DAVID STEFFEN

STATE REPRESENTATIVE • 4th ASSEMBLY DISTRICT

April 23, 2025

Testimony to the Assembly Committee on Jobs and Economy on Assembly Bill 132

Chairman Gundrum and Committee Members,

Thank you for the opportunity to testify in favor of Assembly Bill 132, a bipartisan proposal that creates the exciting opportunity for our state to host the Wisconsin Nuclear Power Summit.

Wisconsin's strong research, development and manufacturing sectors create an environment that lends itself to the expansion and development of nuclear power, related technologies, and massive investments in Wisconsin. Hosting a Wisconsin Nuclear Power Summit will be an invaluable opportunity to showcase Wisconsin's leadership and innovation in the nuclear industry.

Assembly Bill 132 establishes the Wisconsin Nuclear Power Summit Board to be charged with organizing, promoting and hosting the Wisconsin Nuclear Power Summit. The Wisconsin Economic Development Corporation (WEDC) will support the Board with its directive to host the Summit. The Board will be comprised of legislators as well as industry, subject-matter and economic development experts.

This event will provide participants with education and information sharing opportunities that will advance nuclear power and fusion energy, while simultaneously shining a light on Wisconsin's leadership in this space. To that end, the date of the Summit will correspond with the opening of the new College of Engineering building at UW-Madison, allowing participants the opportunity to experience this state-of-the-art facility and learn about its role in advancing nuclear research and development.

Thank you for the opportunity to speak in favor of this bill. I encourage you to join me in supporting this legislation and am happy to answer any questions you have.

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

JULIAN BRADLEY
WISCONSIN STATE SENATOR

Assembly Committee on Jobs and Economy
Wednesday, April 23rd, 2025

Assembly Bills 108 & 132

Thank you to Chairman Gundrum and the members of the committee for hearing Assembly Bills 108 (AB 108) and 132 (AB 132). 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. Assembly Bill 108 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, AB 108 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, Assembly Bill 132 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. AB 132 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.

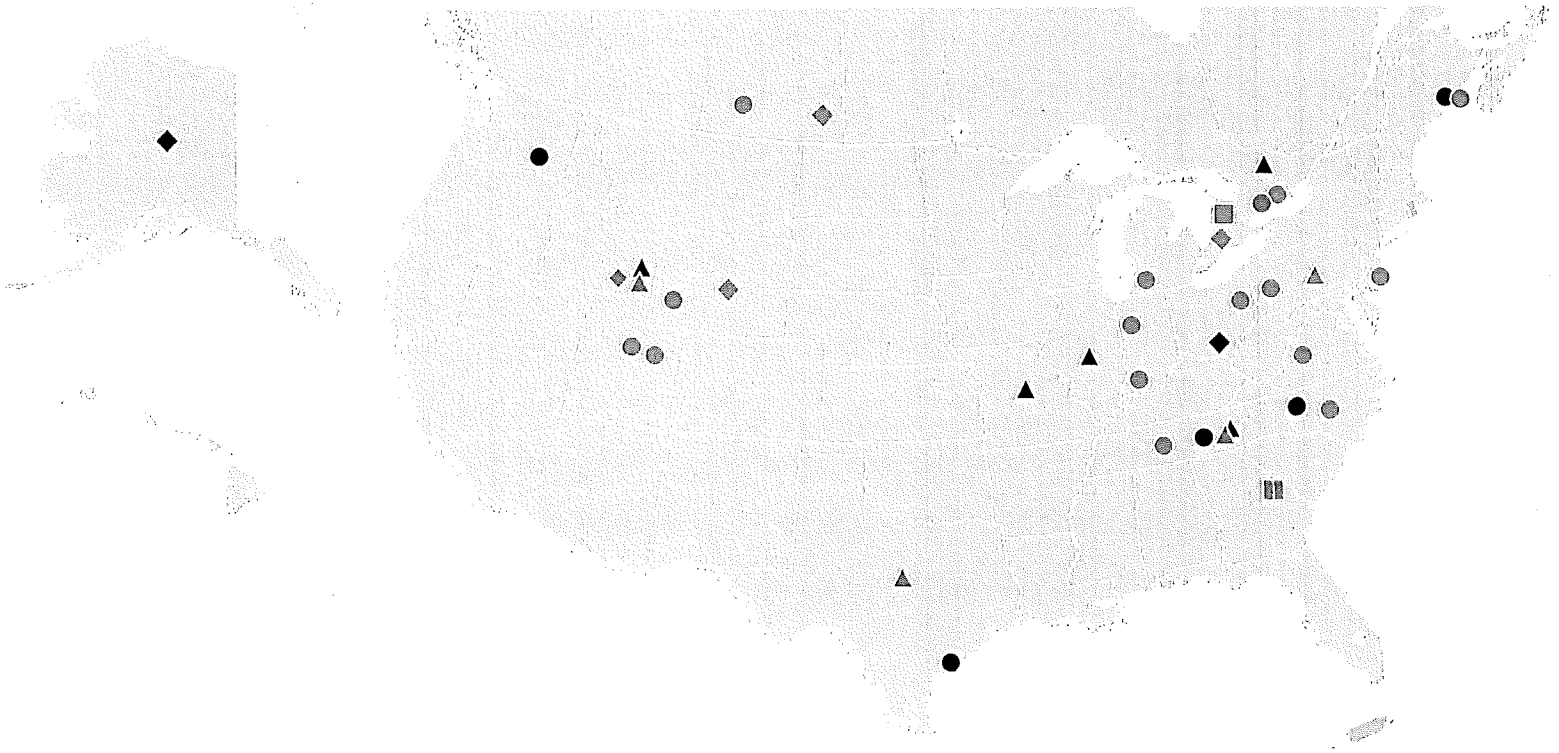
Together, we can make sure that Wisconsinites have their growing energy needs met through safe, clean, and reliable baseload energy production from nuclear fission and fusion technology. Thank you, members of the committee, for the opportunity to testify today. I ask that you join us in supporting these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

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

Advanced Nuclear Deployment Plans

Projects that may be in operation by early 2030s

Updated 01/17/2025



Legend

- Considered project
- Planned project
- Under construction
- Operating
- Large (1,000 MWe)
- Small (<300 MWe)
- Micro-reactor (<50 MWe)
- University / Research / Test

April 23rd, 2025

Representative Rick Gundrum (Chair)
Representative Adam Neylon (Vice-chair)
Members of the Assembly Committee on Jobs and the Economy

Testimony for Information on Assembly Bill 108 & Assembly Bill 132

Dear Chairman Gundrum, Vice-chair Neylon, and Committee Members,

Thank you all for your time this afternoon.

My name is Oliver Schmitz, and I am the Thomas and Suzanne Werner Professor of Nuclear Engineering and Engineering Physics at the University of Wisconsin - Madison. I am also a co-founder of Realta Fusion, an early-stage fusion energy startup residing in Wisconsin. I speak today in support of Assembly Bills AB 108 and AB 132, and to offer the expertise of my colleagues and me as your committee considers the important role of nuclear energy for the economy and for the energy security and resilience of the State of Wisconsin. While my work at UW–Madison informs my expertise, I do not represent the views of the university. I am providing this testimony as a private citizen and subject matter expert with over 20 years of research and development experience in the field. My research focuses on Nuclear Fusion, the process that the sun and the stars use to produce energy, and the materials we need to invent and learn to manufacture at scale to confine a "sun on earth". This will require new materials and new kinds of manufacturing technologies that can create new economic benefits for the state of Wisconsin and its citizens.

Assembly Bill 108, which provides funding and a mandate to the Public Service Commission in conducting siting studies across Wisconsin, is important to open access to economic benefits for the betterment of all people in Wisconsin and to strengthen our energy resilience and security. Installing nuclear power in Wisconsin is an effective method to realize base load power generation in the state and reduce our need for energy imports. At the same time, when considering the most modern nuclear energy technologies, it offers opportunities to bring manufacturing and supply chain industries in Wisconsin and to reskill and upskill our workforce for high-paying jobs in this sector. I support the idea that this bill considers both forms of nuclear energy generation, nuclear fusion and nuclear fission, because both can and should co-exist to satisfy the growing energy needs of the state and its population. The contemporary deployment and development of such technologies in one innovation region is critical to building a world-leading innovation space. The bill fully includes both types of energy generation and opens important access points to fully leverage the innovation potential and the impact it can have on our state.

Assembly Bill 132 supports the WEDC in acquiring a world-class nuclear convention for Wisconsin, and brings interested parties and industries to our state. This is advantageous for enhancing awareness of nuclear energy among the state's citizens, its industries, and

decision makers. Moreover, it will make the nuclear energy efforts in Wisconsin visible and known, which is an important part of acquiring industries, talent, and overall interest in this technology movement. Forming a Nuclear Power Summit board is an inclusive way to create two-way engagement with all stakeholders for such a broad technology development. We can offer our network to broaden participation at the summit and develop ideas for follow-up meetings, workshops, and events to carry forward the momentum such a summit would build.

In summary, these two bills will advance Wisconsin's strides in energy security, affordability, and resilience. The economic development potential of being part of the worldwide nuclear renaissance is large. Wisconsin will be able to partake in and obtain leadership, in particular, based on its traditional and world-renowned heavy industry and high-tech manufacturing, advanced data and control, and supply chain sectors.

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

Sincerely,

Oliver Schmitz
Thomas and Suzanne Werner Professor of Nuclear Engineering and Engineering Physics
Director of the Grainger Institute for Engineering
College of Engineering, University of Wisconsin -Madison

April 23rd, 2025

Representative Rick Gundrum (Chair)
Representative Adam Neylon (Vice-chair)
Members of the Assembly Committee on Jobs and the Economy

Testimony for Information on Assembly Bill 108 & Assembly Bill 132

Dear Chairman Gundrum, Vice-chair Neylon, 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 AB 108 and AB 132, 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.

Assembly Bill 108 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.

Assembly Bill 132 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

April 23rd, 2025

Testimony to the Assembly Committee on Jobs and Economy on Assembly Bill 132

Chairman Gundrum and Committee Members,

Thank you for the opportunity to testify today in support of Assembly Bill 132, which will create an opportunity for the state to convene members of the nuclear power generation and fusion energy communities at the Wisconsin Nuclear Power Summit. I would also like to thank Representative Steffen and Senator Bradley for introducing this important piece of legislation.

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 right 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 Assembly Bill 132 because it represents a forward-thinking effort to bring together the full stakeholder ecosystem – fission and fusion developers, the manufacturing community, legislators, and economic development experts like the folks at the Wisconsin Economic Development Corporation who will be tasked with hosting the event – to showcase Wisconsin leadership and innovation in this area.

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 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 Assembly Bill 132. I am happy to answer any questions.

Robb Hughes
Head of External Affairs, Realta Fusion

ROBB HUGHES

April 23, 2025

Alliant Energy

Representative Gundrum
Chairman, Assembly Committee on Jobs and Economy
State Capitol
Madison, WI 53708

SUBJECT: Support of Assembly Bills 108 and 132

Good afternoon Chairman Gundrum and Committee Members

On behalf of Alliant Energy, we thank you for holding this important hearing today on Assembly Bills 108 and 132, which would help energize Wisconsin's commitment to expanding nuclear power in the state. We also appreciate Chairman Steffen, Chairman Bradley, and Representative Sortwell authoring these bills because of the positive impact they could have in fueling Wisconsin's economic growth for decades to come.

For those on the committee who are not familiar with Alliant Energy, we are an investor-owned utility headquartered here in Madison. We serve electricity to approximately 495,000 retail customers and transport natural gas to about 200,000 customers across Wisconsin. A mix of coal, natural gas, wind, hydro, and solar power our generation fleet. Our electric subsidiary, Wisconsin Power and Light, previously co-owned the Kewaunee nuclear plant from 1974 until 2005 when it was sold to Dominion Resources. Dominion began decommissioning the plant in 2013.

As you know, AB 132 establishes the Wisconsin Nuclear Power Summit Board that will be charged with organizing and promoting a Nuclear Power Summit in Wisconsin. Bringing a diverse group of organizations and professionals together is important to build the vast network of experts we need to bring the next generation of reactors here to reality. Overall, we believe the summit will be an excellent opportunity to showcase Wisconsin's leadership and innovation in the nuclear industry – for both fusion and fission energy.

Wisconsin must be prepared to meet the soaring energy demands driven by data centers and other energy-intensive economic development opportunities. AB 108 is a bipartisan proposal that will help identify suitable locations for future nuclear generation to help utilities meet the energy demands of these companies while also keeping our state's energy safe, reliable, and affordable for *all* customers.

In closing, the adoption of advanced nuclear generation and related technologies will not happen overnight. Passing AB 108 and AB 132 are wise first steps in creating a cleaner energy future for Wisconsin that will also help attract companies, scientists, and skilled workers. Alliant Energy is pleased to support these bills and we look forward to working with you on other initiatives that will help advance carbon-free nuclear energy and other new resources in the state.

Thank you, Chairman Gundrum for holding this hearing today and to rest of Committee members for your attention on these important bills.

Zack A. Hill, Sr. Manager Public and Community Affairs for Alliant Energy

Xcel Energy®

1414 W. Hamilton Ave
P.O. Box 8
Eau Claire, WI 54702-0008
Telephone (800) 895-4999

April 23, 2025

Representative Gundrum
Chair, Committee on Jobs and Economy

Committee on Jobs and Economy Members:

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 Assembly Bill (AB) 108 and AB 132 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 AB 108 and AB 132 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 AB 108 and AB 132. 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

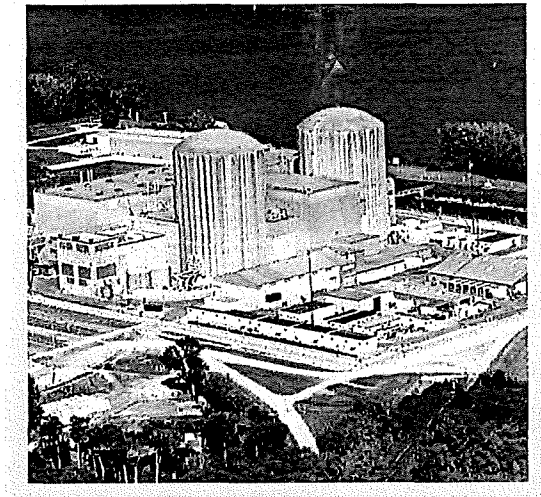
~$31 MWh industry average generating cost

New Vogtle Units 3 and 4 online in 2023/2024

Xcel Energy Nuclear Generating Fleet

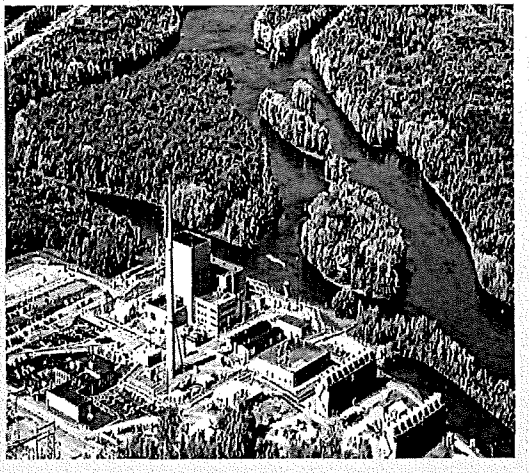
Over five decades of carbon free power

Prairie Island Nuclear Plant



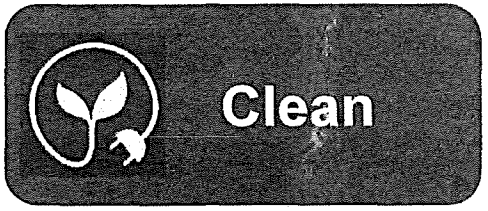
- 2 Pressurized water reactors
- Unit 1 (1973); Unit 2 (1974)
- Licensed through 2033/2034
- Pending extension to 2053
- 1,100 MW
- 800 Employees; 1,000 more during refueling

Monticello Nuclear Plant



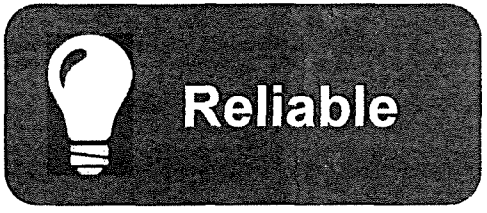
- 1 Boiling water reactor (1971)
- Licensed through 2050
- 671 MW
- 650 employees; 800 more during refueling

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

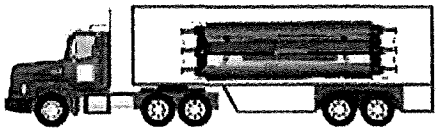
Advanced Nuclear

Xcel Energy®

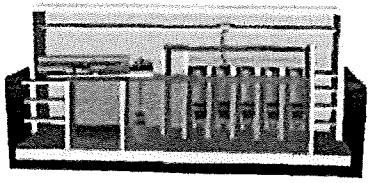
Advanced Nuclear Reactors Vary in Size

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.

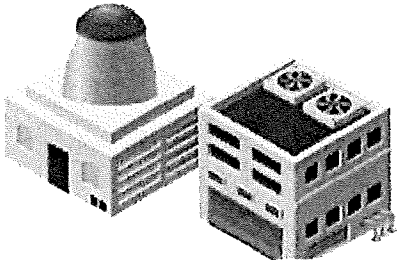


Image from U.S. Department of Energy Office of Nuclear Energy – Advanced Reactor Technology Development Fact Sheet: https://www.energy.gov/ne/articles/advanced-reactor-technology-development-fact-sheet

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+

HITACHI III+

TerraPower IV

Westinghouse III+

energy IV III+

NUSCALE

TERRESTRIAL ENERGY IV

moltex clean energy IV

Flibe ENERGY IV

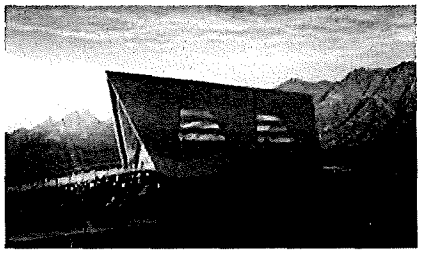
Kairos Power IV

OKLO IV

ULTRA SAFE NUCLEAR IV

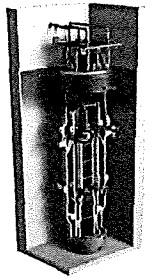
30 + companies

Micro Reactors
(< 20MW)



Oklo (shown)
Approximately a dozen in development

LWR SMRs
<300MW

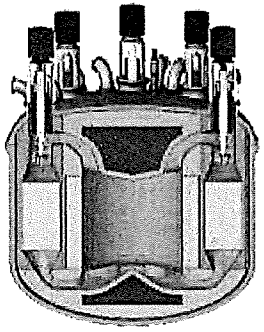


NuScale (shown)
GEH X-300
Holtec SMR-160

DOE Advanced Reactor Demonstrations

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

Two designs funded by DOE

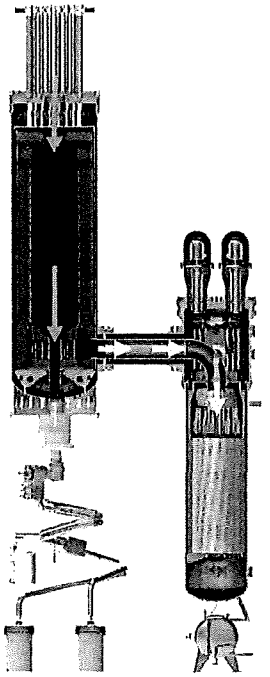


TerraPower Natrium

- 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



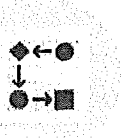
Challenges of Advanced Nuclear Generation

Risk factors to consider in evaluating new nuclear technologies

Cost

Licensing / Regulatory Risk

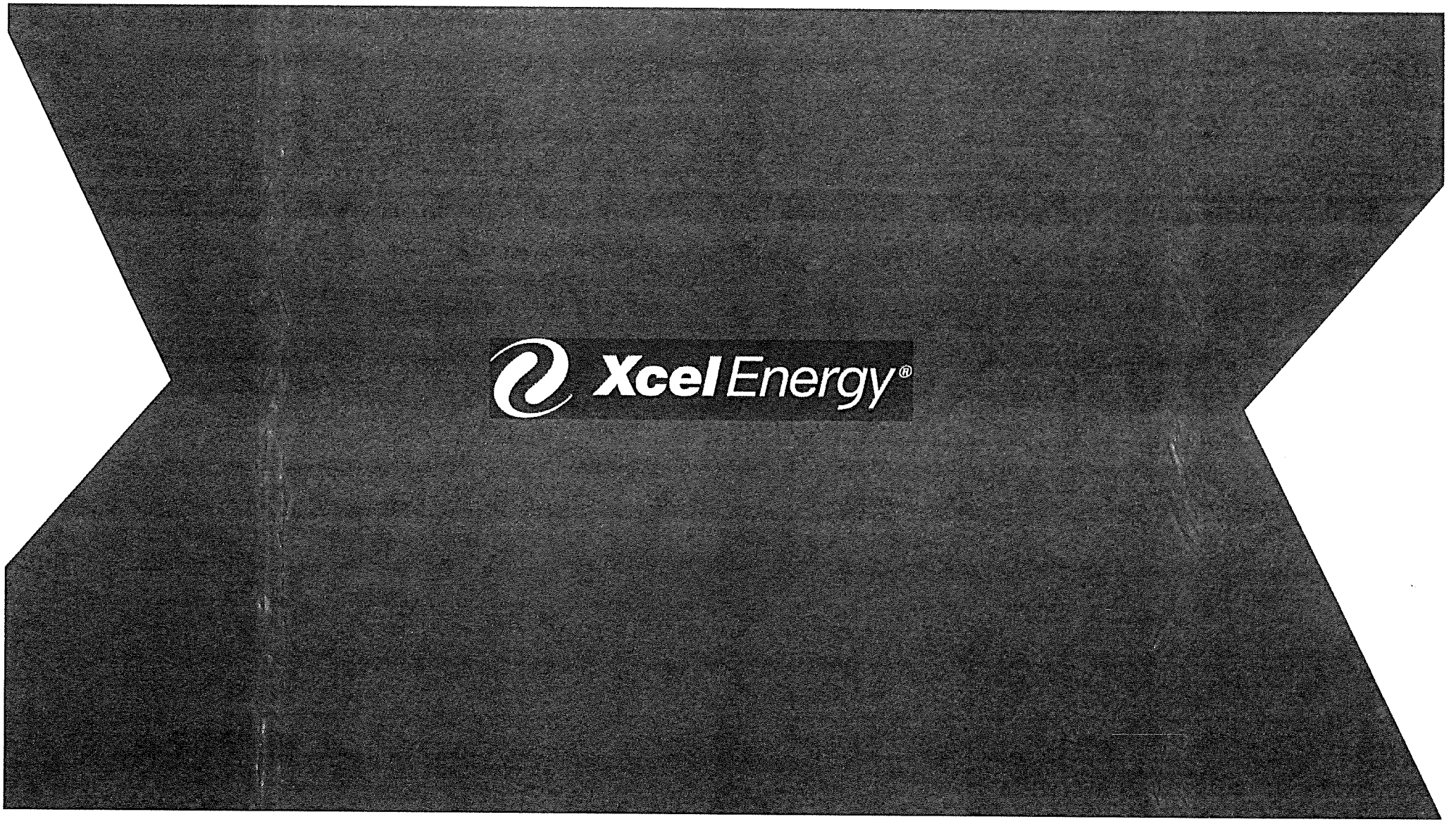
Construction Risk



Supply Chain

Fuel Supply

Spent Fuel


Xcel Energy®