSC is informed and prepared for the review of potential future nuclear power and/or fusion energy applications. The significant passage of time also highlights the need for and benefits of SB 124's proposed Nuclear Power

Summit and Board where industry experts and policymakers can engage in robust dialogue and essential information exchange.

The proposed amendment to SB 125 increases the length of the siting study, enhances its scope, and maintains the existing statutory CPCN review timeline. The PSC believes these modifications set appropriate study and timing parameters that should result in a successful work product that helps guide future application proceedings. The amendment also includes language requiring the study report to include discussion and assessment of methods to streamline the process for obtaining a CPCN for an advanced nuclear reactor. Leading thorough and efficient project reviews that allow for ample and accessible public engagement opportunities is an ongoing goal of the PSC and as such, the Commission supports efforts to develop and refine process improvements on issues such as the siting of nuclear power and fusion energy.

The proposed amendment to SB 124 would add one additional non-voting member appointed by the Chairperson of the Public Service Commission to the Nuclear Power Summit Board. The PSC appreciates this expansion of the agency's involvement in the proposed Board and believes the Summit will be an asset to potential nuclear power and fusion energy development in Wisconsin.

Thank you for the opportunity to convey the PSC's support of SB 124 and SB 125 and their respective amendments. We stand ready to assist these important efforts and look forward to continuing our partnership to ensure Wisconsin is well-positioned and prepared in a dynamic energy landscape.

If you have questions about the PSC's support of SB 124 and SB 125 as amended, please contact Tanner Blair, PSC Director of Policy and Legislative Affairs, at 608-267-9859 or tanner.blair@wisconsin.gov.

Sincerely,

Summer Strand
Chairperson
Public Service Commission of Wisconsin

cleanwisconsin

DATE: April 30, 2025
TO: The Senate Committee on Utilities and Tourism
FROM: Clean Wisconsin
RE: Senate Bill 125

Senate Bill (SB) 125 is an attempt to improperly enlist an independent state regulator to pave the way for the development of one technology: nuclear power. The bill directs the Public Service Commission of Wisconsin (PSCW) to conduct a "siting study" that "identifies nuclear power generation opportunities on existing nuclear and non-nuclear sites" and on sites not currently used for energy generation at all.

Clean Wisconsin opposes SB 125 for the policy reasons outlined herein.

I. Industry, not regulators, are responsible for siting studies.

Under PSC 111.53, Wis. Admin. Code, any entity proposing to construct power generation facilities must provide PSCW with its own comprehensive siting study. Applicants must make a showing to the PSC that a long list of very site-specific issues have been studied, including public input regarding those sites.

Once the applicant has provided sufficient information for the PSCW to evaluate the application, the Commission, as an independent and objective regulatory body, reviews that information and makes a determination whether the project should be approved. **To require the PSCW to identify and evaluate potential sites for new nuclear generation turns this longstanding process on its head, shifting the burden of site identification and recommendation onto the agency that is charged with objectively making siting decisions.** At the very least, this would create a serious conflict of interest.

Even if the "siting study" envisioned by SB 125 consists of different elements or criteria than the current power plant siting law, it is not the PSC's job to do the work of the nuclear or utility industries for them. Both industries are far better resourced than Wisconsin's regulatory agencies, which are already overtaxed with work that is necessary and appropriate for them to do.

II. The nuclear industry is fully capable of and should conduct its own siting studies.

For every nuclear reactor (or any other type of power generator) that has ever been constructed in Wisconsin, the applicant has, by law, conducted its own comprehensive siting study. Other than to unfairly promote the nuclear industry over other forms of power generation, there is no reason that this should change.

III. Taxpayers should not foot the bill for a study that a highly subsidized industry can easily afford.

Between 1950 and 2016, the U.S. federal government has paid $85 billion for energy subsidies to support R&D for nuclear power.[1]

In 2022, the Bipartisan Infrastructure Law allocated $6 billion to prevent existing financially struggling nuclear reactors from closing and $900 million for the development of Generation III+ small modular reactors. The industry said that was not enough. The Build Back Better Act provided a production tax credit for existing nuclear reactors, which the Joint Committee on Taxation score estimates to be valued at $23 billion.[2]

Just one year ago, the U.S. Department of Energy included in its FY2024 spending bill more than $1.68 billion for the Office of Nuclear Energy's research and development activities. Last month, the Trump administration removed "community benefit" requirements from that funding opportunity, eliminating the provisions for community and local job creation.

The only nuclear power plant built in the United States in recent memory, the Vogtle Units 3 and 4 in Georgia, received a $12 billion loan guarantee from the Department of Energy.[3]

This is not an industry that needs more taxpayer dollars. The nuclear industry has profited from decades of federal subsidies and yet new reactors remain too expensive to finance or build. Wisconsin taxpayers should not be forced to further subsidize this uneconomic industry.

Conclusion

Using hard-earned taxpayer money and an independent state agency to promote an industry that is already receiving billions in taxpayer subsidies is unwise, unfair, and contrary to the mission of the PSCW.

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[1] Two Thirds of a Century and $1Trillion+ U.S. Energy Analysis of Federal Expenditures for Energy Development, 1950-2016, by Management Information Services, Inc. Washington, D.C. May 2017.

[2] Project Financing and Funding of Nuclear Power in the US" by David Beckstead, National Law Review, Vol. XV, number 110, Feb. 6, 2025.

[3] "Project Financing and Funding of Nuclear Power in the US" by David Beckstead, National Law Review, Vol. XV, number 110, Feb. 6, 2025.

The Public Service Commission's mission is to "provide fairness in transactions between utilities and their customers, other utilities, and other entities specifically provided protection by law."[4] As the agency that reviews applications for new energy infrastructure, the PSC should not conduct siting studies or look for 'opportunities' for any form of energy generation and certainly not for one specific type of generation over any other. It is unfair to ask Wisconsin families to foot the bill for a service that should be conducted and paid for by energy developers.

Please oppose Senate Bill 125. If you have any questions, please contact Clean Wisconsin's government relations director Erik Kanter at ekanter@cleanwisconsin.org.

[4] Public Service Commission of Wisconsin website, "History and Mission" accessed April 19, 2025.

April 30th, 2025

Senator Julian Bradley (Chair)
Senator Dan Feyen (Vice-chair)
Members of the Senate Committee on Utilities and Tourism

Testimony for Information on Senate Bill 124 & Senate Bill 125

Dear Chairman Bradley, Vice-chair Feyen, and Committee Members,

Thank you all for your time this afternoon.

My name is Paul Wilson, and I am the Grainger Professor of Nuclear Engineering and currently the Chair of the Department of Nuclear Engineering & Engineering Physics at the University of Wisconsin-Madison. I speak today in support of SB 124 and SB 125, and to offer the expertise of myself and my colleagues as your committee explores the important role of nuclear energy in the economy of the State of Wisconsin. While my expertise is informed by my work at UW–Madison, I am not representing the views of the university. I am providing this testimony as a private citizen and subject matter expert with over 30 years of research experience in the field. My own research includes the development of software tools that offer insight in two related areas: the design and analysis of the nuclear engineering components of future fusion energy systems, and the policy implications of different nuclear energy futures. Recent projects have also included technoeconomic analysis of small reactor deployment at US government facilities, and community engagement for siting of nuclear energy facilities. Together with my colleagues in the Department of Nuclear Engineering & Engineering Physics, currently ranked number 3 in the nation, we study a wide variety of aspects of both fission and fusion energy. We like to say that we are "Saving this Planet, and Exploring the Rest."

Our students go on to important leadership roles across the country, with current and recent examples including a Commissioner of the Nuclear Regulatory Commission, a C-suite executive at the largest nuclear utility in the country, and the leading nuclear energy role at the US Department of Energy. Across the nuclear sector, you'll find Badger Engineers using their UW-Madison education to make a positive difference in the operation of today's nuclear fleet and the design of tomorrow's. Our students come from across the State, all over the country, and around the world for a chance to join our legacy of Badger nuclear engineers, and many hope to stay in Wisconsin when pursuing a career.

As you will hear from other experts in this hearing, there is a growing consensus that nuclear energy has an important role to play in future energy systems, nationally and within the State of Wisconsin. While energy choices are generally dominated by economic considerations, our collective decisions about energy also represent other values that we share, including energy security, reliability and environmental conservation. Nuclear energy, whether fission today or fusion tomorrow, offers many advantages across all of these factors. In particular:

- nuclear energy uses less land than any other source of electricity and has no emissions to the atmosphere,

- nuclear energy routinely operates with over 90% availability, with most plants able to operate for up to 18 months without shutting down, and
- nuclear energy's fuel supply is relatively stable and easily stockpiled due to its high energy density.

Access to reliable electricity is a clearly-established driver of economic growth that leads to high quality jobs and technological innovation. All of these are things that I hope are part of this State's energy and economic future.

Senate Bill 125 requires the Public Service Commission to conduct a nuclear power siting study that will help our state understand the emerging opportunities for deploying nuclear energy, including opportunities for facilities that contribute to the development of nuclear energy technologies. This is an important first step in reevaluating the State of Wisconsin's nuclear energy future. It has been many years since new nuclear power plants have been considered in the State of Wisconsin, and in that time, there have been substantial changes in the technology of nuclear energy as well as in the nature of electricity demand to drive economic growth. In particular, we see two primary ways in which future nuclear reactor technology may be different.

First, nuclear reactor vendors are exploring a wide range of reactor sizes. When reactors were built at Kewaunee and Point Beach, the prevailing trend was to make them ever larger. Today, for a number of reasons, reactors are being considered at many different scales, often considered into three broad categories:

- traditional large reactors with power levels of at least 300 MW,
- small modular reactors with power levels between about 50 MW and 300 MW, and
- microscale reactors with power levels below 50 MW.

Those different size options will create new siting opportunities, whether repowering old coal power plants - or Kewaunee - or adding robust power to smaller communities.

Second, and independent of size, new reactor technologies have been developed to make nuclear energy more suitable for a long list of different uses. Some of those technologies allow it to be more responsive to rapid changes in energy demand. Others allow nuclear power plants to be sited closer to population centers. Still more technologies allow nuclear energy to be deployed for industrial or process heat. The versatility offered by these different reactor concepts will also allow for a richer set of siting opportunities in the state.

Our faculty and researchers are engaged with many of the companies pursuing these nuclear innovations and will be pleased to provide input on any questions that arise, whether as part of the legislative process or during the conduct of the siting study.

Senate Bill 124 creates a Nuclear Power Summit Board, and directs that Board to host a summit in Madison on nuclear energy. This will be a vital opportunity:

1. For Wisconsin utilities to learn more about nuclear energy options,
2. For Wisconsin industry to learn more about supply chain challenges that they may be able to fill, and finally,
3. For other stakeholders in the global nuclear energy supply chain to learn what Wisconsin's manufacturing base can offer to fill important gaps.

We will be eager to offer our network of nuclear industry professionals and researchers to support the development of one or more nuclear energy summits in Madison or elsewhere around the state.

In summary, these two bills help the State of Wisconsin make important strides forward in developing a reliable and secure clean energy future that will support the technology innovation and economic growth that will be important for Wisconsin's future.

Thank you again for your time. I am happy to take any questions.

Sincerely,

Dr. Paul P.H. Wilson
Grainger Professor of Nuclear Engineering
Chair, Department of Nuclear Engineering & Engineering Physics

NUCLEAR ENERGY INSTITUTE
1201 F Street NW • Suite 1100
Washington, DC 20004
nei.org

Wisconsin Senate Utilities and Tourism Committee
Nuclear Energy Institute
Public Testimony in Support of SB 124 and SB 125

April 30, 2025

Please submit this statement in support of Senate Bill 124 and 125. NEI is a trade organization that represents companies associated with the nuclear industry, universities and research laboratories, law firms, labor unions and electric utilities. Our members total more than 300 and come from around the world.

Benefits of Nuclear Energy

Nuclear energy is the single largest carbon-free electric generating source in both the United States and around the world. In the United States, our 94 nuclear reactors produced about half of all carbon-free energy. Nuclear plants operating in economically sustainable electricity markets can expect to safely and reliably produce clean electricity for up to 80 years.

A report conducted by **Oxford Economics** found that the U.S. nuclear industry supports over 250,000 jobs across the country and adds $64 billion to our nation's economy, underscoring how critical nuclear energy is to our economic development. In Wisconsin, your two reactors, operated by Nextera Energy, provides nearly 15% your electricity generation but over 66% of your carbon free generation. These nuclear stations are economic engines for the state and community and supply 650 good-paying, reliable jobs.

Energy Demand is Growing

We are encouraged by the growing recognition of nuclear energy's immense potential to power data centers. Amazon's partnerships with X-Energy, Energy Northwest and Dominion Energy highlight a broader shift among leading technology companies toward investing in nuclear's unique ability to provide clean, 24/7/365 power – essential for supporting energy-intensive data center operations.

Other recently announced partnerships, such as those between Microsoft and Constellation, and Google and Kairos Power, further underscore the technology sector's increasing confidence in nuclear as a key solution for their long-term energy needs. These collaborations demonstrate a clear understanding that nuclear energy ensures a stable energy supply that can meet rising energy demands while fulfilling sustainable energy commitments.

NEI believes it is in the best interest of the country that nuclear power remains a significant and growing supply of clean energy as this evolution continues. Focusing only on the need for

additional electricity in the U.S. in the upcoming decades would mistakenly overlook the likelihood of, and the need for, more energy in other sectors, such as transportation, industrial heat, and hydrogen production. Nuclear is the only reliable, clean and affordable energy source that can produce heat and steam that is needed for many of these processes.

Over the past several years, we have seen a bipartisan consensus emerge in Washington DC around the importance of nuclear energy. Public and private investments in advanced nuclear energy technology have several exciting new designs ready for commercial deployment, with more on the way. What is needed now is for federal and state actors to align with power producers and consumers on policies that will unlock the next wave of nuclear plant deployment in the U.S., and that will position the U.S. to dominate the next wave of global nuclear plant construction as our technologies dominated the first.

Conclusion

We appreciate and applaud Wisconsin's support for nuclear energy. Last year 25 states took action to support nuclear. Wisconsin has already taken the first step towards innovation in repealing your nuclear moratorium. With this continued support and the dedication of the industry, NEI is confident that the U.S. will enhance its leadership role in nuclear technology and generation.

On behalf of NEI and its members, we thank you for considering this important legislation. We look forward to working with the Committee and the Legislature as SB 124 and 125 makes their way through the legislative process.

Christine Csizmadia
Senior Director, State Government Affairs & Advocacy
Nuclear Energy Institute
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Washington, DC 20004
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Eau Claire, WI 54702-0008
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April 30, 2025

Senator Julian Bradley
Chair, Committee on Utilities and Tourism

Committee on Utilities and Tourism

Northern States Power Company, a Wisconsin corporation and wholly owned subsidiary of Xcel Energy ("the Company" or "NSPW"), provides the following comments in support of Senate Bill (SB) 125 and SB 124 establishing a nuclear power siting study and hosting a Wisconsin nuclear power summit.

Xcel Energy is the owner and operator of two 1970s vintage nuclear facilities providing customers in Wisconsin, Michigan, Minnesota, North Dakota, and South Dakota with low-cost, 24/7 always available, and reliable power. The Prairie Island and Monticello Nuclear Plants located in Minnesota provide 1,771 MW of power, enough to power the equivalent of over 1.5 million homes annually. The plants provide significant employment opportunities with a total of 1,100 employees during normal operations, an additional 1,800 employees during refueling, and supporting a total of 6,100 jobs economy wide. In total, the plants provide $1 billion annually in benefits to the local economies. Lastly, the plants are the largest source of carbon-free energy in the Xcel Energy generation portfolio.

The future of the electricity industry is changing and demand for electricity is expanding. Customers are increasingly choosing to electrify their homes, businesses, and transportation. Significant growth in the demand for electricity is also expected due to the emergence of data centers and artificial intelligence. At the same time, the demand from customers and policymakers to reduce carbon emissions remain strong. In large part due to the nuclear plants at Prairie Island and Monticello, Xcel Energy is well positioned to meet customer demands.

Xcel Energy's maintains that an all-of-the-above strategy for generating electricity is needed during this unprecedented growth in electricity demand and changing generation mix. With advances in nuclear technology an all-of-the-above strategy should include nuclear. Removing barriers to development and planning new nuclear plants is also important. Xcel Energy is supportive of SB 125 and SB 124 as they directly address a key barrier to developing new nuclear generation – working with communities that are supportive of hosting new nuclear plants to evaluate the feasibility of potential sites.

Xcel Energy appreciates the efforts of the State of Wisconsin to remove barriers to new nuclear generation and is supportive of SB 125 and SB 124. Please direct any questions to Matt Pagel at 608-280-7333 or Matthew.E.Pagel@XcelEnergy.com.

Sincerely,

Tyrel Zich

Tyrel Zich
Regional Vice President of Regulatory Policy

XCEL ENERGY'S CURRENT NUCLEAR FLEET

Xcel Energy®

State of the Nuclear Industry in the US

94 operating reactors at 54 plants across the country

18.5% of US electricity production in 2024

Almost 50% of US emission-free electricity generation in 2024

Over 92% capacity factor

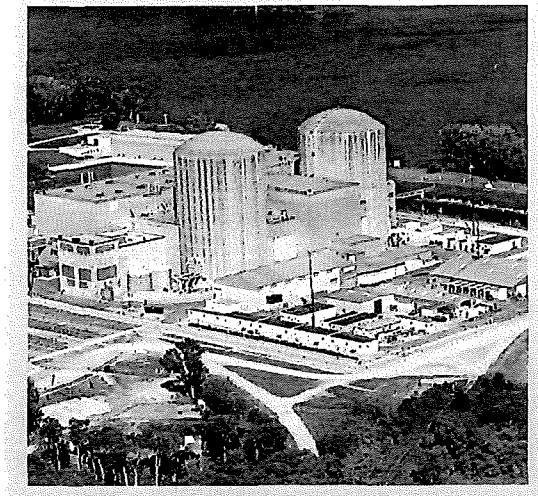
~$31 MWh industry average generating cost

New Vogtle Units 3 and 4 online in 2023/2024

Xcel Energy Nuclear Generating Fleet

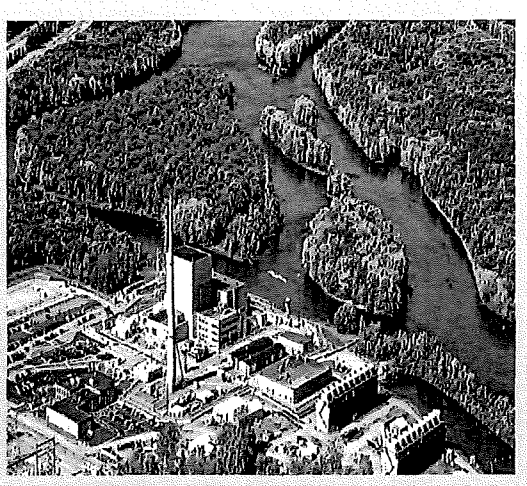
Over five decades of carbon free power

Prairie Island Nuclear Plant



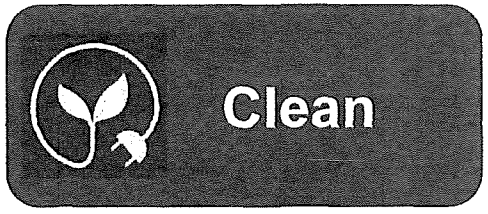
- 2 Pressurized water reactors
- Unit 1 (1973); Unit 2 (1974)
- Licensed through 2033/2034
- Pending extension to 2053
- 1,100 MW
- 800 Employees; 1,000 more during refueling

Monticello Nuclear Plant

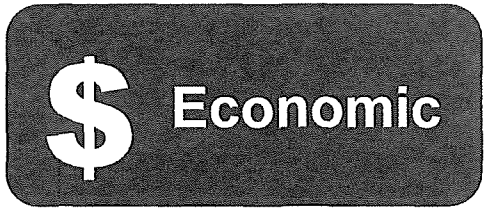


- 1 Boiling water reactor (1971)
- Licensed through 2050
- 671 MW
- 650 employees; 800 more during refueling

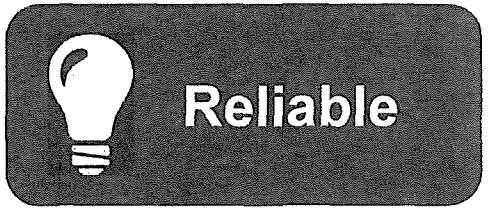
Benefits of Nuclear Power



Nuclear provides more than 1,700 MW of clean energy



Nuclear provides $1B to the local economy



Nuclear is always on 24/7 - regardless of the weather. Can flexibly operate.

Nuclear is highly regulated and secured

Community Involvement

- Monticello and Prairie Island nuclear plants pay significant local taxes, and generate a billion dollars in local economic activity/yr
- The plants support over 1000 jobs directly and supports nearly 2,000 jobs indirectly
- Monticello and Prairie Island are the largest sources of carbon-free energy in Minnesota
- Nuclear employees contribute significantly to the local United Way, and are personally involved in the community

Economic Impact of Xcel Energy's Nuclear Fleet (*Monticello and Prairie Island*)

$1 billion
Our plants add $1 billion to the Minnesota economy each year

6,100
Supports 6,100 Minnesota jobs

$146 million
Generates $146 million in local, state and federal taxes each year

$1 spent ▶ $2
Each $1 spent at a plant generates $2 in economic output

$237 million
Generates $237 million in disposable personal income each year

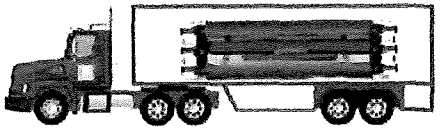
Advanced Nuclear

Xcel Energy®

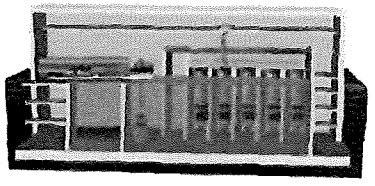
Advanced Nuclear Reactors Vary in Size

Advanced Reactor Sizes

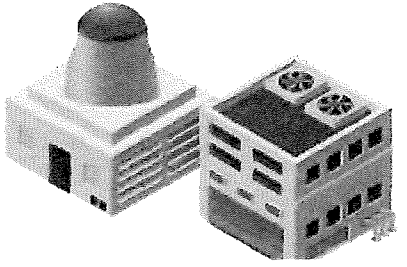
Microreactors
Range: 1 MW to 20 MW
Can fit on a flatbed truck, and are mobile and deployable.



Small Modular Reactors
Range: 20 MW to 300 MW
Can be scaled up or down by adding more units.



Full-Size Reactors Range:
300 MW to 1,000+MW
Can provide reliable, emissions-free baseload power.



MW refers to one million watts of electricity

Image from U.S. Department of Energy Office of Nuclear Energy – Advanced Reactor Technology Development Fact Sheet: https://www.energy.gov/ne/articles/advanced-reactor-technology-development-fact-sheet

Advanced Nuclear Tech Overview

Small Modular Nuclear Reactors (SMRs)

Zero-Carbon Dispatchable Base Load

- SMRs: Modular fission reactors generally 50 to 300 MW
- Strong federal support:
- GE BWRX-300 under construction in Canada
- TerraPower, and X-Energy in varying stages of pilot projects
- Project development, licensing and construction timeline estimated at 10-14 years
- Micro Reactors: Factory-built, 1-20 MW, very small footprint

Considerations:

- Fuel, supply chain, licensing

Gen III+

Strong Safety Case

Substantial Operating Experience

Design and Licensing Maturity

Conventional Fuel

Gen IV

Gas and molten salt/metal coolant

Includes: "fast" reactors

TRISO/HALEU fuel

2030

Technology Readiness

2040+

III+ HITACHI

IV TerraPower

III+ Westinghouse

IV energy III+

NUSCALE

IV TERRESTRIAL ENERGY

IV moltex clean energy

IV Flibe ENERGY

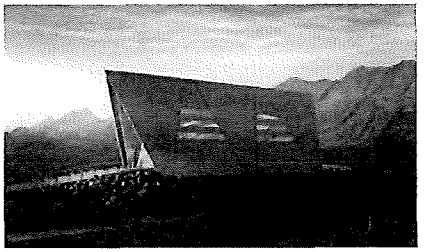
IV Kairos Power

IV OKLO

IV ULTRA SAFE NUCLEAR

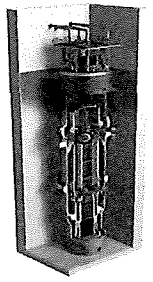
30 + companies

Micro Reactors
(< 20MW)



Oklo (shown)
Approximately a dozen in development

LWR SMRs
<300MW

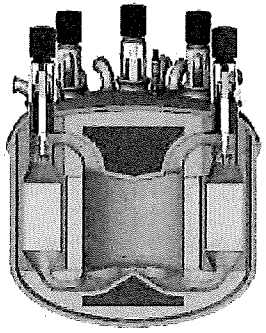


NuScale (shown)
GEH X-300
Holtec SMR-160

DOE Advanced Reactor Demonstrations

Reactor demonstrations expected to result in a fully functional advanced nuclear reactor.

Two designs funded by DOE

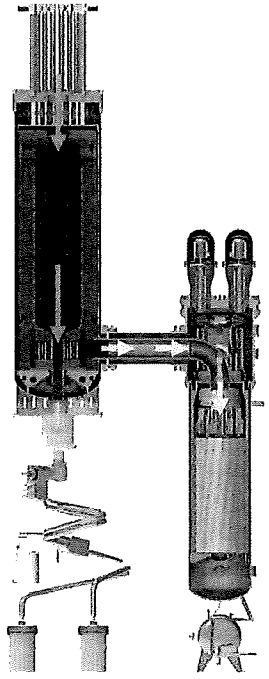


TerraPower Natrium

- Sodium cooled fast reactor, combined with thermal storage
- Pilot location in Kemmerer, Wyoming. It is coal to nuclear conversion.
- April 2024 – TerraPower submits Construction Permit application to NRC
- Construction in progress – expect to be operational by 2030

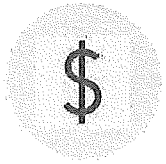
X-Energy Xe-100

- Four, 80 MWe High temperature gas reactors
- Working with Dow Chemical on Pilot
- 4-unit 320 MWe plant
- Construction expected to begin in 2026
- March 2024 – opened training center for future operators of Xe-100



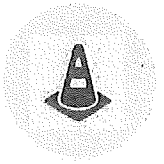
Challenges of Advanced Nuclear Generation

Risk factors to consider in evaluating new nuclear technologies

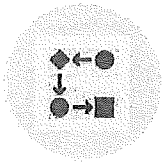


Cost

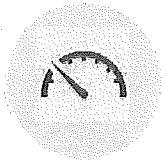
Licensing / Regulatory Risk



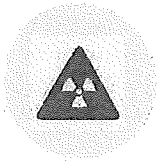
Construction Risk



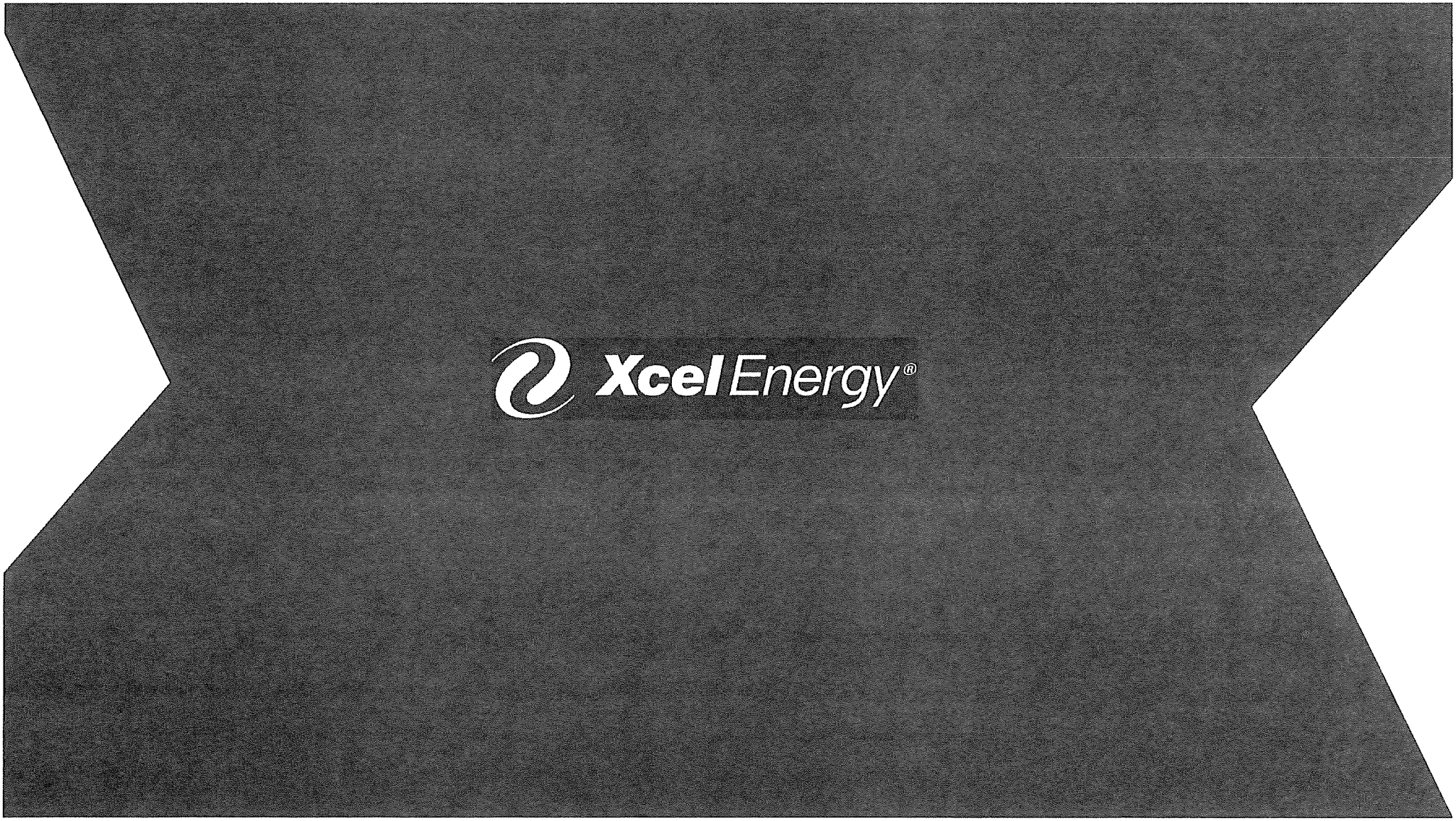
Supply Chain



Fuel Supply



Spent Fuel


Xcel Energy®

April 30, 2025

Testimony to the Senate Committee on Utilities and Tourism on Senate Bills 124 and 125

Chairman Bradley and Committee Members,

Thank you for the opportunity to testify today in support of Senate Bills 124 and 125, which will create a nuclear power and fusion energy siting study and provide an opportunity for the state to convene members of the nuclear power generation and fusion energy communities at a Wisconsin Nuclear Power Summit. I would also like to thank Senator Bradley and Representative Steffen for introducing these important pieces of legislations.

My name is Robb Hughes, and I am the Head of External Affairs at Realta Fusion. Realta Fusion is an early-stage commercial fusion energy company based here in Wisconsin that spun out of a groundbreaking physics experiment at the University of Wisconsin-Madison in 2022. Funded by the United States Department of Energy, top-tier Silicon Valley venture capital firm Khosla Ventures, the Wisconsin Alumni Research Foundation, and TitletownTech – a joint venture between Microsoft and the Green Bay Packers – Realta Fusion is a tremendous example of what can be achieved when you convene engaged stakeholders with complementary perspectives and set them toward a common goal.

In that same spirit of collaboration, I testify today in support of Senate Bills 124 and 125 because they both represent forward-thinking efforts to identify the world of the possible and bring together the full stakeholder ecosystem – fission and fusion developers, the manufacturing community, legislators, and the state economic development ecosystem – to showcase Wisconsin leadership and innovation in this area.

There is a common refrain – referenced by an Assembly committee member from the recent hearing on the companion bill to SB124 – that suggests fusion will always be 30 years away. I would argue that fusion is already here. There's a company in Janesville that is already creating neutrons through fusion reactions to produce therapeutic and diagnostic medical isotopes, and fusion energy power plants putting electrons on the grid are right around the corner. For example, there's a fusion company based in Massachusetts that is currently building their first-of-a-kind power plant in Virginia, and they expect to turn that on within the next five years. Our business, Realta Fusion, is three years away from building our prototype device, and we expect to have a full-scale power plant operating by the early 2030s.

That said, something I would encourage the committee to consider is that when we talk about fusion only in terms of when it will "arrive" we run the risk of failing to see the forest for the trees. We fail to see the thousands of skilled, high-paying jobs that will be created while companies like Realta Fusion work to build, maintain, and scale our technologies over the next 5-7 years, and we ignore the eyewatering sums of economic activity and the tremendous benefit to supply chain companies downstream from fusion energy developers that will be generated during that time.

Simply put, if you only turn the ballgame on in the bottom of the 9th you miss all the baseball.

Zooming out to the industry level, the size of the fusion energy market is almost incalculably large. In 2021, Bloomberg published a piece sizing the aggregate valuation of all private fusion companies at $40 trillion in the next 20 years. Even if that projection is off by an entire order of magnitude – matching a more conservative estimate produced by folks at MIT - that valuation would still total $4 trillion. I encourage members of this committee not to let Wisconsin miss this tremendous market opportunity, particularly at a critical moment when energy demands are skyrocketing and an "all of the above" approach that includes fusion energy is needed to meet the moment.

In closing, efforts to identify ideal sites for nuclear power and fusion energy generation and to convene the community and continue making progress and building the ecosystem for fusion is of critical importance. Wisconsin is blessed with outstanding manufacturing talent, top-notch researchers, and hard-charging commercial fusion energy startups who all stand to benefit from the ability to connect with one another, learn from one another, and showcase our shared commitment to innovation. We look forward to reviewing the results of the proposed siting study, participating in the Wisconsin Nuclear Power Summit, and putting eyes on the new College of Engineering building at UW-Madison concurrently.

Thank you for the opportunity to testify in favor of Senate Bills 124 and 125. I am happy to answer any questions.

Robb Hughes
Head of External Affairs, Realta Fusion

April 30, 2025

Hello, again, Senate Committee on Utilities and Tourism and Chair Senator Bradley. My name is Steve Books, I'm a resident of Madison, WI. I'm here today speaking in opposition regarding 2025 Senate Bill 125.

As a current Sierra Club Member, and member and supporter of other environmental organizations, I'm concerned that other energy technologies for renewable systems and other more sustainable energy systems that don't have the nuclear energy downfall of nuclear waste are being left out of any discussion, and for future appropriations with this Bill.

As I read some of Sierra Clubs stance earlier, I'll reiterate as a member only that the Sierra Club opposes the licensing, construction and operation of new nuclear reactors utilizing the fission process and does not consider nuclear a clean energy source. Key concerns include: safety concerns, waste disposal issues, the risk of nuclear proliferation, very high cost to develop nuclear generation, length of time it takes to site and safely build nuclear generation facilities.

As a supporter of sustainable renewable energy, many types of energy do exist including wind, solar, biomass, renewable hydrogen, energy being derived from landfill waste systems such as in Dane County Wisconsin, and wastewater treatment facilities as in Minnesota. Using less energy still needs to be highlighted which includes new L.E.D. light bulbs and other ways to conserve energy such as energy efficiency, distributed generation, wind, solar, biomass, renewable hydrogen and fuel cells.

Again, I realize that there is a push for more energy to be derived due to the possibility of more energy needed for new computer data centers that are currently being built. I would like to see any new date center to be powered with sustainable renewable energy on-site with solar panels on the facilities roof, wind generation, and, or some type of self-sustaining on site energy system other that a nuclear energy system. Nuclear fusion is not there yet. As a person that's not impressed with the cell phone system of swiping your cell phone for instant results to find information, I find it troubling for nuclear energy proponents to say that we need new nuclear power plants so that you can swipe your cell phone for various cell phone applications, apps. Ridiculous.

As for nuclear power, nuclear fission and fusion energy, as of a publication readopted on May 18, 2024, the Sierra Club opposes the licensing, construction and operation of new nuclear reactors utilizing the fission process and does not consider nuclear a clear energy source. Again, I'm reading the Sierra Club's stance as a member, not speaking as an employee of the Sierra Club. Key concerns include: safety concerns, waste disposal issues, the risk of nuclear proliferation, very high cost to develop nuclear generation, and length of time it takes to site and safely build nuclear generation facilities. For fusion reactors, the Sierra Club statement is: The dangers posed by the probable releases of tritium used by fusion plants, the problems with decommissioning these plants, and their high costs lead the Sierra Club to believe that the development of fusion reactors to generate electricity should not be pursued at this time. We are not opposed to safe and proper research as long as it is not at the expense of more benign "soft energy path" technology.

Let's also not forget about the past nuclear energy disasters of Three Mile Island, Chernobyl in now Ukraine, and Fukushima, Japan. As far as Chernobyl in 1986, the reactor was tombed by a sarcophagus that Russia has currently attempted to bomb. The outer roof covering of the sarcophagus was hit, but not the sarcophagus itself.

Sincerely,

Steve Books
Madison, WI

The Sierra Club opposes the licensing, construction and operation of new nuclear reactors utilizing the fission process and does not consider nuclear a clean energy source. Key concerns include:

- safety concerns
- waste disposal issues
- the risk of nuclear proliferation
- very high cost to develop nuclear generation
- length of time it takes to site and safely build nuclear generation facilities

https://www.sierraclub.org/policy/nuclear

Nuclear Power

The Sierra Club opposes the licensing, construction and operation of new nuclear reactors utilizing the fission process, pending:

1. Resolution of the significant safety problems inherent in reactor operation, disposal of spent fuels, and possible diversion of nuclear materials capable of use in weapons manufacture.
2. Establishment of adequate regulatory machinery to guarantee adherence to the foregoing conditions. The above resolution does not apply to research reactors.

Adopted by the Board of Directors, December 12-13, 1974; Amended September 10, 2016

Readopted, May 18, 2024

Events at Three Mile Island Nuclear Plant reaffirm the validity of the Sierra Club policy on the lack of safety in nuclear plants and in the nuclear fuel cycle. These problems can lead to adverse health and environmental effects. The possibility of human failure dooms the nuclear fuel cycle to unacceptable risks. The Sierra Club continues to oppose construction of any new commercial nuclear fission power plants. Further, the Sierra Club supports the systematic reduction of society's dependence on nuclear fission as a source of electric power and recommends a phased closure and decommissioning of operating commercial nuclear fission electric power reactors.

Adopted by the Board of Directors, May 5-6. 1979

Consistent with its prior nuclear policy, the Sierra Club advocates the following measures to provide greater protection for public health and safety:

1. Federal legislation to require Nuclear Regulatory Commission (NRC) licensing of both military and nonmilitary radioactive waste management facilities, including research and development facilities.
2. Federal legislation to require Nuclear Regulatory Commission regulation and control of all shipments of radioactive waste, whether of military or nonmilitary origin, and all commercial radioactive materials. The Sierra Club also supports state and local efforts to provide greater protection in the transportation of radioactive waste and commercial radioactive materials.
3. Presidential appointment of a special citizens' advisory group to advise the president, Congress, and the NRC on the implementation of reforms recommended by the Kemeny Commission and such additional reforms as may be recommended by other studies now underway of the events leading to the Three Mile Island accident.
4. The making of appointments to this advisory group, to the Nuclear Regulatory Commission, and to staff positions in the NRC from a pool of individuals not committed by past experience to the nuclear industry. Such appointment should have a demonstrated commitment to public health and safety.

Adopted by the Board of Directors, February 2-3, 1980

Safety Margins for Water-Cooled Nuclear Plants

The Sierra Club is concerned that the safety margins in some water-cooled reactors operating, under construction, or planned, are not sufficient to avoid accidental release of radioactive material in all plausibly foreseeable circumstances. We believe that the maximum allowable power, fuel temperature, and heat transfer rates should be reduced to significantly less than the original design specification limits in order to increase the safety margin until adequate safety research has been completed.

Price-Anderson Act

As a means of internalizing the cost incident to the use of nuclear power, the Sierra Club favors the repeal of the limited liability provisions of the Price-Anderson Act.

Adopted by the Board of Directors, October 21-22, 1972

Breeder Reactors

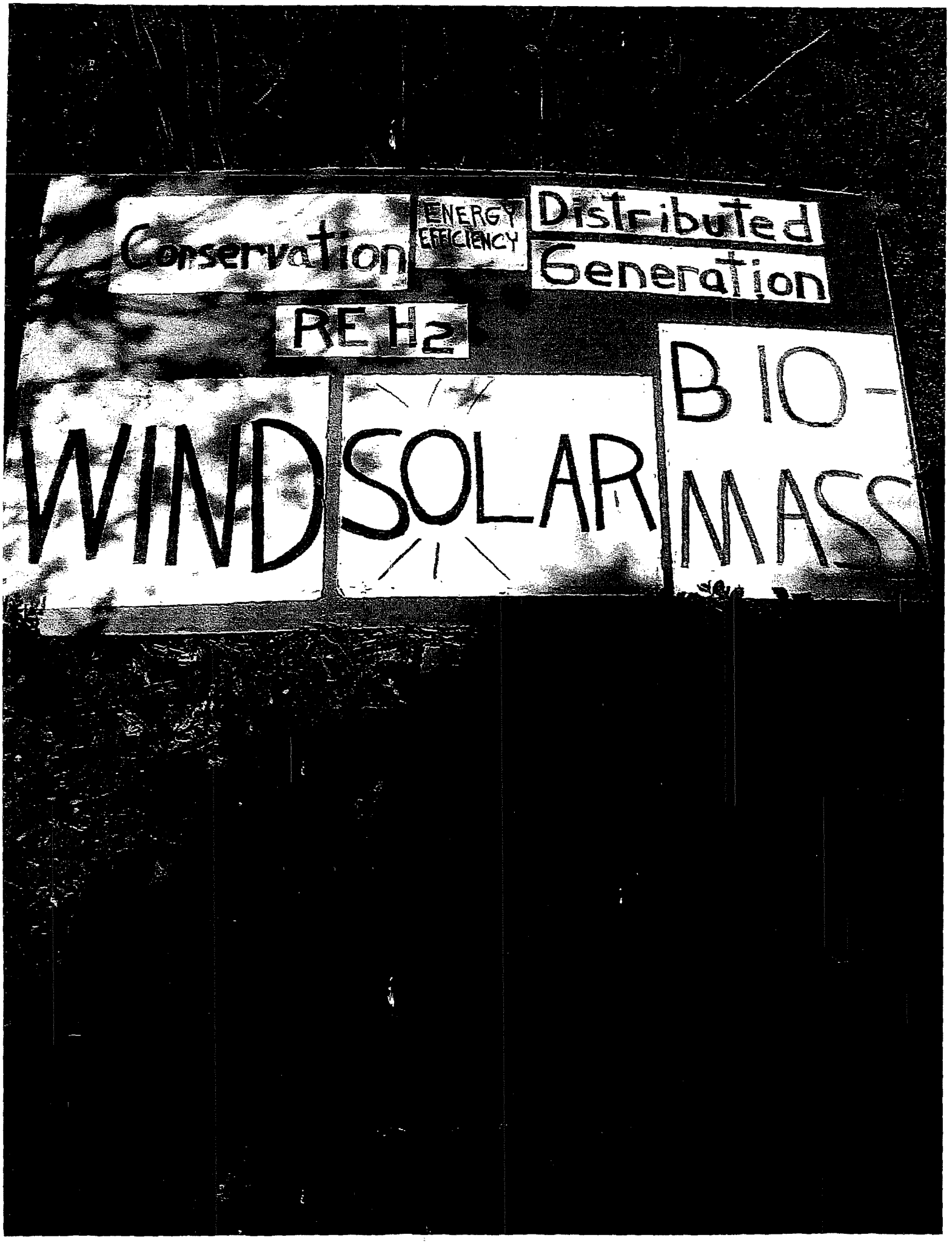
The Sierra Club reaffirms its opposition to the funding of breeder reactor research and ancillary projects. This includes monitored retrievable storage for spent fuel except at reactor sites, reprocessing, the liquid metal converter, the water-cooled breeder, and the fusion/breeder programs.

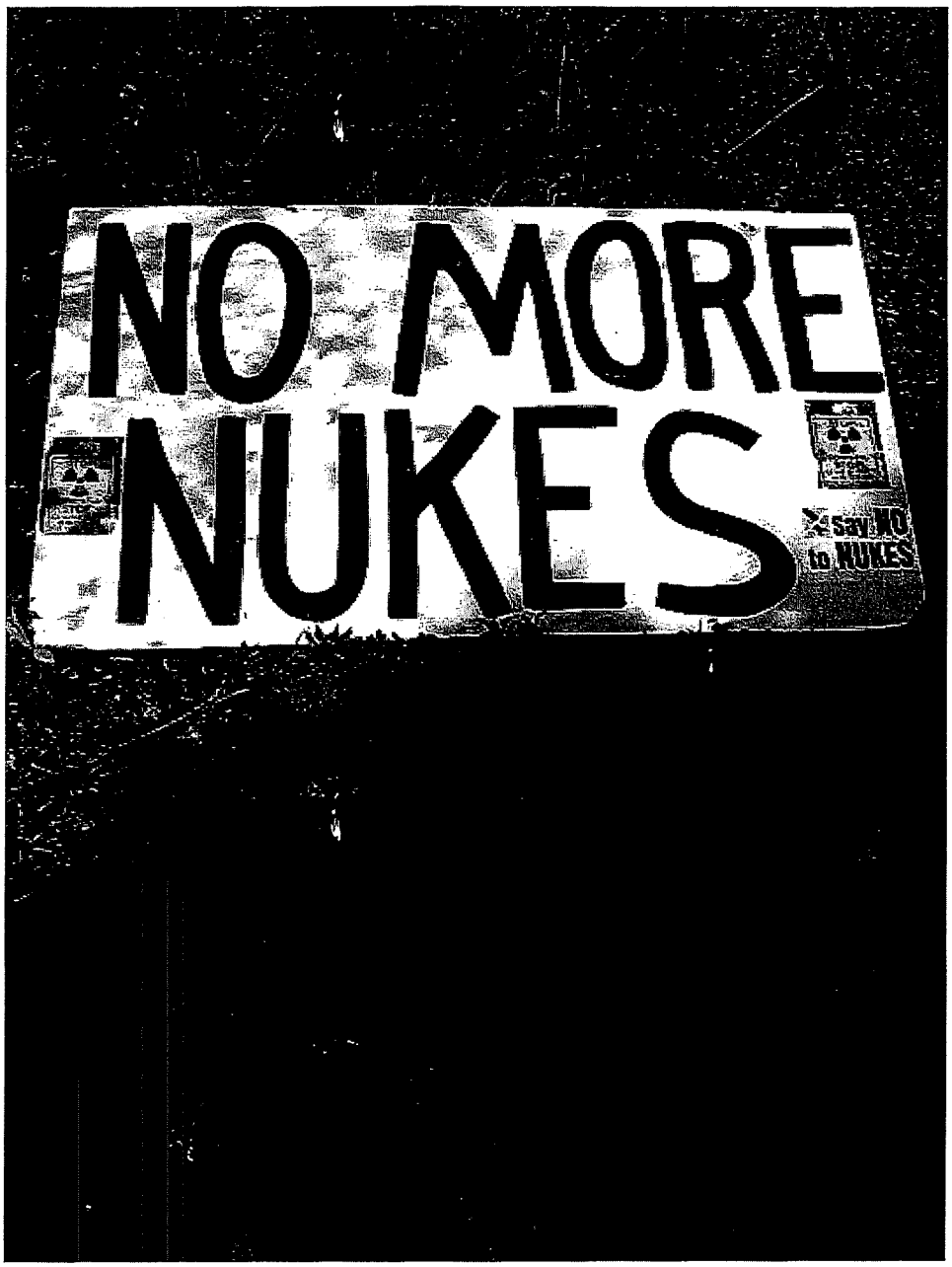
Adopted by the Board of Directors, November 15, 1986

Fusion Reactors

The dangers posed by the probable releases of tritium used by fusion plants, the problems with decommissioning these plants, and their high costs lead the Sierra Club to believe that the development of fusion reactors to generate electricity should not be pursued at this time. We are not opposed to safe and proper research as long as it is not at the expense of more benign "soft energy path" technology.

Adopted by the Board of Directors, November 15, 1986


Conservation
ENERGY EFFICIENCY
Distributed Generation
RE H2
WIND
SOLAR
BIO-MASS


NO MORE
NUKES
Say NO
to NUKES