WOODBURY COUNTY BOARD OF ADJUSTMENT

Monday, August 5, 2024 at 6:00 PM

The Woodbury County Board of Adjustment will hold a public meeting on **Monday, August 5, 2024** at **6:00 PM** in the Board of Supervisors' meeting room in the Basement of the Woodbury County Courthouse, 620 Douglas Street, Sioux City, IA. Please use the 7th St. entrance. Public access to the conversation of the meeting will also be made available during the meeting by telephone. Persons wanting to participate in the public meeting may attend in person or call: **(712) 454-1133** and enter the **Conference ID: 742 346 123#** during the meeting to listen or comment. It is recommended to attend in person as there is the possibility for technical difficulties with phone and computer systems.

AGENDA	
1	**CALL TO ORDER**
2	**ROLL CALL**
3	**PUBLIC COMMENT ON MATTERS NOT ON THE AGENDA**
4	**APPROVAL OF PREVIOUS MEETING MINUTES: 6/3/24**
5	**ITEM(S) OF ACTION / BUSINESS**
»	**ACTION ITEM: PUBLIC HEARING - CONDITIONAL USE PERMIT APPLICATION FOR A DATA PROCESSING BUSINESS ON PARCEL #884403400009. SUMMARY:** The consideration of a Conditional Use Permit application for a recommendation to the Board of Adjustment. AUR Correctionville LLC (Applicant) and property owners Ashley Acres Family Limited Partnership have filed for a Conditional Use Permit application "to place a demand response load resource next to the substation in conjunction with local electric utility to support grid resiliency" for the proposed use to operate a data processing business. The proposed site is on Parcel #884403400009 in T88N R44W (Wolf Creek Township) in Section 3 in the SE ¼ of the SE ¼. The property is located around 6.2 miles southeast of Moville and around 7.7 miles southwest of Correctionville. The property is located in the Agricultural Preservation (AP) Zoning District and is not located in the floodplain. Owner(s)/Applicant(s): Ashley Acres Family Limited Partnership, 3356 170th St., Correctionville, IA 51016 (Owners) and AUR Correctionville LLC, 15988 230th St., Grundy Center, IA 50638.
»	**INFORMATION ITEM: NUCLEAR ENERGY REVIEW OF ZONING REGULATIONS DIRECTION TO THE ZONING COMMISSION FROM THE BOARD OF SUPERVISORS. SUMMARY:** The Woodbury County Board of Supervisors at their meeting on July 2, 2024 voted to direct the Zoning Commission to begin the process of exploring nuclear energy as a potential energy option in Woodbury County. This informational item is an update on the Commission's work ahead.
»	**INFORMATION ITEM: HOME OCCUPATION SIGNS ZONING REGULATIONS. SUMMARY:** An informational update on the permitting of home occupation signs in the unincorporated areas of Woodbury County.
6	**PUBLIC COMMENT ON MATTERS NOT ON THE AGENDA**
7	**STAFF UPDATE**
8	**BOARD MEMBER COMMENT OR INQUIRY**
9	**ADJOURN**

PACKET CONTENTS

Minutes - Woodbury County Board of Adjustment – June 3, 2024

The Board of Adjustment meeting convened on the 3rd of June 2024 at 6:00 PM in the Board of Supervisors' meeting room in the basement of the Woodbury County Courthouse. The meeting was also made available for public access via teleconference.

Meeting Audio:
For specific content of this meeting, refer to the recorded video on the Woodbury County Board of Adjustment "Committee Page" on the Woodbury County website:

- County Website Link:
  - https://www.woodburycountyiowa.gov/committees/board_of_adjustment/
- YouTube Direct Link:
  - https://www.youtube.com/watch?v=6Qu3SXAs-io&t=5s

BA Members Present :	Doyle Turner, Pam Clark, Tom Thiesen, Ashley Christensen
County Staff Present:	Dan Priestley, Dawn Norton
Public Present:	Jason Gall, Skylar Luse, Colin Chatterton

Call to Order
Vice Chair Pam Clark formally called the meeting to order at 6:00 PM. Daniel Hair was absent.

Public Comment on Matters Not on the Agenda
None

Approval of Minutes
The May 6, 2024 minutes were approved. Motion by Christensen to approve; Second by Turner. Motion passed 4-0.

Action Item: Public hearing – Consideration of a Conditional Use Permit Application: Asphalt Mixing (Temporary) Site to Support the Highway 20 Resurfacing Project on Parcel #894431100010 and Parcel #894431100011
Clark opened the Public Hearing. Priestley read the staff summary into the record. The Conditional Use Permit application by Knife River Midwest LLC (Applicant) and Robert A. Davis (Property Owner) is for an asphalt mixing (temporary) site, to support the Highway 20 resurfacing project, on Parcel #894431100010 and Parcel #894431100011. The proposed location is about one-half mile west of Moville on the north side of Highway 20. Both parcels are located in the Agricultural Preservation (AP) Zoning District. Portions of the property are located within the Special Flood Hazard Area. Applicant(s)/Owner(s): Knife River LLC, 2220 Hawkeye Drive, Sioux City, IA 51105; Robert A. Davis, 1520 Grundy Ave., Moville, IA 51039. Property locations: Parcel #894431100010, T89N R44W (Arlington Township), Section 31, SE 1/4 of the NW 1/4 and Parcel #894431100011, T89N R44W (Arlington Township), Section 31, SE 1/4 of the NW 1/4. Location Address: 1541 Grundy Ave., Moville, IA 51039.
Colin Chatterton and Jason Gall addressed the Commission discussing the proposal including having their assets movable from the floodplain when necessary. Turner asked about how the water would be kept back in the bream and traffic concerns. Applicants explained the berm is following the stormwater plan, and traffic would be reduced to one lane, with their trucks using the other lane. They also discussed the project timeframe through the end of the year. Hours of operation would be 6:30 AM – 6:30 PM, Monday – Friday. Motion by Christensen to close the public hearing. Seconded by Thiesen. Carried 4-0. Christensen motioned to approve the Conditional Use Permit with the following conditions. All Federal, State and local regulations and permits be followed. The applicant(s)/property owner(s) comply with any and all grading and floodplain regulations including that any and all equipment associated with the project not be placed in any location designated as the floodway in the Zone A floodplain. Hours of production be between 6:30 AM – 6:30 PM. Conditional Use Permit will expire on June 3, 2025.
Seconded by Turner, . Carried 4-0.

Public Comment on Matters Not on the Agenda
None

Staff Update
Priestley updated provided an update on the Board of Supervisors' approval of the comprehensive plan, utility-scale solar ordinance, and floodplain regulations. He referenced the CoZo conference that was held in May including the presentations in Hornick and the interchange project.

Board Member Comment or Inquiry
Clark shared her experience of the CoZO conference.

Motion To Adjourn
Christensen motioned. Second by Turner. Carried 4-0. Meeting adjourned at 6:28 PM

WOODBURY COUNTY PLANNING & ZONING

620 Douglas Street, Sixth Floor, Sioux City, Iowa 51101
712.279.6609 – 712.279.6530 (Fax)

Daniel J. Priestley, MPA – Zoning Coordinator
dpriestley@woodburycountyiowa.gov

Dawn Norton – Senior Clerk
dnorton@woodburycountyiowa.gov

REPORT – JULY 31, 2024

DEMAND RESPONSE LOAD RESOURCE – CONDITIONAL USE PERMIT PROPOSAL

APPLICATION DETAILS

Applicant(s)/Owner(s):	AUR Correctionville LLC / Ashley Acres Family Limited Partnership
Application Type:	Conditional Use Permit
Zoning District:	Agricultural Preservation
Total Acres:	1.5
Current Use:	Unspecified
Proposed Use:	Operation of Data Processing Business
Pre-application Meeting:	June 28, 2024
Application Date:	July 1, 2024
Legal Notice Date:	July 20, 2024
Neighbor(s) Notice Date:	July 18, 2024
Stakeholder(s) Notice Date:	July 3, 2024
Zoning Commission Review:	July 22, 2024
Board of Adjustment Public Hearing:	August 5, 2024

PROPERTY DETAILS

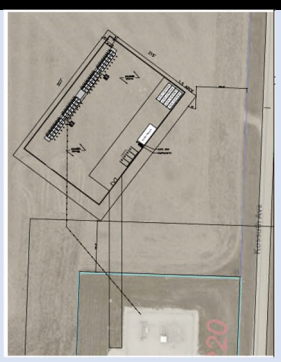
Parcel(s):	884403400009
Township/Range:	T88N R44W (Wolf Creek)
Section:	3
Quarter:	SE ¼ SE ¼
Zoning District:	Agricultural Preservation (AP)
Floodplain:	Zone X (Not in Floodplain)
Property Address:	No address

CONTENTS

SUMMARY

AUR Correctionville LLC (Applicant) and property owners Ashley Acres Family Limited Partnership have filed for a Conditional Use Permit application "to place a demand response load resource next to the substation in conjunction with local electric utility to support grid resiliency" for the proposed use to operate a data processing business. The proposed site is on Parcel #884403400009as referenced above. The parcel is located in the Agricultural Preservation (AP) Zoning District and is not located in the floodplain. The Land Use Summary Table (Section 3.03.4) of the Woodbury County Zoning Ordinance does not reference data processing or this specific request by the applicant. However, this can be interpreted under Section 3.03.3 of the Woodbury County Zoning Ordinance as a comparable utility use or comparable to the industrial use of research and development laboratories in the sense of data analysis. Therefore, for the purposes of this request, data processing can be interpreted as a conditional use under section 3.03.3 in the Agricultural Preservation (AP) Zoning District. Hence, based on the information received and the requirements set forth in the Zoning and Subdivision Ordinance, the proposal could meet the appropriate criteria for approval.

AERIAL MAP



ZONING COMMISSION AND STAFF RECOMMENDATION

At their regular meeting on July 22, 2024, the Woodbury County Zoning Commission voted 4-0 to recommend approval to the Board of Adjustment with the condition that the applicants and property owner mitigate noise generated from the facility and provide adequate security for the facility including the use of fencing and lighting. Staff also recommends for the applicants and property owners to provide for the mitigation of any noise generated by the facility that could adversely impact the neighboring properties. Staff also recommends that the facility have adequate security and lighting including the use of security fencing.

WOODBURY COUNTY
ZONING COMMISSION
WOODBURY COUNTY COURTHOUSE
620 DOUGLAS STREET
SIOUX CITY, IA 51101

Woodbury County Board of Adjustment
620 Douglas Street
Sioux City, Iowa 51101

RE: Zoning Commission Recommendation to the Board of Adjustment

CONDITIONAL USE PERMIT APPLICATION REVIEW	
Applicant(s)/Owner(s): AUR Correctionville LLC / Ashley Acres Family Limited Partnership	Parcel(s): 884403400009
Application Type: Conditional Use Permit	Township/Range: T88N R44W (Wolf Creek)
Zoning District: Agricultural Preservation	Section: 3
Total Acres: 1.5	Quarter: SE ¼ SE ¼
Current Use: Unspecified	Zoning District: Agricultural Preservation (AP)
Proposed Use: Operation of Data Processing Business	Floodplain: Zone X (Not in Floodplain)
	Property Address: No address

Dear Members of the Woodbury County Board of Adjustment:

This letter is to inform you that the Woodbury County Zoning Commission reviewed the ***Conditional Use Permit*** application from the applicant(s) as referenced above following the scheduled review that occurred at the regularly scheduled public meeting of the Woodbury County Zoning Commission on July 22, 2024.

Following the review, the Zoning Commission voted 4-0 to recommend approval to the Board of Adjustment with the condition that the applicants and property owner mitigate noise generated from the facility and provide adequate security for the facility including the use of fencing and lighting.

Please refer to the draft copy of the Zoning Commission minutes for details about the Commission's recommendation. Additionally, the Zoning Commission meeting audio from July 22, 2024 is available for inspection on the Woodbury County website at:
https://www.woodburycountyiowa.gov/committees/zoning_commission/

Dated this 31 day of July, 2024

Christine Zellmer Zant, Chair
Woodbury County Zoning Commission

Minutes - Woodbury County Zoning Commission – July 22, 2024

The Zoning Commission (ZC) meeting convened on the 22nd of July, at 5:00 PM in the Board of Supervisors' meeting room in the Basement of the Woodbury County Courthouse, 620 Douglas Street, Sioux City, IA. The meeting was also made available via teleconference.

Meeting Audio:
For specific content of this meeting, refer to the recorded video on the Woodbury County Zoning Commission "Committee Page" on the Woodbury County website:

- County Website Link:
  - https://www.woodburycountyiowa.gov/committees/zoning_commission/
- YouTube Direct Link:
  - https://www.youtube.com/watch?v=6Qu3SXAs-io

ZC Members Present:	Barb Parker, Jeff Hanson, Corey Meister, Chris Zant
County Staff Present:	Dan Priestley, Dawn Norton
Public Present:	Jeremy Lane, Jared Barnes, Sandy Heilman, Huey Heilman

CALL TO ORDER:
Chair Chris Zellmer Zant called the meeting to order at 5:00 p.m. Tom Bride was absent.

PUBLIC COMMENT ON MATTERS NOT ON THE AGENDA:
None

APPROVAL OF MINUTES: June 24, 2024 minutes – Motion by Hanson to approve. Second by Paker. Zellmer Zant abstained. Approved 3-0.

PUBLIC HEARING (ACTION ITEM) FOR PROPOSED MINOR SUBDIVISION – SANDPORT ADDITION.
Priestley read the preliminary staff report into the record. Sandra J. Heilman has filed for a one (1) lot minor subdivision on the property identified as Parcel #874730400007. This subdivision is being completed to establish a lot for the potential use as a contractor yard. The property is presently zoned General Industrial (GI) which allows for construction contractor yards. This minor subdivision proposal has been properly noticed in the Sioux City Journal legals section on July 11, 2024. The neighbors within 1000 FT have been duly notified via a July 8, 2024 letter about the July 22, 2024 Zoning Commission public hearing. Appropriate stakeholders including government agencies, utilities, and organizations have been notified and have been requested to comment. Priestley requested for the commission to receive the Woodbury County Engineer's review memo into the record. Motion to receive: Parker. Second: Hanson. Carried: 4-0. (Memo available in the Appendix.) The Woodbury County Engineer found the proposal in compliance with Iowa Code closure requirements and found that the lot(s) have adequate access. The property owner should contact the County Engineer's office to obtain a permit for a future driveway. As noted, this property is located in the General Industrial (GI) Zoning District and portions were located in the Zone X 0.2 percent floodplain but were removed on July 17, 2024 when the new Flood Insurance Rate Map (FIRM) went into effect. The City of Salix waived their extraterritorial review authority with the approval of Resolution No. 2024-05. Based on the information received and the requirements set forth in the Zoning and Subdivision Ordinance, the proposal meets appropriate criteria for approval. No questions or comments from public or board members. Motion to close public hearing: Meister. Second: Hanson. Carried 4-0. Motion to recommend approval of the Sandport Addition to the Woodbury County Board of Supervisors: Hanson. Second: Meister. Carried 4-0.

REVIEW OF CONDITIONAL USE PERMIT APPLIATION FOR A DATA PROCESSING BUSINESS ON PARCEL #884403400009 (ACTION ITEM).
Priestley read the preliminary staff report into the record. AUR Correctionville LLC (Applicant) and property owners Ashley Acres Family Limited Partnership have filed for a Conditional Use Permit application "to place a demand response load resource next to the substation in conjunction with local electric utility to support grid resiliency" for the proposed use to operate a data processing business. The proposed site is on Parcel #884403400009. The parcel is located in the Agricultural Preservation (AP) Zoning District and is not located in the floodplain. The Land Use Summary Table (Section 3.03.4) of the Woodbury County Zoning Ordinance does not reference data processing or this specific request by the applicant. However, this can be interpreted under Section 3.03.3 of the Woodbury County Zoning Ordinance as a comparable utility use or comparable to the industrial use of research and development laboratories in the sense of data analysis. Therefore, for the purposes of this request, data processing can be interpreted as a conditional use under section 3.03.3 in the Agricultural Preservation (AP) Zoning District. Hence, based on the information received and the requirements set forth in the Zoning and Subdivision Ordinance, the proposal could meet the appropriate criteria for approval. Priestley stated a precedence

was set with the approval of a data processing center last year along Calhoun Avenue. He reminded the commission this was a review session to look at criteria and make a recommendation to the Board of Adjustment for their August 5th meeting. Jeremy Lane from AUR Correctionville LLC submitted a video presentation to be added to the record. Motion to accept: Parker. Second: Hanson. Carried: 4-0. Lane gave a brief overview of project. Board members expressed concerns of noise affecting neighboring homeowners. Lane stated noise emitted from a site is approximately 45 decibels, last than conversational decibels, which are around 60 decibels. The site would be air cooled, noise emitted comes from cooling fans. Newer sites can have water cooling with less noise. There would be 2 on-site employees Monday thru Friday. Lane stated local contractors will be used to complete project. The landowners contributed to the design of this site plan to allow planter access. Zellmer Zant asked who the customers are for this type of project. Lane stated anyone who is wanting to invest. Hanson asked if it was Cryptocurrency mining? Lane answered yes. Hanson asked if there are any plans to use wind or solar to power site? Lane stated those resources are used in other counties but wouldn't be used in Woodbury County. He also explained the system is similar to a battery. It uses and gives back power. There is the ability to lower power during peak energy usage to prevent drain on grid. Mesiter brought up concerns of taking ag land out of production for sites, which was one of the reasons the public was against wind and solar. Hanson asked if there have been any complaints regarding site approved last year? Lane stated no. Staff recommends the applicants and property owners provide for the mitigation of any noise generated by the facility that could adversely impact the neighboring properties. Staff also recommends security fencing and lighting. Hanson inquired about the hours of operation. Land responded with 8 AM to 5 PM. Motion to recommend approval to the Board of Adjustment with the condition that the applicants and property owners mitigate noise generated from the facility and provide adequate security for the facility including the use of fencing and lighting by Parker. Second: Hanson. Carried: 4-0.

NUCLEAR ENERGY DIRECTION FROM THE BOARD OF SUPERVISORS (INFORMATION / DISCUSSION ITEM) SUMMARY: The Woodbury County Board of Supervisors at their meeting on July 2, 2024 voted to direct the Zoning Commission to begin the process of exploring nuclear energy as a potential energy option in Woodbury County. This information item is only preliminary discussion on how to proceed with future work sessions and public hearings. Supervisor Radig stated wind and solar sources have been explored and would like research for nuclear as an option for the County. Priestley stated nuclear is heavily regulated by the federal government and if it were to be an option, it would be several years of planning and permitting by the developer(s) before it would even be built. Priestley stated permitting could be similar to current communication tower permitting, the federal government would the main agency involved. Woodbury County's Land Use Summary Table line items would need to be reviewed by the Zoning Commission and Board of Adjustment to decide where and how nuclear could be placed. If a site were to be considered, it would most likely be located near a water source and in a General Industrial (GI) Zoning District. After communicating with other Iowa counties, Priestley found a conditional use permit could be required, but that could be the extent of permitting the county would be involved in. It would be imperative to have input from county citizens, the City of Sioux City, MidAmerican Energy, and other stakeholders. Zellmer Zant suggested an informational work session in August for board members to bring information and comments gathered from public and stakeholders.

HOME OCCUPATION SIGNS ZONING REGULATIONS REVIEW (INFORMATION / DISCUSSION ITEM) SUMMARY: This information item is for a preliminary discussion on how to proceed with addressing the permitting of home occupation signs. The Zoning Ordinance allows for one home occupation sign that is 25 square foot or less. This initial discussion will look at potential ways to address the permitting of different types of signs and sizes for home occupation purposes. Consideration might entail a potential conditional use permit process for signs that exceed 25 SF. For example, if a property owner operates a home occupation business out in a rural area and wishes to have a sign greater than 25 SF, a process could be considered to enable the Zoning Commission and Board of Adjustment to evaluate whether a sign greater than the allowed maximum size could fit with the neighborhood. The ordinance could possibly include a range such as 25 SF or below is allowed outright and 26 to 100 SF requires Zoning Commission review and Board of Adjustment approval. Consideration could also be given to the types of signs including free-standing signs and building signs. Hanson is open to look at changes to ordinance, but not just for one person. Zellmer Zant researched other Iowa counties, most have more restrictive size specifications.

PUBLIC COMMENT ON MATTERS NOT ON THE AGENDA:
None.

Staff Update:
Priestley spoke of the flood recovery efforts and procedures moving forward. Before repairs can begin, a floodplain development permit must be applied for, and damage must be assessed. Property owners must present a damage estimate if the repairs are estimated over 50% or more of the structures pre-flood market value. Structures will then need to be flood-proofed or elevated to reduce potential future flood damage. Woodbury County has received a Presidential declaration making some potential federal funds available to landowners to help with the flood recovery efforts. Woodbury County Emergency Management Coordinator, Michael Montino has done a great job coordinating efforts.

Commissioner Comment or Inquiry
Parker appreciates the mention of consideration of agriculture land being used for data centers and suggests limits on the number of data centers. Meister also suggested limits as data centers may have a negative effect for possible housing sites.

Motion to Adjourn:
Meister. Second: Hanson. Carried 4-0. Meeting ended 6:26 PM.

APPENDIX
RECEIVED INTO THE RECORD FROM MARK J. NAHRA, PE, 7/22/24

Woodbury County Secondary Roads Department

759 E. Frontage Road • Moville, Iowa 51039
Telephone (712) 279-6484 • (712) 873-3215 • Fax (712) 873-3235

COUNTY ENGINEER
Mark J. Nahra, P.E.
mnahra@woodburycountyiowa.gov

ASSISTANT TO THE COUNTY ENGINEER
Benjamin T. Kusler, E.I.T.
bkusler@woodburycountyiowa.gov

SECRETARY
Tish Brice
tbrice@woodburycountyiowa.gov

To: Dan Priestley, Woodbury County Zoning Coordinator

From: Mark J. Nahra, County Engineer

Date: July 17, 2024

Subject: Sandpoint Addition – a minor subdivision application

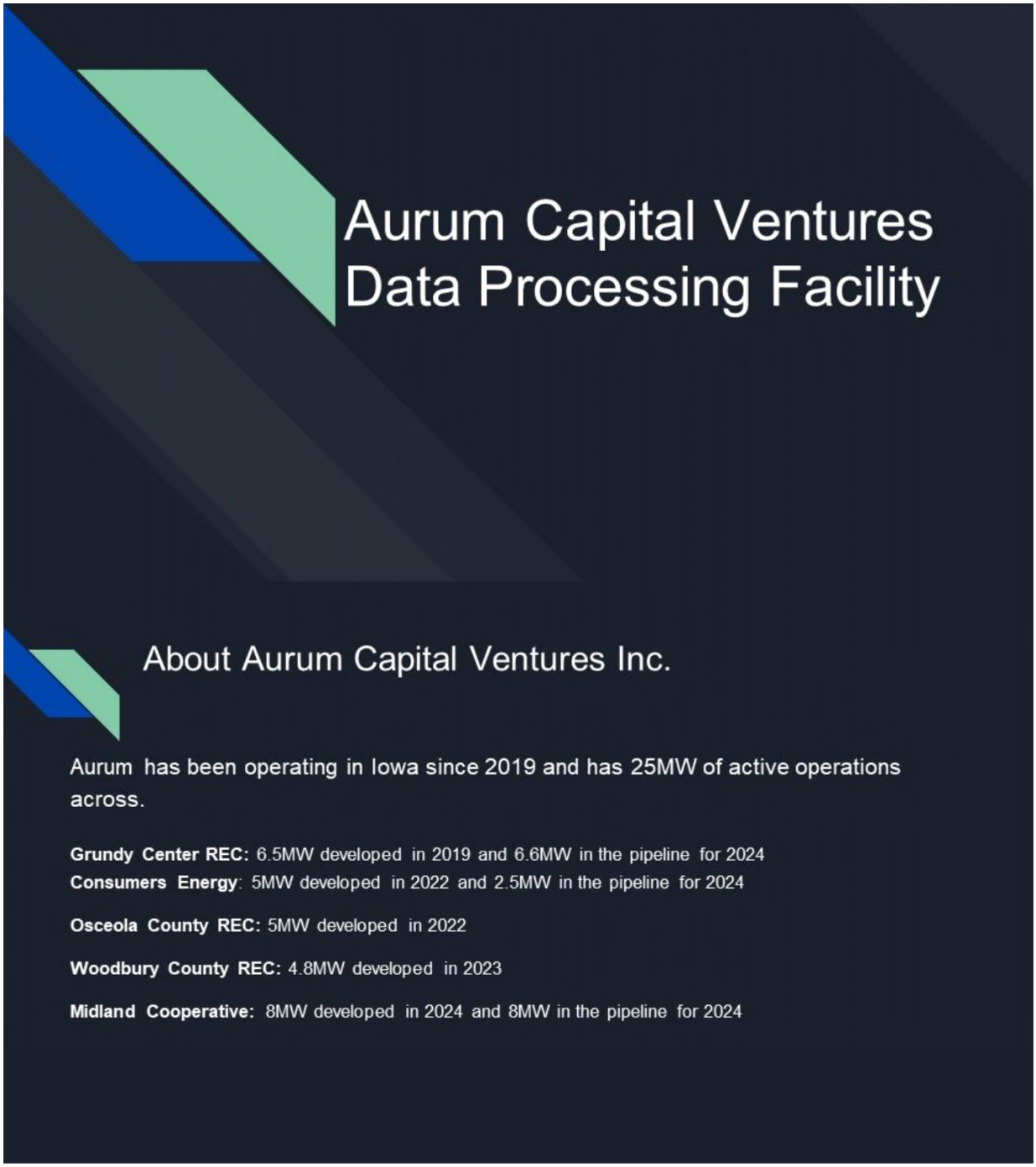
The Secondary Road Department has reviewed the information provided for the above referenced subdivision forwarded with your memo dated July 3, 2024.

I am offering the following comments for your consideration.

- We checked the closure on the plat and found it in compliance with the requirements for the full subdivision of 1 in 10,000 and 1 in 5,000 for lot 2 as required by Section 355.8 of the Code of Iowa.
- There is no driveway accessing the proposed Lot 1 exclusively. It appears the driveway at the SE corner of the lot is shared with the neighbor and may be on the neighboring property. There is good sight distance on the road and a driveway serving Lot 1 would be easy to site. The landowner should contact my office to obtain a permit for a driveway.
- I have no other concerns or issues with this minor subdivision application.

If there are any more questions or issues that arise later, please contact this office.

Cc: File


Aurum Capital Ventures
Data Processing Facility
About Aurum Capital Ventures Inc.
Aurum has been operating in Iowa since 2019 and has 25MW of active operations across.
Grundy Center REC: 6.5MW developed in 2019 and 6.6MW in the pipeline for 2024
Consumers Energy: 5MW developed in 2022 and 2.5MW in the pipeline for 2024
Osceola County REC: 5MW developed in 2022
Woodbury County REC: 4.8MW developed in 2023
Midland Cooperative: 8MW developed in 2024 and 8MW in the pipeline for 2024

What if local electric grids could....

Increase revenue

Upgrade Infrastructure without CapX

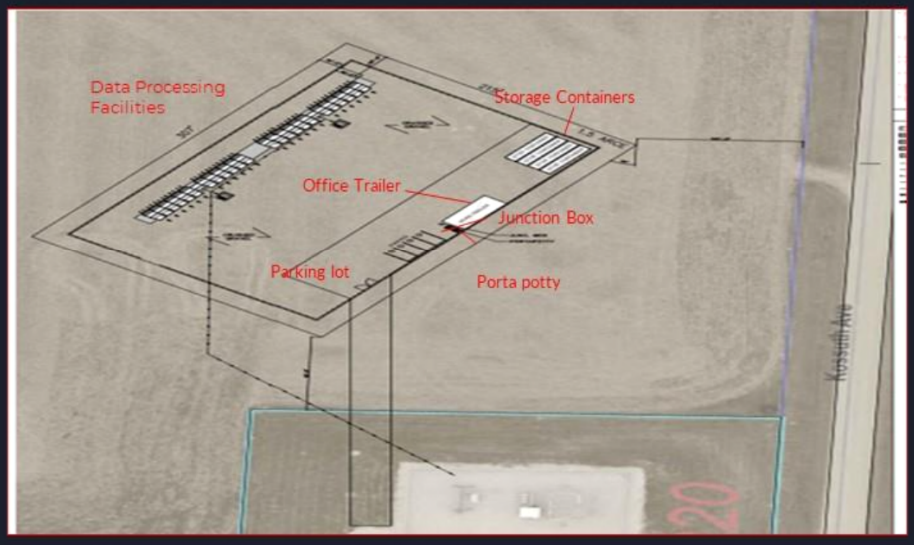
Lower rates

Use more renewable energy

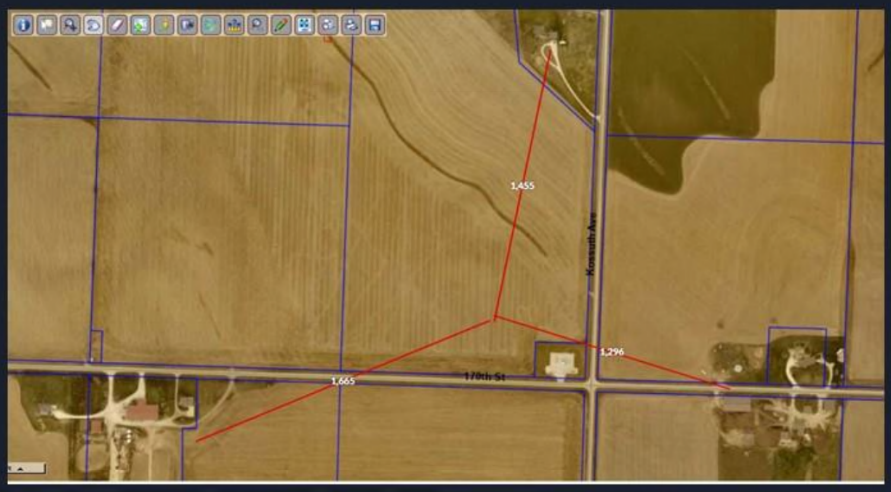
Add high paying tech jobs

Existing Air Cooled Data Processing Facilities

Site Layout 1.5 Acres of Land

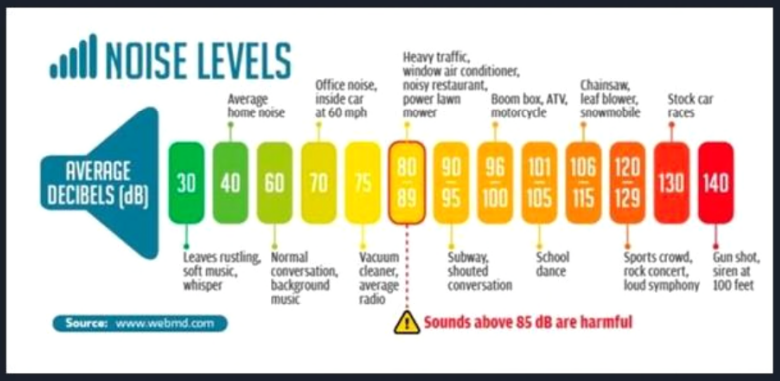


Closest Home is 1,296 FT away



Site Sound Readings

From only 370 Feet on the opposite side of the exhaust fans the noise emitted was less than 45 decibels. Facilities have similar sound profiles to grain elevators.



Topography

Project Lifespan: Minimum of 10 Years

The project will operate for a minimum of ten years in this location, increasing utilization of previously built electrical infrastructure.

With the potential to decrease cost of service for all cooperative members while increasing patronage payments to members.

High Efficiency and Energy Saving

- PUE as low as 1.03
- Optional heating components can provide heat recovery
- Variable frequency fan control
- This Reduces
  - Water consumption
  - Energy consumption
  - Noise

Safe and Reliable

- The entire system has passed UL (cTUVus) certification and can be used in the United States and Canada.
- The container body has passed CCS classification society certification
- Condensation and leakage detection/alarm
- Cooling tower cage ladder and guardrail meet OSHA standards
- 3D face recognition access Control panel
- Panic bars with latches or bolts
- Remote video monitoring
- GPS positioning
- One button emergency stop
- Electric cabinet interlock design

Impact on the Community

New Local Employees

- This site will support two full time technicians making an average of $27 per hour.
- Technicians receive health care benefits, gym memberships and company housing

Contractors

- We invest in the community by using local contractors to help build and maintain the site.

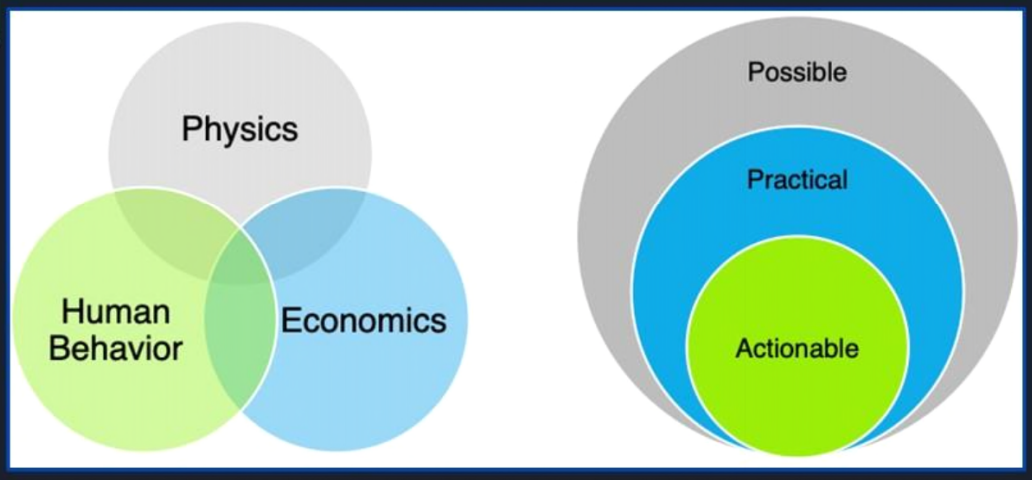
County Sales Tax on Energy 1%

- Most counties charge a 1% sales tax on energy around 12k a year.

Demand Side Management (DSM)

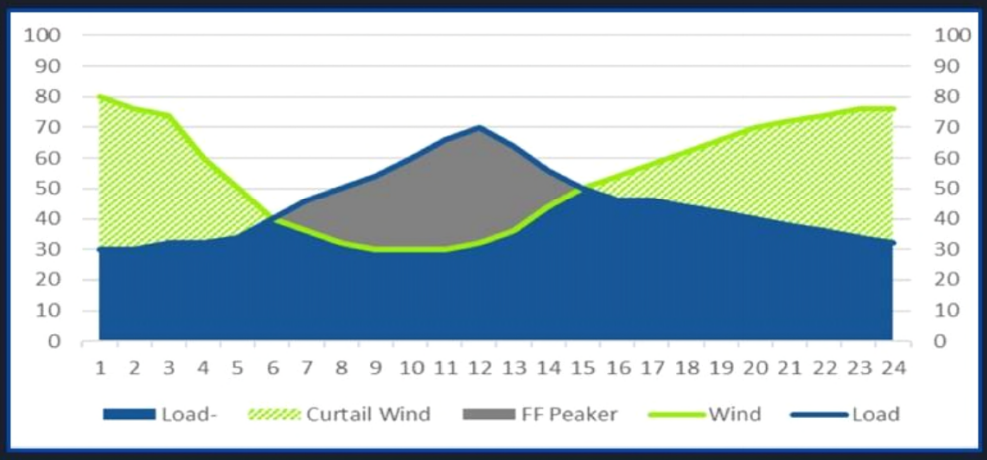
- Energy Effectiveness (EE)
- Electrification
- Account Management (Consultation)
- Low/Med. Income (LMI) Assistance Programs
- Distributed Energy Resources (DER)
- Demand Response (DR)
- GHG Emissions
- Tax Exemption Review
- Energy Code Inspections
- Energy Use Analysis
- TREES
- Analysis & Metering

Program Considerations

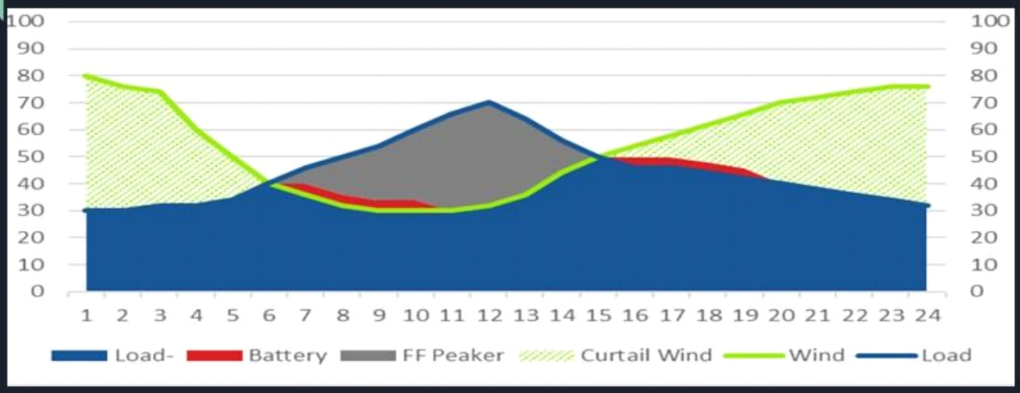


Grid Electric Consumption

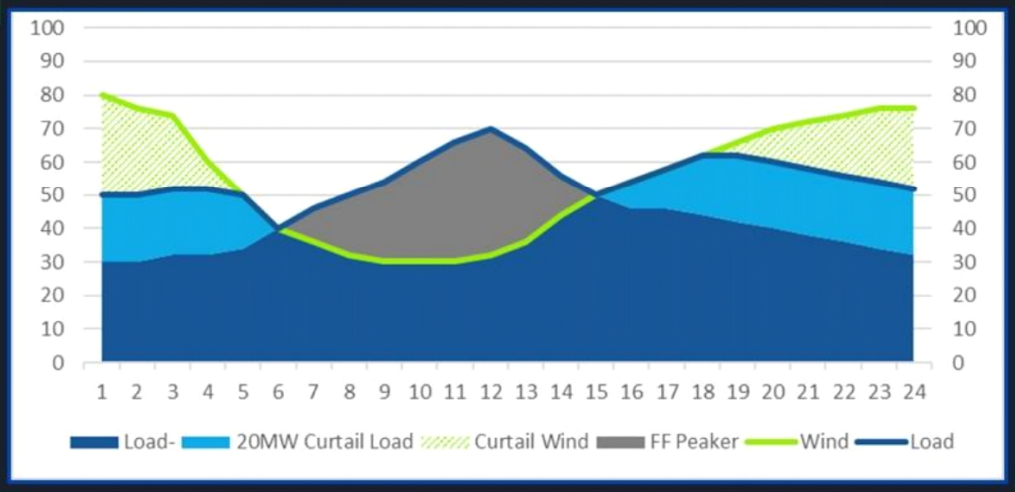
Firm Load, FF Peaker, Renewable Curtailment



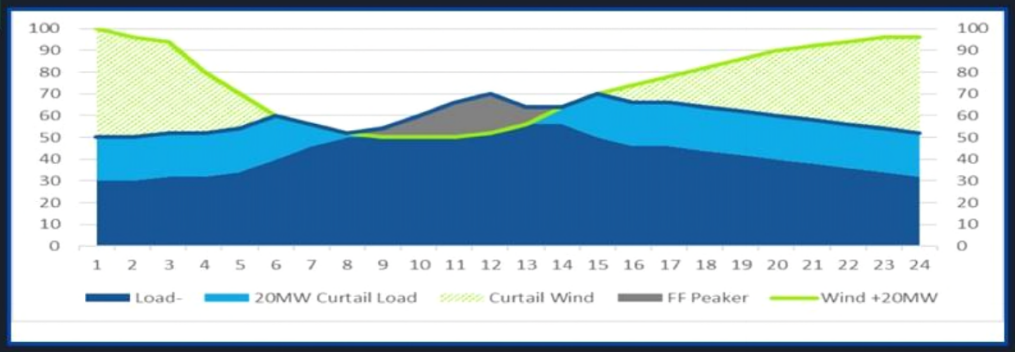
Add Expensive Battery Storage



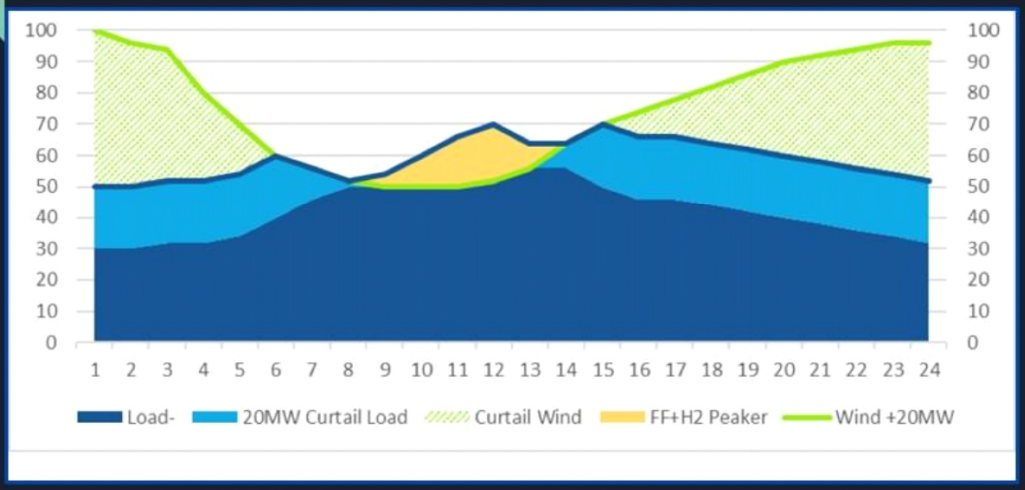
Add Fast- Acting Flexible Load



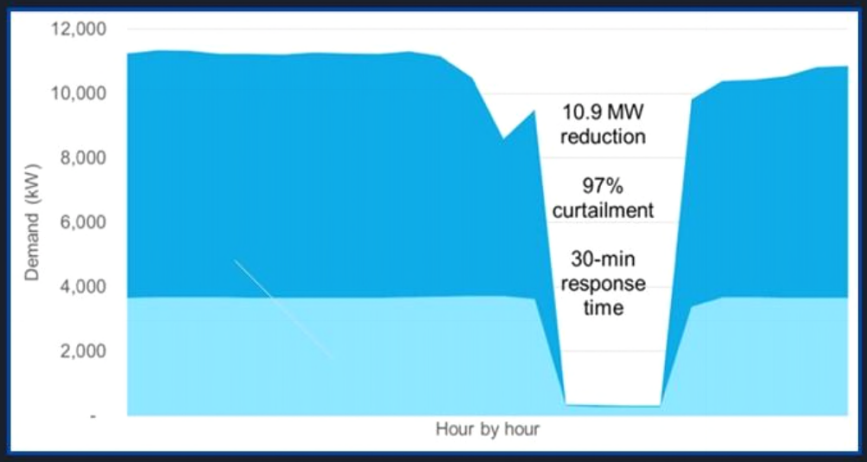
Increase Renewable Energy Capacity



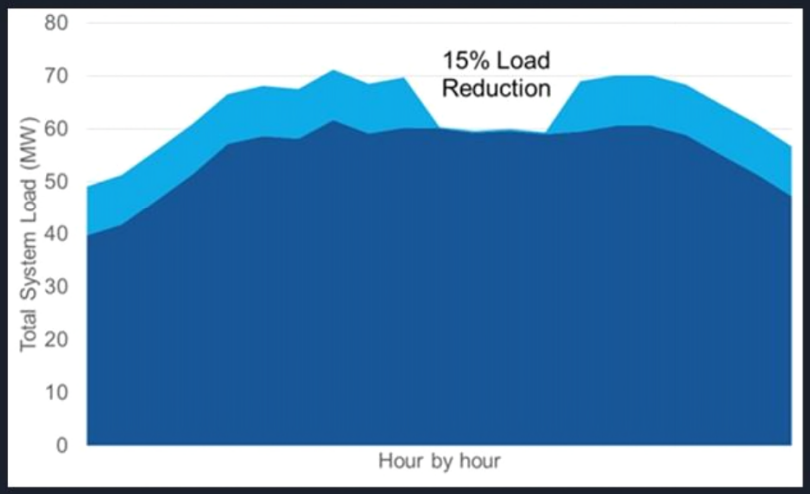
Transition to Sustainable Peaking Plants



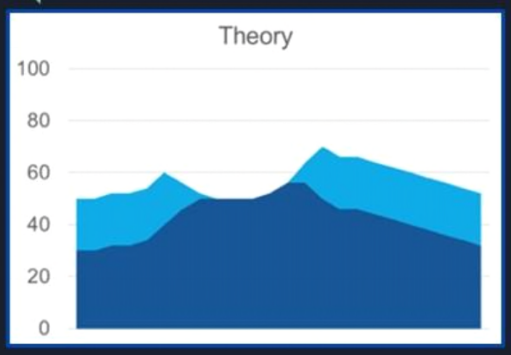
Curtailment Example

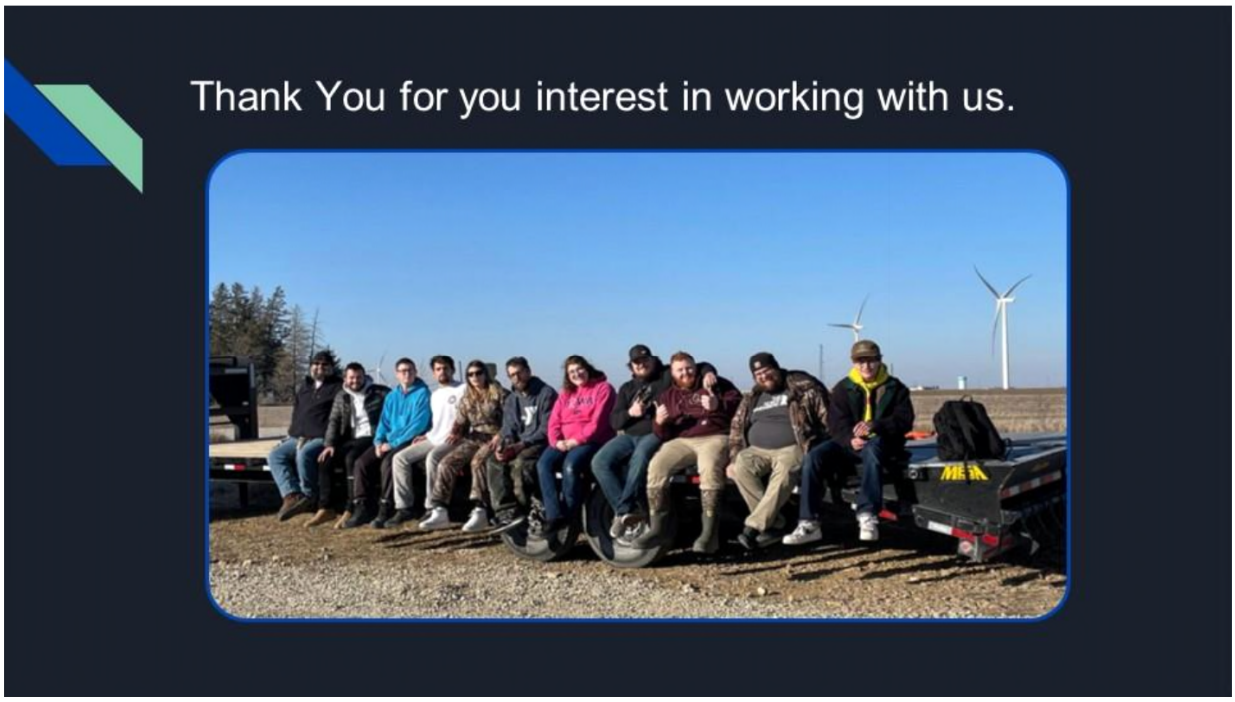


Curtailment Example



2021 Theory vs 2022 Reality




Thank You for you interest in working with us.

ZONING ORDINANCE CRITERIA FOR BOARD APPROVAL

Conditional Use Permits are determined by a review of the following criteria by the Zoning Commission (ZC) and Board of Adjustment (BOA). The ZC makes a recommendation to the BOA which will decide following a public hearing before the Board.

APPLICANT'S DESCRIPTION OF THE PROPOSED CONDITIONAL USE:

The proposed conditional use will be an Operation of Data Processing Business by placing a Demand Response Load Resource next to the Substation in conjunction with Local Electric utility to Support Grid Resiliency. The center would even the supply and demand of power and be located next to a substation under Woodbury Rural Electric Cooperative.

MAP DRAWN TO SCALE, SHOWING THE SUBJECT PROPERTY, ALL STRUCTURES AND OTHER IMPROVEMENTS, WITH THE PROPOSED CONDITIONAL USE IDNTIFIED PER STRUCTURE OF IMPROVEMENT, PROVID BY ATTACHMENT

CRITERIA 1: The conditional use requested is authorized as a conditional use in the zoning district within which the property is located and that any specific conditions or standards described as part of that authorization have been or will be satisfied (Woodbury County Zoning Ordinance, Sec. 2.02-9).

APPLICANT RESPONSE:

The property is currently zoned as agricultural. The applicant, with a lease from the landowner, has received permission to develop a Data Processing Business on the property. The proposed project will be constructed with slab on grades ensuring minimal disruption to the land and compliance with zoning requirements. Historically, a similar project have successfully utilized special use permit for the past year in Woodbury County, demonstrating their compatibility with agricultural zones.

STAFF ANALYSIS:

The Land Use Summary Table (Section 3.03.4) of the Woodbury County Zoning Ordinance does not reference data processing or this specific request by the applicant. However, this can be interpreted under Section 3.03.3 of the Woodbury County Zoning Ordinance as a comparable utility or comparable to the industrial use of research and development laboratories in the sense of business data analysis. Therefore, for the purposes of this request, data processing can be interpreted as a conditional use under section 3.03.3 in the Agricultural Preservation (AP) Zoning District.

CRITERIA 2: The proposed use and development will be in harmony with the general purpose and intent of this ordinance and the goals, objectives and standards of the general plan (Woodbury County Zoning Ordinance, Sec. 2.02-9).

APPLICANT RESPONSE:

The proposed demand response modular data center supports demand side response (DSR), which enhances electricity market efficiency, reduces costs, and improves supply security by utilizing alternative energy sources. The development will create local jobs, contributing to the community's economy and blending urban and rural benefits. Importantly, it will preserve environmental assets, ensuring no waste, runoff, or air pollution, thus maintaining the area's clean air, water, and land.

STAFF ANALYSIS:

This request can be construed to be compatible with the Economic Development Goals and Objectives of the Woodbury County Comprehensive Plan 2040 including "the encouragement of the diversification of Woodbury County's economy…" (p. 53)

CRITERIA 3: The proposed use and development will not have a substantial or undue adverse effect upon adjacent property, the character of the neighborhood, traffic conditions, parking, utility facilities, and other factors affecting the public health, safety and general welfare (Woodbury County Zoning Ordinance, Sec. 2.02-9).

APPLICANT RESPONSE:

The proposed Data Processing Business will not have a substantial or undue adverse effect on adjacent property, neighborhood character, traffic conditions, parking, utility facilities, or public health and safety. Situated in an agricultural area with no nearby neighborhoods, the site is ideal for utilizing excess power from the adjacent substation, which benefits from competitive market rates. The slab-on-grade construction ensures minimal land disruption, preserving the integrity of the surrounding area. The business will employ 2 technicians who will park within the premises, ensuring no impact on local traffic. The site will be securely fenced, further mitigating any potential concerns. This project not only provides additional income for landowners but also benefits the community by efficiently utilizing excess energy from the utility and substation. On days of high energy demand, the site can contribute extra power back to the community, supporting local energy needs and enhancing overall resilience.

STAFF ANALYSIS:

Even though this location has separation distances from single-family dwellings, it will be essential for the applicants to minimize the amount of noise generated from the operations of this facility. The location of this site could discourage future development, however the nearest dwelling is around 1,100 FT north from the site. Other than any potential noise staff does not see any other factor's impacting the neighborhood, traffic, parking, utilities, or other factors affecting health, safety, and welfare. Staff does recommend the use of security fencing and lighting to protect the facility.

CRITERIA 4: The proposed use and development will be located, designed, constructed and operated in such a manner that it will be compatible with the immediate neighborhood and will not interfere with the orderly use, development and improvement of surrounding property (Woodbury County Zoning Ordinance, Sec. 2.02-9).

APPLICANT RESPONSE:

The proposed Data Processing Business will be located, designed, constructed, and operated in a manner that ensures compatibility with the immediate area and does not interfere with the orderly use, development, and improvement of surrounding property. Located in an agricultural area with no nearby neighborhoods, the business will use slab-on-grade construction, ensuring minimal disruption to the land and surrounding properties.

STAFF ANALYSIS:

Measures should be taken to reduce the amount of noise generated from the facility. Staff recommends security fencing and appropriate lighting.

CRITERIA 5: Essential public facilities and services will adequately serve the proposed use or development (Woodbury County Zoning Ordinance, Sec. 2.02-9).

APPLICANT RESPONSE:

By employing local contractors and small businesses, including electricians, concrete workers, dirt work specialists, and builders, we ensure that the construction and ongoing operations are supported by the community. Each site will support two full-time technicians earning an average of $26 per hour, who will also receive health care benefits and company-provided housing and utilities. Additionally, a support staff based in Hardin County will be hired to assist with site development and community relations. This project not only brings in local talent to help build a part of our future but also creates employment opportunities within the community. We plan to offer internships with local colleges to educate students in the technology field.

STAFF ANALYSIS:

This location was selected due to its proximity to Woodbury County REC's electrical substation.

CRITERIA 6: The proposed use or development will not result in unnecessary adverse effects upon any significant natural, scenic or historic features of the subject property or adjacent properties (Woodbury County Zoning Ordinance, Sec. 2.02-9).

APPLICANT RESPONSE:

There will not be disruption to the land, neighborhood, or surrounding property. Although the land is currently zoned as agricultural (rural area with no neighborhood or historic features), it cannot be utilized to its fullest potential due to the substation's location. The location of the site is directly beside the substation, land that is not utilized in the farming culture. Mapping out the site will provide the future farmers with easier access to farming their own land. Healthy balance with traditional agriculture and other business enterprises. The Data Processing Business needs to be close to a substation to use the excess power, and the market has competitive rates. There will not be disruption to the land, neighborhood, or surrounding property.

STAFF ANALYSIS:

This proposal does not appear to significantly impact the items as referenced in Criteria #6.

OTHER CONSIDERATION 1: The proposed use or development, at the particular location is necessary or desirable to provide a service or facility that is in the public interest or will contribute to the general welfare of the neighborhood or community (Woodbury County Zoning Ordinance, Sec. 2.02-9).	
	STAFF ANALYSIS: Locating this business at this location could be construed as adding to the tax-base.

OTHER CONSIDRATION 2: All possible efforts, including building and site design, landscaping and screening have been undertaken to minimize any adverse effects of the proposed use or development (Woodbury County Zoning Ordinance, Sec. 2.02-9).	
	STAFF ANALYSIS: The applicants/property owners should consider measures to secure the property including security fencing and lighting. Efforts should be implemented to mitigate the impact of noise generated from the facility.

WOODBURY COUNTY COMMUNITY AND ECONOMIC DEVELOPMENT

Zoning Ordinance
Section 2.02(9)
Page 1 of 6

CONDITIONAL USE PERMIT APPLICATION

Owner Information:

Owner: ASHLEY ACRES FAMILY LIMITED PARTNERSHIP
Address: 3356 170th St. Correctionville, IA 51016
Phone: (712) 898-7902

Applicant Information:

Applicant: AUR CORRECTIONVILLE LLC
Address: 15988 230th St. Grundy Center, IA 50638
Phone: 877-467-7780

We, the undersigned, hereby apply to the Woodbury County Board of Adjustment for permission to:

To place a demand response load resource next to the substation in conjunction with local electric utility to support grid resiliency.

Property Information:

Property Address or Address Range: N/A

Quarter/Quarter: _____ Sec: 03 Twnshp/Range: 88-44

Parcel ID #: 884403400009 GIS #: _____ Total Acres: 1.5

Current Use: _____ Proposed Use: Operation of Data Processing Business

Current Zoning: Agricultural

The filing of this application is required to be accompanied with all items and information required pursuant to section 2.02(9)(C)(2) through (C)(4) of Woodbury County's zoning ordinances (see attached pages of this application for a list of those items and information).

A formal pre-application meeting is recommended prior to submitting this application.

Pre-app mtg. date: June 28, 2024 Staff present: Daniel Priestley

The undersigned is/are the owners(s) of the described property on this application, located in the unincorporated area of Woodbury County, Iowa, assuring that the information provided herein is true and correct. I hereby give my consent for the Woodbury County Community and Economic Development staff, Zoning Commission and Board of Adjustment members to conduct site visits and photograph the subject property.

This Conditional Use Permit Application is subject to and shall be required, as a condition of final approval, to comply with all applicable Woodbury County ordinances, policies, requirements and standards that are in effect at the time of final approval.

Owner: _____, GP
Date: 7/8/2024

Applicant: JohnPaul Baric JOHNPAUL BARIC
Date: July 08, 2024

Fee: $300* **Case #:** 6997
Check #: CC ending 6294
Receipt #: _____

Date Received

RECEIVED
JUL 12 2024
WOODBURY COUNTY
COMMUNITY & ECONOMIC DEVELOPMENT

PER SECTION 2.02(9)(C)(2 (d) PROVIDE A SPECIFIC DESCRIPTION OF THE PROPOSED CONDITIONAL USE: (Tab at the end of each line to continue)

The proposed conditional use will be an Operation of Data Processing Business by placing a Demand Response Load Resource next to the Substation in conjunction with Local Electric utility to Support Grid Resiliency. The center would even the supply and demand of power and be located next to a substation under Woodbury Rural Electric Cooperative.

PER SECTION 2.02(9) (C)(2)(e) PROVIDE A MAP DRAWN TO SCALE, SHOWING THE SUBJECT PROPERTY, ALL STRUCTURES AND OTHER IMPROVEMENTS, WITH THE PROPOSED CONDITIONAL USE IDENTIFIED PER STRUCTURE OR IMPROVEMENT . PROVIDE BY ATTACHMENT.

PER SECTION 2.02(9) (C)(2)(e) PROVIDE A STATEMENT IN RESPONSE TO EACH OF SIX BELOW CRITEREA AND STANDARDS FOR APPROVAL OF CONDITIONAL USES AS LISTED IN SECTION 2.02(9)F OF THE ORDINANCES. (Tab at the end of each line to continue)

(a) Provide a statement to why you feel the conditional use requested is authorized as a conditional use in the zoning district within which the property is located and that any specific conditions or standards described as part of that authorization have been or will be satisfied.

The property is currently zoned as agricultural. The applicant, with a lease from the landowner, has received permission to develop a Data Processing Business on the property. The proposed project will be constructed with slab on grades ensuring minimal disruption to the land and compliance with zoning requirements. Historically, a similar project have successfully utilized special use permit for the past year in Woodbury County, demonstrating their compatibility with agricultural zones.

(b) Provide a statement to why the proposed use and development will be in harmony with the general purpose and intent of this ordinance and the goals, objectives and standards of the general plan. (Tab at the end of each line to continue)

The proposed demand response modular data center supports demand side response (DSR), which enhances electricity market efficiency, reduces costs, and improves supply security by utilizing alternative energy sources. The development will create local jobs, contributing to the community's economy and blending urban and rural benefits. Importantly, it will preserve environmental assets, ensuring no waste, runoff, or air pollution, thus maintaining the area's clean air, water, and land.

(c) Provide a statement to why the proposed use and development will not have a substantial or undue adverse effect upon adjacent property, the character of the neighborhood, traffic conditions, parking, utility facilities, and other factors affecting the public health, safety and general welfare. (Tab at the end of each line to continue)

The proposed Data Processing Business will not have a substantial or undue adverse effect on adjacent property, neighborhood character, traffic conditions, parking, utility facilities, or public health and safety. Situated in an agricultural area with no nearby neighborhoods, the site is ideal for utilizing excess power from the adjacent substation, which benefits from competitive market rates. The slab-on-grade construction ensures minimal land disruption, preserving the integrity of the surrounding area. The business will employ 2 technicians who will park within the premises, ensuring no impact on local traffic. The site will be securely fenced, further mitigating any potential concerns. This project not only provides additional income for landowners but also benefits the community by efficiently utilizing excess energy from the utility and substation. On days of high energy demand, the site can contribute extra power back to the community, supporting local energy needs and enhancing overall resilience.

(d) Provide a statement to why the proposed use and development will be located, designed, constructed and operated in such a manner that it will be compatible with the immediate neighborhood and will not interfere with the orderly use, development and improvement of surrounding property. (Tab at the end of each line to continue)

The proposed Data Processing Business will be located, designed, constructed, and operated in a manner that ensures compatibility with the immediate area and does not interfere with the orderly use, development, and improvement of surrounding property. Located in an agricultural area with no nearby neighborhoods, the business will use slab-on-grade construction, ensuring minimal disruption to the land and surrounding properties.

(e) Provide a statement to why essential public facilities and services will adequately serve the proposed use or development. (Tab at the end of each line to continue)

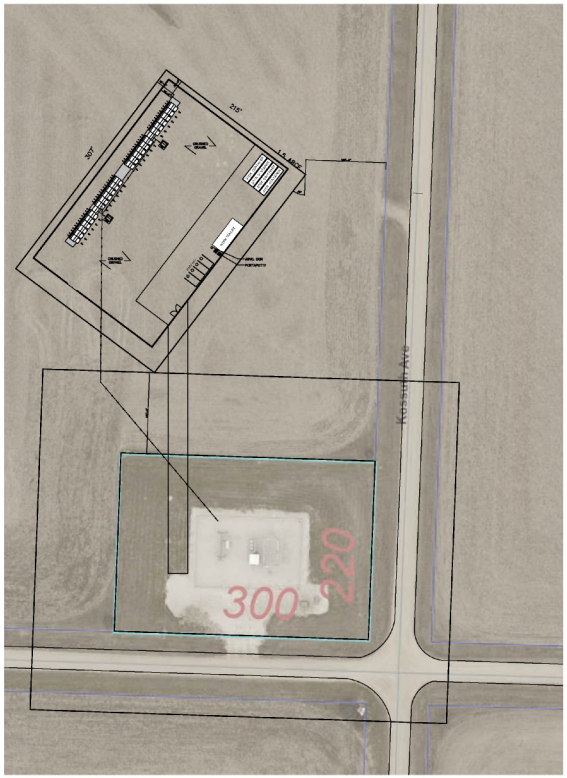
By employing local contractors and small businesses, including electricians, concrete workers, dirt work specialists, and builders, we ensure that the construction and ongoing operations are supported by the community. Each site will support two full-time technicians earning an average of $26 per hour, who will also receive health care benefits and company-provided housing and utilities. Additionally, a support staff based in Hardin County will be hired to assist with site development and community relations. This project not only brings in local talent to help build a part of our future but also creates employment opportunities within the community. We plan to offer internships with local colleges to educate students in the technology field.

(f) Provide a statement to why the proposed use or development will not result in unnecessary adverse effects upon any significant natural, scenic or historic features of the subject property or adjacent properties. (Tab at the end of each line to continue)

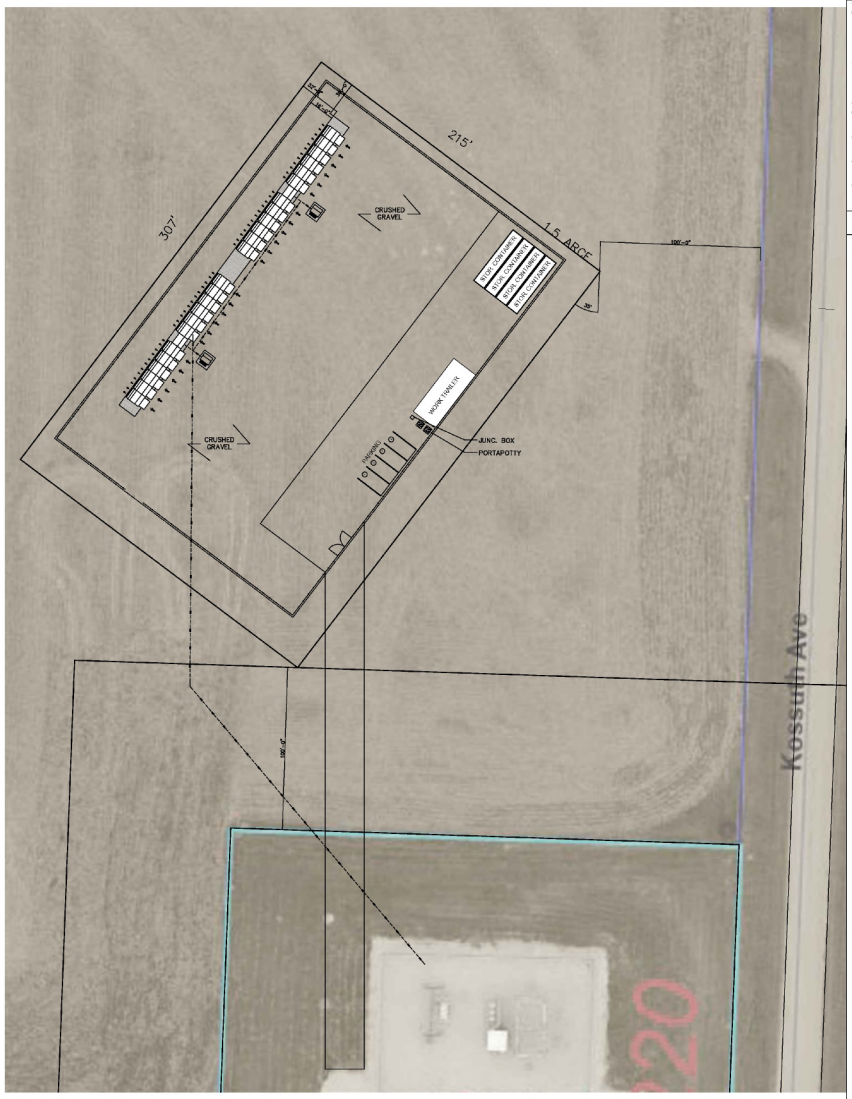
There will not be disruption to the land, neighborhood, or surrounding property. Although the land is currently zoned as agricultural (rural area with no neighborhood or historic features), it cannot be utilized to its fullest potential due to the substation's location. The location of the site is directly beside the substation, land that is not utilized in the farming culture. Mapping out the site will provide the future farmers with easier access to farming their own land. Healthy balance with traditional agriculture and other business enterprises. The Data Processing Business needs to be close to a substation to use the excess power, and the market has competitive rates. There will not be disruption to the land, neighborhood, or surrounding property.

The proposed plan for this project includes the following identified permanent structures and improvements:

Two Transformers
Two POD Strings
Two Storage Containers
One Work Area



1 PROPOSED SITE PLAN
SCALE: 1/8"=1'-0"



2 PROPOSED SITE PLAN
SCALE: 1/32"=1'-0"

NOTE: PROPOSED SITE PLAN FOR REFERENCE ONLY. ACTUAL GRADING CHANGES OF THE SITE TO BE DESIGNED BY A LICENSED CIVIL ENGINEER.

ARCHITECTURAL SITE GENERAL NOTES

ARCHITECTURAL SITE PLAN LEGEND

GENERAL NOTES

KEY PLAN

KEY ELEVATION

NOT FOR CONSTRUCTION

DISCLAIMER

RECIPIENT ACCEPTS THE BIM DATA "AS-IS", WITHOUT ANY EXPRESS OR IMPLIED WARRANTY INCLUDING, WITHOUT LIMITATION, ANY WARRANTY THE BIM DATA IS COMPLETE, TECHNICALLY ACCURATE, FREE OF DEFECTS, AND/OR FIT FOR US AS INTENDED BY RECIPIENT.

Project Name:

MiningStore Iowa
Mining Facility
@Correctionville

Drawing Title:

Proposed Site Plan

Scale:

As Indicated

SK-101.00

31

27

Sioux City Journal

AFFIDAVIT OF PUBLICATION

Sioux City Journal
2802 Castles Gate Drive
Sioux City 51106
(712) 293-4250

State of Pennsylvania, County of Lancaster, ss:

Casey Allen, being first duly sworn, deposes and says: That (s)he is a duly authorized signatory of Column Software, PBC, duly authorized agent of Sioux City Journal, printed and published by Journal Communications, in Sioux City in Woodbury County and issued daily and Sunday and that this affidavit is Page 1 of 1 with the full text of the sworn-to notice set forth on the pages that follow, and the hereto attached:

PUBLICATION DATES:
Jul. 20, 2024

NOTICE ID: YHRFWb4vSYNvrsYQU2vz
PUBLISHER ID: COL-IA-500615
NOTICE NAME: BOA_Data_Process_CUP
Publication Fee: $33.76

Casey Allen
(Signed)_____

VERIFICATION

State of Pennsylvania
County of Lancaster

Commonwealth of Pennsylvania - Notary Seal
Nicole Burkholder, Notary Public
Lancaster County
My commission expires March 30, 2027
Commission Number 1342120

Subscribed in my presence and sworn to before me on this: 07/23/2024

Nicole Burkholder
Notary Public
Notarized remotely online using communication technology via Proof.

NOTICE OF PUBLIC HEARING BEFORE THE WOODBURY COUNTY BOARD OF ADJUSTMENT REGARDING A DATA PROCESSING BUSINESS

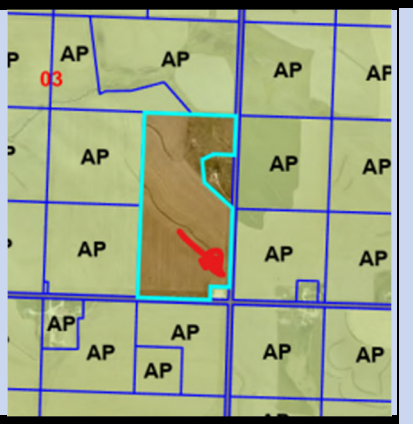
The Woodbury County Board of Adjustment will hold a public hearing on the following item hereafter described in detail on August 5, 2024 at 6:00 PM or as soon thereafter as the matter may be considered. Said hearing will be held in the Board of Supervisors' meeting room in the Basement of the Woodbury County Courthouse, 620 Douglas Street, Sioux City, Iowa. Copies of said item may now be examined at the office of the Woodbury County Community and Economic Development, on the 6th Floor of said courthouse by any interested persons. All persons who wish to be heard in respect to the matter should appear at the aforesaid hearing in person or call: 712-454-1133 and enter the Conference ID: 742 346 123# during the meeting to listen or comment. However, it is recommended to attend in person as there is the possibility for technical difficulties with phone and computer systems.

Item One (1)

Pursuant to Section 335 of the Code of Iowa, the Woodbury County Board of Adjustment will hold a public hearing to consider the Conditional Use Permit application by AUR Correctionville LLC (Applicant) and property owners Ashley Acres Family Limited Partnership who have filed for a Conditional Use Permit application "to place a demand response load resource next to the substation in conjunction with local electric utility to support grid resiliency" for the proposed use to operate a data processing business. The proposed site is on Parcel #884403400009 in T88N R44W (Wolf Creek Township) in Section 3 in the SE ¼ of the SE ¼. The property is located around 6.2 miles southeast of Moville and around 7.7 miles southwest of Correctionville. The property is located in the Agricultural Preservation (AP) Zoning District and is not located in the flood-plain. Owner(s)/Applicant(s): Ashley Acres Family Limited Partnership, 3356 170th St., Correctionville, IA 51016 (Owners) and AUR Correctionville LLC, 15988 230th St., Grundy Center, IA 50638.
COL-IA-500615

PROPERTY OWNER(S) NOTIFICATION

Total Property Owners within 500 FT via Certified Abstractor's Listing:	5
Notification Letter Date:	July 18, 2024
Public Hearing Board:	Board of Adjustment
Public Hearing Date:	August 5, 2024
Phone Inquiries:	1
Written Inquiries:	0
The names of the property owners are listed below.	
When more comments are received after the printing of this packet, they will be provided at the meeting.	



PROPERTY OWNER(S)	MAILING ADDRESS				COMMENTS
Brian & Jo Ann Sadler Joint Revocable Living Trust	3448 160th St.	Correctionville	IA	51016-8113	Phone inquiry from Jo Ann Sadler (7/25/24).Offered concerns about the notification process including the timeframe the letter was received before the Zoning Commission review. The Commissioners should factor in public comments as part of their recommendation.
Bruce B. & Shelly Dawn Sadler	3417 170th St.	Correctionville	IA	51016-8116	No comments
Ashley Acres Family Limited Partnership	3356 170th St.	Correctionville	IA	51016-8115	No comments
Northwest Iowa Power Cooperative	PO Box 240	Le Mars	IA	51031	No comments
Kendall & Lisa Ashley	1665 Kossuth Ave.	Correctionville	IA	51016	No comments

STAKEHOLDER COMMENTS

911 COMMUNICATIONS CENTER:	No comments.
FIBERCOMM:	No comments.
IOWA DEPARTMENT OF NATURAL RESOURCES (IDNR):	No comments.
IOWA DEPARTMENT OF TRANSPORTATION (IDOT):	No comments.
LOESS HILLS NATIONAL SCENIC BYWAY:	No comments.
LOESS HILLS PROGRAM:	No comments.
LONGLINES:	No comments.
LUMEN:	No comments.
MAGELLAN PIPELINE:	No comments.
MIDAMERICAN ENERGY COMPANY (Electrical Division):	I have reviewed the attached conditional use permit for MEC electric and we have, no conflicts. – Casey Meinen, 7/5/24.
MIDAMERICAN ENERGY COMPANY (Gas Division):	No comments.
NATURAL RESOURCES CONSERVATION SERVICES (NRCS):	No comments.
NORTHERN NATURAL GAS:	No comments.
NORTHWEST IOWA POWER COOPERATIVE (NIPCO):	Have reviewed this zoning request. NIPCO has no issues with this request. – Jeff Zettel, 7/15/24.
NUSTAR PIPELINE:	No comments.
SIOUXLAND DISTRICT HEALTH DEPARTMENT:	No comments.
WIATEL:	No comments.
WOODBURY COUNTY ASSESSOR:	No comments.
WOODBURY COUNTY CONSERVATION:	No comments.
WOODBURY COUNTY EMERGENCY MANAGEMENT:	No comments.
WOODBURY COUNTY EMERGENCY SERVICES:	No comments.
WOODBURY COUNTY ENGINEER:	I have no issues with this proposed land use at this location. The change would appear to be consistent with the location of the existing facility already in place. – Mark Nahra, 7/17/24.
WOODBURY COUNTY RECORDER:	No comments. – Diane Swoboda Peterson, 7/3/24.
WOODBURY COUNTY RURAL ELECTRIC COOPERATIVE (REC):	No comments.
WOODBURY COUNTY SOIL AND WATER CONSERVATION DISTRICT:	The WCSWCD has no comments regarding this application. – Neil Stockfleth, 7/3/24.
WOODBURY COUNTY TREASURER:	The Treasurer's office has no comments. – Tina Bertrand, 7/5/24.

Woodbury County, IA / Sioux City

Summary

Parcel ID	884403400009
Alternate ID	
Property Address	N/A
Sec/Twp/Rng	3-88-44
Brief	WOLF CREEK TOWNSHIP E 1/2 OF SE 1/4 OF 3-88-44 (EX TCT IN SE COR OF E ½ OF SE ¼ BEING 300 FT BY 200 FT) AND (EX AN IRREG TCT
Tax Description	DESCRIBED AS COM AT NE COR OF E ½ OF SE ¼ THNC S 552.99 FT TO POB; THNC S 773.97 FT, THNC NW 582.29 FT, THNC NW 314.91 FT, THNC (Note: Not to be used on legal documents)
Deed Book/Page	(6/16/2023)
Gross Acres	70.62
Net Acres	70.62
Zoning	[EMPTY] - [EMPTY]
District	0056 WOLF CREEK/WD-C
School District	WOODBURY CENTRAL
Neighborhood	N/A

Owner

Deed Holder
ASHLEY ACRES FAMILY LIMITED PARTNERSHIP
3356 170TH ST
CORRCTIONVILLE IA 51016-8115
Contract Holder
Mailing Address
ASHLEY ACRES FAMILY LIMITED PARTNERSHIP
3356 170TH ST
CORRCTIONVILLE IA 51016-8115

Land

Lot Area 70.62 Acres ;3,076,207 SF

Agricultural Buildings

Plot #	Type	Description	Width	Length	Year Built	Building Count
	Barn - Pole		18	72	2006	1

Valuation

		2024	2023
	Classification	Agriculture	Agriculture
+	Assessed Land Value	$151,370	$129,660
+	Assessed Building Value	$3,040	$0
+	Assessed Dwelling Value	$0	$0
=	**Gross Assessed Value**	**$154,410**	**$129,660**
-	Exempt Value	$0	$0
=	**Net Assessed Value**	**$154,410**	**$129,660**

Sioux City Special Assessments and Fees

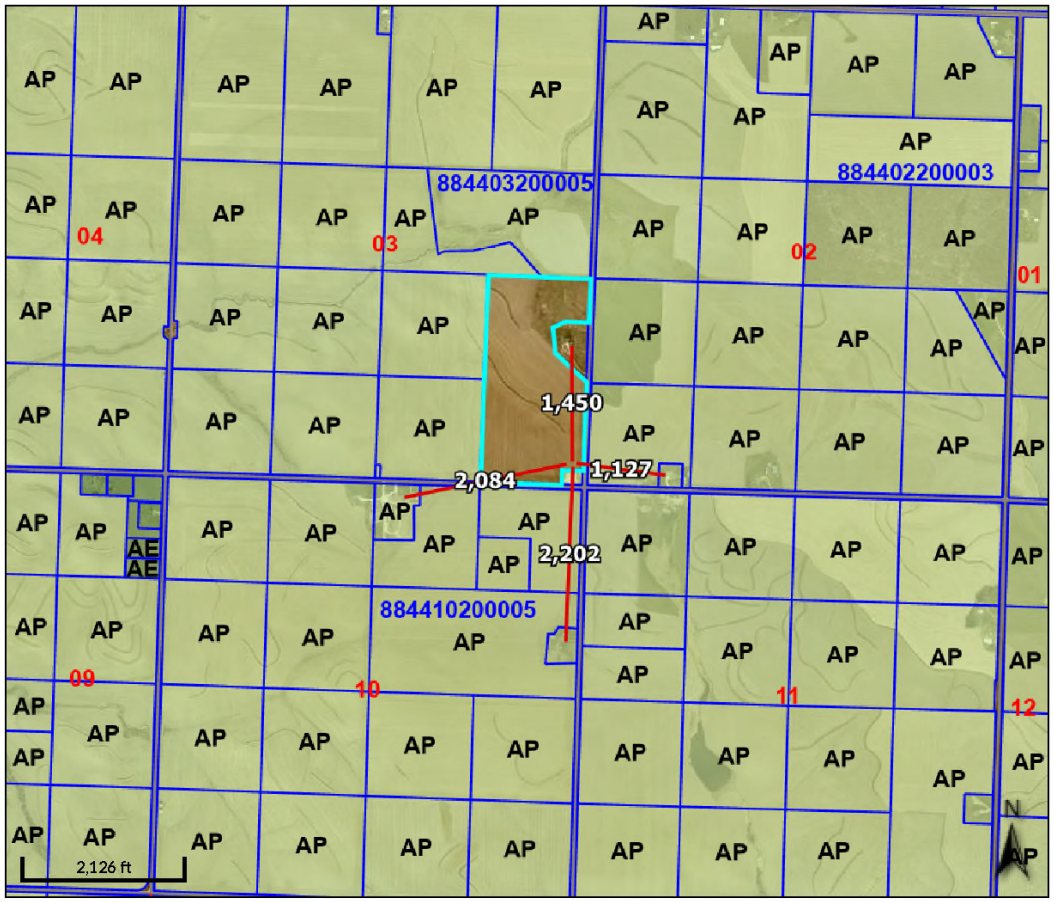
Click here to view special assessment information for this parcel.

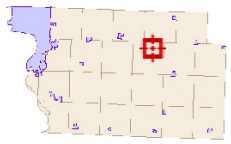
Woodbury County Tax Credit Applications

Apply for Homestead, Military or Business Property Tax Credits

No data available for the following modules: Residential Dwellings, Commercial Buildings, Yard Extras, Sales, Permits, Sioux City Tax Credit Applications, Sioux City Board of Review Petition, Photos, Sketches.

Beacon™ Woodbury County, IA / Sioux City





Overview

Legend

- Roads
- Corp Boundaries
- Townships
- Sections
- Parcels

County Zoning

- AE
- AP
- GC
- GC-PD
- GI
- LI
- LI-PD
- SR
- WR

Parcel ID	884403400009	**Alternate ID**	n/a	**Owner Address**	ASHLEY ACRES FAMILY LIMITED PARTNERSHIP
Sec/Twp/Rng	03-88-44	**Class**	A		3356 170TH ST
Property Address		**Acreage**	70.62		CORRCTIONVILLE, IA 51016-8115
District	0056				

Brief Tax Description WOLF CREEK TOWNSHIP E 1/2 OF SE 1/4 OF 3-88-44 (EX TCT IN SE COR OF E ½ OF SE ¼ BEING 300 FT BY 200 FT) AND (EX AN IRREG TCT DESCRIBED AS COM AT NE COR OF E ½ OF SE ¼ THNC S 552.99 FT TO POB; THNC S 773.97 FT, THNC NW 582.29 FT, THNC NW 314.91 FT, THNC

(Note: Not to be used on legal documents)

Date created: 7/2/2024
Last Data Uploaded: 7/2/2024 12:19:36 AM

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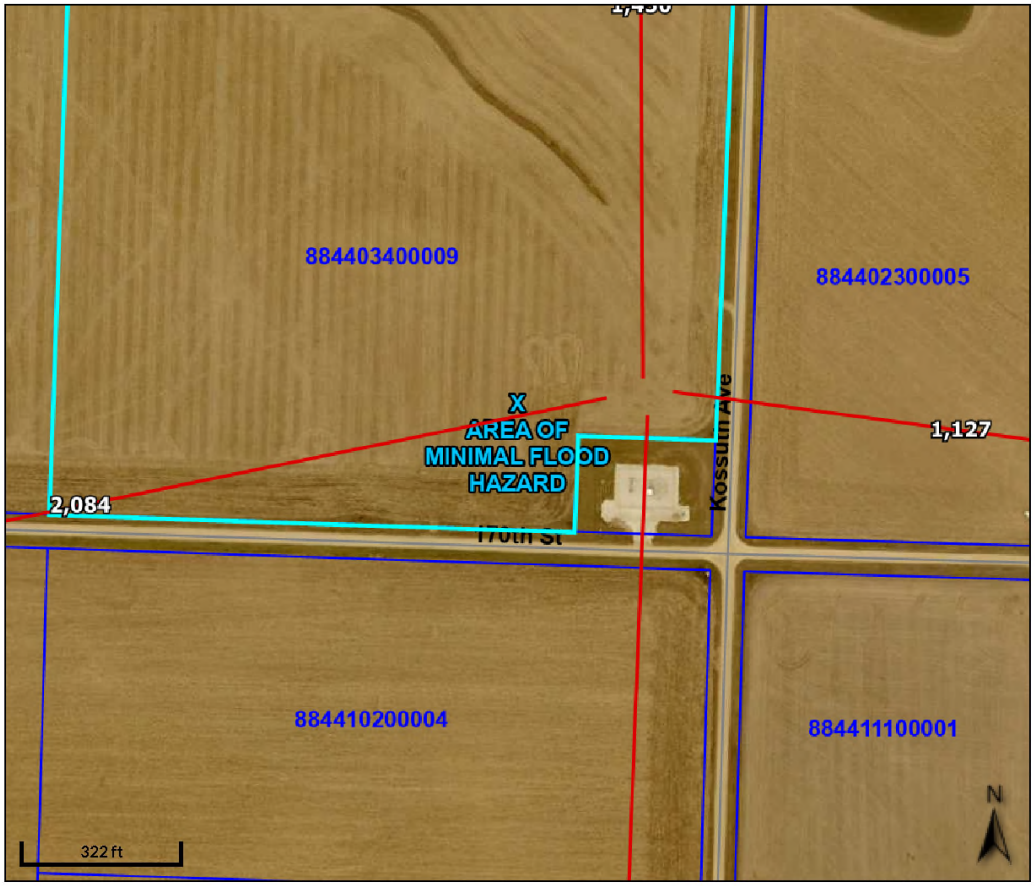
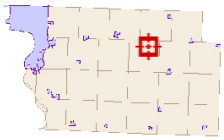


Overview



Legend

- Roads
- Corp Boundaries
- Townships
- Parcels

FEMA Flood Map (Preliminary)

- A,
- AE,
- AE, FLOODWAY
- AH,
- AO,
- X, 0.2 PCT ANNUAL CHANCE FLOOD HAZARD
- X, AREA WITH REDUCED FLOOD RISK DUE TO LEVEE

Parcel ID	884403400009	**Alternate ID**	n/a	**Owner Address**	ASHLEY ACRES FAMILY LIMITED PARTNERSHIP
Sec/Twp/Rng	03-88-44	**Class**	A		3356 170TH ST
Property Address		**Acreage**	70.62		CORRCTIONVILLE, IA 51016-8115
District	0056				

Brief Tax Description WOLF CREEK TOWNSHIP E 1/2 OF SE 1/4 OF 3-88-44 (EX TCT IN SE COR OF E ½ OF SE ¼ BEING 300 FT BY 200 FT) AND (EX AN IRREG TCT DESCRIBED AS COM AT NE COR OF E ½ OF SE ¼ THNC S 552.99 FT TO POB; THNC S 773.97 FT, THNC NW 582.29 FT, THNC NW 314.91 FT, THNC

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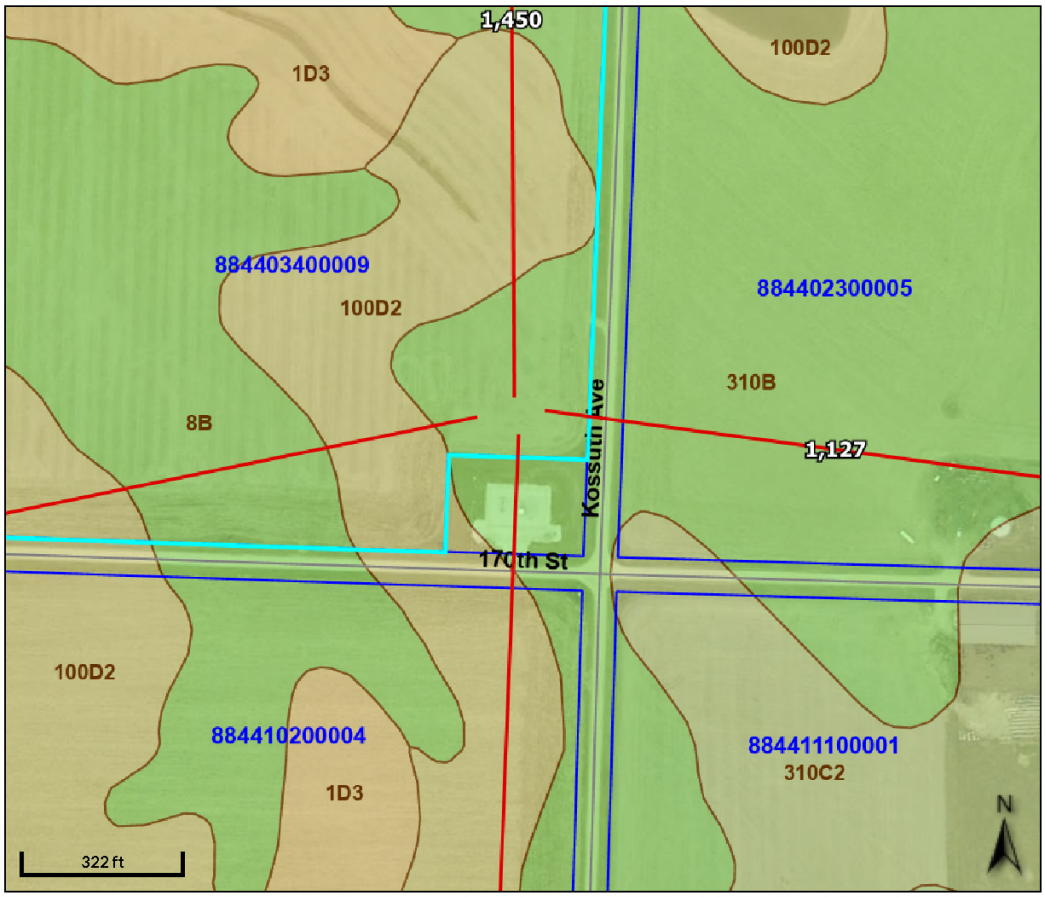
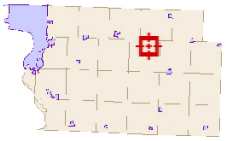
ELEVATION MAP

Beacon™ Woodbury County, IA / Sioux City



Overview



Legend

- Roads
- Soils
  - 0.000000 - 5.000000
  - 5.000001 - 20.000000
  - 20.000001 - 30.000000
  - 30.000001 - 40.000000
  - 40.000001 - 50.000000
  - 50.000001 - 60.000000
  - 60.000001 - 70.000000
  - 70.000001 - 80.000000
  - 80.000001 - 90.000000
  - 90.000001 - 100.000000
- Corp Boundaries
- Townships
- Parcels

Parcel ID	884403400009	**Alternate ID**	n/a	**Owner Address**	ASHLEY ACRES FAMILY LIMITED PARTNERSHIP
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SOIL REPORT(S)

Currently, no soil report is on file for this parcel on the Beacon Assessor's site. Based on the mapping, the property is composed of the following soils:

Iowa Corn Suitability Rating CSR2 (IA)

Map unit symbol	Map unit name	Rating	Acres in A
100D2	Monona silty clay loam, 9 to 14 percent slopes, eroded	60	
310B	Galva silty clay loam, 2 to 5 percent slopes	95	

Excerpt from Natural Resources Conservation Services (NRCS)

Source: https://websoilsurvey.sc.egov.usda.gov/WssProduct/m0xjoogycpt4nnmiixblsnsc/m0xjoogycpt4nnmiixblsnsc/20240702_11171611628_56_Iowa_Corn_Suitability_Rating_CSR2_IA.pdf

NUCLEAR ENERGY DIRECTION FROM THE BOARD OF SUPERVISORS (INFORMATION / DISCUSSION ITEM) SUMMARY: The Woodbury County Board of Supervisors at their meeting on July 2, 2024 voted to direct the Zoning Commission to begin the process of exploring nuclear energy as a potential energy option in Woodbury County. This information item is for a preliminary discussion on how to proceed with future work sessions and public hearings.

Initial Information about Nuclear

The following is provided for initial informational purposes. The goal is to examine both standard nuclear power plants and small modular reactors as potential energy opportunities in the unincorporated areas in Woodbury County. The following articles are again provided to begin the exploration of nuclear technology.

Nuclear Power Plant –

- A nuclear power plant is a thermal power station that harnesses energy from nuclear fuel fission. Here's how it works: the heat released during fission boils water, producing steam. This steam drives a turbine connected to a generator, ultimately producing electricity.

Small Modular Reactors (SMR) –

- Type of advanced nuclear reactor designed to be smaller in size and capacity compared to traditional nuclear reactors.
- Characteristics:
    - Small Size. SMRs have a power capacity of up to 30 MW per unit, which is about one-third of the capacity of conventional nuclear reactors.
    - Modular Construction. These reactors are designed to be factory-assembled and transported to the site for installation.
    - Flexibility. SMRs can be deployed in single or multiple modules, making them suitable for a variety of application, including industrial use and remote areas with limited grid capacity.
    - Safety. Many SMR designs incorporate passive safety features, which rely on natural physical processes rather than active controls to ensure safety.

Articles Enclosed:

- *Nuclear Power Plan Licensing Process*
    - https://www.nrc.gov/reading-rm/doc-collections/fact-sheets/licensing-process-fs.html
- *Office of Nuclear Material Safety and Safeguards*
    - https://scp.nrc.gov/
- *Governing Legislation*
    - www.nrc.gov/about-nrc/governing-laws.html
- Fact Sheet: Biden-Harris Administration Announces New Steps to Bolster Domestic Nuclear Industry and Advance America's Clean Energy Future
    - https://www.whitehouse.gov/briefing-room/statements-releases/2024/05/29/fact-sheet-biden-harris-administration-announces-new-steps-to-bolster-domestic-nuclear-industry-and-advance-americas-clean-energy-future/
- *Without a plant currently operating in Iowa, does nuclear energy have a future in the state?*
    - https://www.weareiowa.com/article/tech/science/climate-change/nuclear-energy-in-iowa-future-developments-midamerican/524-aaed2ac4-7c3b-406a-a84b-c6e356b181ee
- *Newly Signed Bill Will Boost Nuclear Reactor Deployment in the United States*
    - https://www.energy.gov/ne/articles/newly-signed-bill-will-boost-nuclear-reactor-deployment-united-states#:~:text=President%20Biden%20signed%20the%20Fire,t%20seen%20since%20the%201970s.
- *What is a Nuclear Microreactor?*
    - https://www.energy.gov/ne/articles/what-nuclear-microreactor
- Micro-reactor Pilot Program
    - https://www.eielson.af.mil/microreactor/
- Project PELE Mobile Nuclear Reactor
    - https://www.cto.mil/pele_eis/
- NRC Dockets Construction Permit Application for TerraPower's Natrium Reactor
    - https://www.energy.gov/ne/articles/nrc-dockets-construction-permit-application-terrapowers-natrium-reactor
- What is High-Assay Low-Enriched Uranium (HALEU)?
    - https://www.energy.gov/ne/articles/what-high-assay-low-enriched-uranium-haleu
- 4 Crucial Steps the Biden-Harris Administration is Taking to Secure a Nuclear Fuel Supply Chain
    - https://www.energy.gov/ne/articles/4-crucial-steps-biden-harris-administration-taking-secure-nuclear-fuel-supply-chain
- New DOE and NRC Agreement Will Lead to Faster Deployment and Licensing of U.S. Nuclear Technologies
    - https://www.energy.gov/ne/articles/new-doe-and-nrc-agreement-will-lead-faster-deployment-and-licensing-us-nuclear
- What are Small Modular Reactors (SMRs)?
    - https://www.iaea.org/newscenter/news/what-are-small-modular-reactors-smrs
- Small modular reactors
    - https://www.iaea.org/topics/small-modular-reactors

WOODBURY COUNTY BOARD OF SUPERVISORS AGENDA ITEM(S) REQUEST FORM

Date: 6/27/24 Weekly Agenda Date: 7/2/24

ELECTED OFFICIAL / DEPARTMENT HEAD / CITIZEN: Supervisor Keith Radig

WORDING FOR AGENDA ITEM:

Motion to direct the Zoning Commission to look at the zoning of nuclear energy.

ACTION REQUIRED:

Approve Ordinance ☐ Approve Resolution ☐ Approve Motion ☑

Public Hearing ☐ Other: Informational ☐ Attachments ☐

EXECUTIVE SUMMARY:

This directs the Zoning Commission to look at the zoning of nuclear energy as a potential energy option in Woodbury County.

BACKGROUND:

The Zoning Commission shall explore the zoning potential of nuclear energy as a potential option.

FINANCIAL IMPACT:

0

IF THERE IS A CONTRACT INVOLVED IN THE AGENDA ITEM, HAS THE CONTRACT BEEN SUBMITTED AT LEAST ONE WEEK PRIOR AND ANSWERED WITH A REVIEW BY THE COUNTY ATTORNEY'S OFFICE?

Yes ☐ No ☐

RECOMMENDATION:

Approve the motion.

ACTION REQUIRED / PROPOSED MOTION:

Motion to direct the Zoning Commission to look at the zoning of nuclear energy.

Approved by Board of Supervisors April 5, 2016

BACKGROUNDER

Office of Public Affairs

Nuclear Power Plant Licensing Process

The Nuclear Regulatory Commission licenses and regulates the operation of U.S. commercial nuclear power plants. Currently operating nuclear power plants were licensed under a two-step process described in Title 10 of the Code of Federal Regulations (10 CFR) under Part 50. This process requires both a construction permit and an operating license.

The NRC worked to improve regulatory efficiency and add greater predictability to the process by establishing an alternative licensing process, 10 CFR Part 52, in 1989. Part 52 includes a combined license that provides a construction permit and an operating license with conditions for plant operation.

Construction oversight

Other licensing options under Part 52 include Early Site Permits, where applicants can obtain approval for a reactor site without specifying the design of the reactor(s) that could be built there, and certified standard plant designs, which can be used as pre-approved designs.

In either Part 50 or 52, NRC approval is necessary before a nuclear power plant can be built and operated. The NRC maintains oversight of the construction and operation of a facility throughout its lifetime to ensure the plant complies with the agency's regulations for the protection of public health and safety, the common defense and security, and the environment.

Two-Step Licensing Process (10 CFR Part 50)

All nuclear power plant applications must undergo an NRC safety review, environmental review and an antitrust review.

In order to construct or operate a nuclear power plant, an applicant must submit a Safety Analysis Report. This document contains the design information and criteria for the proposed reactor, and comprehensive data on the proposed site. It also discusses various hypothetical accident situations and the safety features of the plant that would prevent accidents or lessen their effects. In addition, the application must contain a comprehensive assessment of the environmental impact of the proposed plant. A prospective licensee also must submit information for antitrust reviews of the proposed plant.

When a company applies for permission to construct a nuclear plant, the NRC staff first determines whether the application contains enough information to accept it and begin a detailed review.

If the NRC accepts the application, the agency holds a public meeting near the proposed site to familiarize the public with the safety and environmental aspects of the proposed application, including the planned location and type of plant, the regulatory process, and the terms for public participation in the licensing process. Several public meetings of this type are held during reactor licensing reviews.

All documents and correspondence related to the application are placed in the agency document database, ADAMS, and in the NRC Public Document Room located in Rockville, Md. The NRC uses press releases and social media to inform relevant federal, state, and local officials, as well as news outlets near the proposed plant, about receipt of the application. The agency also publishes a notice of receipt of the application in the *Federal Register*.

The NRC staff then reviews the application to determine whether the plant design meets all applicable regulations (10 CFR Parts 20, 50, 73, and 100). The review includes, in part:

- site characteristics, such as surrounding population, seismology, meteorology, geology and hydrology;
- design of the nuclear plant;
- the plant's anticipated response to hypothetical accidents;
- plant operations, including the applicant's technical qualifications to operate the plant;
- discharges from the plant into the environment (i.e., radiological effluents); and
- emergency plans.

The NRC summarizes its review in a Safety Evaluation Report on the proposed facility's anticipated effect on public health and safety.

The Advisory Committee on Reactor Safeguards, an independent group that provides advice on reactor safety to the five-member Commission, reviews each application to construct or operate a nuclear power plant. The ACRS review begins early in the licensing process, and a series of meetings with the applicant and the NRC staff are held at appropriate times in the review process. When the ACRS has completed its review, it submits the results in a report to the Commission via a letter to the Chairman of the NRC.

The NRC follows the National Environmental Policy Act by reviewing and evaluating the potential environmental impacts and benefits of the proposed plant. The agency summarizes this review in a Draft Environmental Impact Statement for comment by the appropriate federal, state, and local agencies as well as by the public. Afterwards, the agency issues a Final Environmental Impact Statement that addresses all comments received.

The Atomic Energy Act requires that a public hearing be held before a construction permit is issued for a nuclear power plant. This hearing is conducted by a three-member Atomic Safety and Licensing Board (one lawyer, who acts as chairperson, and two technically qualified persons). Members of the public may submit written or oral statements to the licensing board to be entered into the hearing record, or they may petition to intervene as full parties in the hearing.

The NRC may authorize the licensee to do some activities at the site prior to the issuance of a construction permit. This Limited Work Authorization excludes any nuclear safety-related activities and the licensee would have to restore the site if the permit is rejected. This authorization may be granted only after the licensing board acknowledges all of the NEPA findings required by the Commission's regulations for authorizing construction. The board must also determine there is reasonable assurance that the proposed site is a suitable location, from a radiological health and safety standpoint, for a nuclear power reactor of the general size and type proposed.

The applicant must submit a Final Safety Analysis Report to support its application for an operating license. This report describes the final design of the facility, as well as its operational and emergency procedures. The NRC prepares a Final Safety Evaluation report for the operating license, and the ACRS makes an independent evaluation and presents its advice to the Commission.

A public hearing is not mandatory or automatic for operating license applications. However, the NRC's publication of a *Federal Register* notice on accepting an application for an operating license provides the public an opportunity for those whose interests might be affected by the issuance of the license to request a hearing. If a public hearing is held it follows the process described earlier.

Combined License (10 CFR Part 52)

New Reactor Licensing Process

A combined license under Part 52 authorizes construction of the facility much like a construction permit would under Part 50's two-step process. A combined license application must contain essentially the same information required in an application for an operating license issued under Part 50 and specify the inspections, tests, and analyses that the applicant must perform. It also specifies acceptance criteria necessary to provide reasonable assurance that the facility has been constructed and will be operated in agreement with the license and applicable regulations. If the application does not reference an early site permit or design certification (see below), then the NRC reviews the technical and environmental information as described for the two-step licensing process. There is also a mandatory hearing for a combined license.

After issuing a combined license, the Commission authorizes operation of the facility only after verifying that the licensee completed required inspections, tests, and analyses and that acceptance criteria were met. The NRC publishes notices of these completions in the *Federal Register*. At least 180 days prior to the date scheduled for initial loading of fuel, the NRC will publish a notice of intended operation of the facility in the *Federal Register*. There is a limited opportunity for a hearing at this time, only for petitions that demonstrate the licensee has not met or will not meet the acceptance criteria.

Early Site Permits

An early site permit resolves site safety, environmental protection, and emergency preparedness issues independent of a specific nuclear plant design. The early site permit application must address the safety and environmental characteristics of the site and evaluate potential obstacles to developing an acceptable emergency plan. The application covers the following information:

- site boundaries;
- seismic, meteorologic, hydraulic and geologic data;
- existing and projected future population of the surrounding area;
- evaluation of alternative sites;
- proposed general location of each plant planned to be on the site;
- number, type and power level of the plants planned for the site;
- maximum discharges from the plant;
- type of plant cooling system to be used;
- radiation dose consequences of hypothetical accidents; and
- plans for coping with emergencies.

The NRC documents its findings on site safety characteristics and emergency planning in a Safety Evaluation Report and on environmental protection issues in Draft and Final Environmental Impact Statements.

Mandatory hearing conducted by the Commission

An early site permit can also allow for a limited work authorization to perform non-safety site preparation activities before a combined license is issued. After the NRC staff and the ACRS complete their safety reviews, the NRC issues a *Federal Register* notice for a mandatory public hearing. The early site permit is initially valid for no less than 10 and no more than 20 years and can be renewed for 10 to 20 years.

Design Certification

The NRC may approve and certify a standard nuclear plant design through a rulemaking, independent of a specific site. The design certification is valid for 15 years. A design certification application must contain proposed inspections, tests, analyses, and acceptance criteria for the standard design. The application must also demonstrate how the applicant complies with the Commission's relevant regulations.

The NRC bases its safety review of the application primarily on the information submitted by the applicant. An application must contain enough design information for the Commission to reach a final

conclusion on all safety questions associated with the design. In general terms, a design certification application should provide an essentially complete nuclear plant design, with the exception of some site-specific design features.

The application presents the design basis, the limits on operation, and a safety analysis of structures, systems, and components of the facility as a whole. The scope and contents of the application are equivalent to the level of detail found in a Final Safety Analysis Report for a currently operating plant. The NRC's Safety Evaluation Report summarizes its review of the plant design and how the design meets applicable regulations.

The ACRS reviews each application for a standard design certification, together with the NRC staff's safety evaluation report, in a public meeting. Upon determining that the application meets the relevant standards and requirements of the Atomic Energy Act and the Commission's regulations, the Commission drafts a rule to issue the standard design certification as an appendix to the 10 CFR Part 52 regulations. Members of the public may submit written or oral comments on the proposed design certification rule.

The issues resolved in a design certification rulemaking are more difficult to change than issues resolved under other licensing processes. The NRC cannot modify a certified design unless it finds that the design does not meet the applicable regulations in effect at the time of the design certification, or it is necessary to modify the design to assure adequate protection of the public health and safety.

An application for a combined license under 10 CFR Part 52 can incorporate by reference a design certification and/or an early site permit. The advantage of this approach is that the issues resolved during the design certification rulemaking and the early site permit hearing processes are precluded from reconsideration later at the combined license stage.

More information about these licensing processes is available on the NRC website.

July 2020

Office of Nuclear Material Safety and Safeguards

NRC working with Federal, State, local governments, and Native American Tribes

The Office of Nuclear Material Safety and Safeguards (NMSS) is responsible for establishing and maintaining effective communications and working relationship between the NRC and States, local government, other Fe agencies and Native American Tribal Governments. NMSS serves as the primary contact for policy matters be NRC and these government groups and keeps these groups informed of NRC activities. It keeps the Agency appraised of these groups' acovities as they may affect NRC and conveys to NRC management these groups' toward NRC policies, plans, and activities.

The Division of Nuclear Materials Safety, Security, State and Tribal Programs (MSST) in NMSS, along with oth Headquarters and Regional Offices implement day-to-day activities in the Agreement State Program, State L Program, and Tribal Liaison Program.

Agreement State Program

The State Agreement and Liaison Programs Branch implements the Agreement State Program that prov program direction and guidance in the following areas: the Integrated Materials Performance Evaluation Program (IMPEP), States intending to become Agreement States or amending their Agreements, [Expa

Federal and State Liaison Programs

The State Agreement and Liaison Programs Branch also implements the Federal and State Liaison Programs and works in cooperation with Federal, State, local governments, and interstate organizations the Federal and State Liaison Program, this cooperation ensures that the NRC maintains effective [Expa

Tribal Liaison Program

The Material Safety Licensing and Tribal Branch implements the Tribal Liaison Program. The NRC acknov the sovereign rights of Federally-recognized Native American Tribal governments. Under the Tribal Liaisc Program, the NRC maintains government-to-government communications with those [Expand]

Agreement & Non-Agreement States

Click on a given state (or state code listed below) for information on its Regulation Status, legislation, contac information, State Agreement, and Program Reviews.

AK • AL • AR • AZ • CA • CO • CT • DC • DE • FL • GA • GU • HI • IA • ID • IL • IN • KS • KY • LA • MA

Page last modified on Friday June 16 2023

Governing Legislation

The NRC was established by the Energy Reorganization Act of 1974. A summary and a text of this law, as well as other key laws that govern our operations, are provided below. The texts of other laws may be found in Nuclear Regulatory Legislation [/reading-rm/doc-collections/nuregs/staff/sr0980/] (NUREG-0980).

This page includes links to files in non-HTML format. See Plugins, Viewers, and Other Tools [/site-help/plug-ins.html] for more information.

On this page

Fundamental Laws Governing Civilian Uses of Nuclear Materials and Facilities

Atomic Energy Act of 1954, as Amended (summary below [#atomic] , full-text version [/docs/ML1327/ML13274A489.pdf#page=23])

- Energy Reorganization Act of 1974 (summary below [#energy] , full-text version [/docs/ML1327/ML13274A489.pdf#page=241])
- Reorganization Plans (summary below [#reorg-plans] , full-text version [/docs/ML1327/ML13274A489.pdf#page=275])

Nuclear Waste

- Nuclear Waste Policy Act of 1982 (summary below [#nwpa-1982] , full-text version [/docs/ML1327/ML13274A489.pdf#page=419])
- Low-Level Radioactive Waste Policy Amendments Act of 1985 (summary below [#llrwpaa-1985] , full-text version [/docs/ML1327/ML13274A489.pdf#page=295])
- Uranium Mill Tailings Radiation Control Act of 1978 (summary below [#umtrca-1978] , full-text version [/docs/ML1327/ML13274A489.pdf#page=507])

Non-Proliferation

- Nuclear Non-Proliferation Act of 1978 (summary below [#nnpa-1978] , full-text version [/docs/ML1327/ML13274A492.pdf#page=19])

Fundamental Laws Governing the Processes of Regulatory Agencies

- Administrative Procedure Act (5 U.S.C. Chapters 5 through 8) (summary below [#apa-5usc-ch3-8] , full-text version [/docs/ML1327/ML13274A490.pdf#page=69])
- National Environmental Policy Act (summary below [#natl-environ-policy-act] , full-text version [/docs/ML1327/ML13274A490.pdf#page=488])

Atomic Energy Act of 1954, as Amended in NUREG-0980

This Act is the fundamental U.S. law on both the civilian and the military uses of nuclear materials. On the civilian side, it provides for both the development and the regulation of the uses of nuclear materials and facilities in the United States, declaring the policy that "the development, use, and control of atomic energy shall be directed so as to promote world peace, improve the general welfare, increase the standard of living, and strengthen free competition in private enterprise." The Act requires that civilian uses of nuclear materials and facilities be licensed, and it empowers the NRC to establish by rule or order, and to enforce, such standards to govern these uses as "the Commission may deem necessary or desirable in order to protect health and safety and minimize danger to life or property." Commission action under the Act must conform to the Act's procedural requirements, which provide an opportunity for hearings and Federal judicial review in many instances.

Under section 274 of the Act, the NRC may enter into an agreement with a State for discontinuance of the NRC's regulatory authority over some materials licensees within the State. The State must first show that its regulatory program is compatible with the NRC's and adequate to protect public health and safety. The NRC retains authority over, among other things, nuclear power plants within the State and exports from the State.

A major amendment to the Act established compensation for, and limits on, licensee liability for injury to off-site persons or damage to property caused by nuclear accidents.

(full-text version [/docs/ML1536/ML15364A497.pdf#page=23])

Energy Reorganization Act of 1974

This Act established the Nuclear Regulatory Commission. Under the Atomic Energy Act of 1954, a single agency, the Atomic Energy Commission, had responsibility for the development and production of nuclear weapons and for both the development and the safety regulation of the civilian uses of nuclear materials. The Act of 1974 split these functions, assigning to one agency, now the Department of Energy, the responsibility for the development and production of nuclear weapons, promotion of nuclear power, and other energy-related work, and assigning to the NRC the regulatory work, which does not include regulation of defense nuclear facilities. The Act of 1974 gave the Commission its collegial structure and established its major offices. The later amendment to the Act also provided protections for employees who raise nuclear safety concerns.

(full-text version) [/docs/ML1327/ML13274A489.pdf#page=241]

Reorganization Plans

Reorganization Plan No. 3 of 1970 established the U.S. Environmental Protection Agency (EPA) and gave it a role in establishing "generally applicable environmental standards for the protection of the general environment from radioactive material."

Reorganization Plan No. 1 of 1980 strengthened the executive and administrative roles of the NRC Chairman, particularly in emergencies, transferring to the Chairman "all the functions vested in the Commission pertaining to an emergency concerning a particular facility or materials ... regulated by the Commission." This Reorganization Plan also provided that all policy formulation, policy-related rulemaking, and orders and adjudications would remain vested with the full Commission.

(full-text version [/docs/ML1327/ML13274A489.pdf#page=275])

Nuclear Waste Policy Act of 1982, as Amended

This Act establishes both the Federal government's responsibility to provide a place for the permanent disposal of high-level radioactive waste and spent nuclear fuel, and the generators' responsibility to bear the costs of permanent disposal. Amendments to the Act have focused the Federal government's efforts, through the Department of Energy, regarding a possible site at Yucca Mountain, Nevada.

(full-text version [/docs/ML1327/ML13274A489.pdf#page=419])

Low-Level Radioactive Waste Policy Amendments Act of 1985

This Act gives States the responsibility to dispose of low-level radioactive waste generated within their borders and allows them to form compacts to locate facilities to serve a group of States. The Act provides that the facilities will be regulated by the NRC or by States that have entered into Agreements with the NRC under section 274 of the Atomic Energy Act. The Act also requires the NRC to establish standards for determining when radionuclides are present in waste streams in sufficiently low concentrations or quantities as to be "below regulatory concern."

(full-text version [/docs/ML1327/ML13274A489.pdf#page=295])

Uranium Mill Tailings Radiation Control Act of 1978

This Act establishes programs for the stabilization and control of mill tailings at uranium or thorium mill sites, both active and inactive, in order to prevent or minimize, among other things, the diffusion of radon into the environment. Title II of the Act gives the NRC regulatory authority over mill tailing at sites under NRC license on or after January 1, 1978.

(full-text version [/docs/ML1327/ML13274A489.pdf#page=507])

Nuclear Non-Proliferation Act of 1978

This Act seeks to limit the spread of nuclear weapons by, among other things, establishing criteria governing U.S. nuclear exports licensed by the NRC and taking steps to strengthen the international safeguards system.

(full-text version [/docs/ML1327/ML13274A492.pdf#page=19])

Administrative Procedure Act (5 U.S.C. Chapters 5 through 8)

This Act is the fundamental law governing the processes of Federal administrative agencies. Its original focus was on rulemaking and adjudication. It requires, for example, that affected persons be given adequate notice of proposed rules and an opportunity to comment on the proposed rules and that, in cases in which another statute requires that the agency provide a hearing "on the record," the parties are given adequate opportunity to present facts and argument and the hearing officer is impartial. The Act gives interested persons the right to petition an agency for the issuance, amendment, or repeal of a rule. It also provides standards for judicial review of agency actions.

The Act has been amended often and now incorporates several other acts that cover a great range of processes. Three of these incorporated acts deal with access to information. The Freedom of Information Act requires that agencies make public their rules, adjudicatory decisions, statements of policy, instructions to staff that affect a member of the public, and, upon request, such other material as does not fall into one of the Act's exceptions for material dealing with national security, trade secrets, and the like. The Government in the Sunshine Act requires that collegial bodies such as the Commission hold their meetings in public, with certain exceptions for meetings on matters such as, again, national security. The Privacy Act limits release of certain information about individuals.

Two of the acts incorporated into the Administrative Procedure Act provide for alternative mechanisms for resolving differences. The Negotiated Rulemaking Act allows agencies to develop rules in certain situations by negotiations among a limited number of parties, negotiations aimed at reaching a consensus on the proposed rule and avoiding litigation over the final rule. The Administrative Dispute Resolution Act urges agencies to use negotiation, mediation, arbitration, and related techniques in place of adjudication, enforcement, rulemaking, or court litigation.

Two other incorporated acts are noteworthy. The Regulatory Flexibility Act requires that agencies consider the special needs and concerns of small entities in conducting rulemaking. The Congressional Review Act requires that every agency rule be submitted to Congress before being made effective, and that every "major" rule sit before Congress for 60 days before being made effective, during which time the rule can be subjected to an accelerated process that can lead to a statutory modification or disapproval of the rule.

(full-text version [/docs/ML1327/ML13274A490.pdf#page=69])

National Environmental Policy Act

Every proposal for a major Federal action significantly affecting the quality of the human environment requires a detailed statement on, among other things, the environmental impact of the proposed action and alternatives to the proposed action. The statement is to accompany the proposal through the agency review process. The Act also established in the Executive Office of the President a Council on Environmental Quality, which has issued regulations on the preparation of environmental impact statements and on public participation in the preparation of the statements.

(full-text version [/docs/ML1327/ML13274A490.pdf#page=488])

Page Last Reviewed/Updated Friday, September 10, 2021

MAY 29, 2024

Fact Sheet: Biden-Harris Administration Announces New Steps to Bolster Domestic Nuclear Industry and Advance America's Clean Energy Future

For decades, nuclear power has been the largest source of clean energy in the United States, accounting for 19% of total energy produced last year. The industry directly employs nearly 60,000 workers in good paying jobs, maintains these jobs for decades, and supports hundreds of thousands of other workers. In the midst of transformational changes taking place throughout the U.S. energy system, the Biden-Harris Administration is continuing to build on President Biden's unprecedented goal of a carbon free electricity sector by 2035 while also ensuring that consumers across the country have access to affordable, reliable electric power, and creating good-paying clean energy jobs. Alongside renewable power sources like wind and solar, a new generation of nuclear reactors is now capturing the attention of a wide range of stakeholders for nuclear energy's ability to produce clean, reliable energy and meet the needs of a fast-growing economy, driven by President Biden's Investing in America agenda and manufacturing boom. The Administration recognizes that decarbonizing our power system, which accounts for a quarter of all the nation's greenhouse gas emissions, represents a pivotal challenge requiring all the expertise and ingenuity our nation can deliver.

The Biden-Harris Administration is today hosting a White House Summit on Domestic Nuclear Deployment, highlighting the collective progress being made from across the public and private sectors. Under President Biden's leadership, the Administration has taken a number of actions to strengthen our nation's energy and economic security by reducing – and putting us on the path to eliminating – our reliance on Russian uranium for civil nuclear power and building a new supply chain for nuclear fuel, including: signing on to last year's multi-country declaration at COP28 to triple nuclear energy capacity globally by 2050; developing new reactor designs; extending the service lives of existing nuclear reactors; and growing the momentum behind new deployments. Recognizing the importance of both the existing U.S. nuclear fleet and continued build out of large nuclear power plants, the U.S. is also taking steps to mitigate project risks associated with large nuclear builds and position U.S. industry to support an aggressive deployment target.

To help drive reactor deployment while ensuring ratepayers and project stakeholders are better protected, **theAdministration is announcing today the creation of a Nuclear Power Project Management and Delivery working group that will draw on leading experts from across the nuclear and megaproject construction industry to help identify opportunities to proactively mitigate sources of cost and schedule overrun risk**. Working group members will be made up of federal government entities, including the White House Office of Domestic Climate Policy, the White House Office of Clean Energy Innovation & Implementation, the White House Office of Science and Technology Policy, and the Department of Energy. The working group will engage a range of stakeholders, including project developers, engineering, procurement and construction firms, utilities, investors, labor organizations, academics, and NGOs, which will each offer individual views on how to help further the Administration's goal of delivering an efficient and cost-effective deployment of clean, reliable nuclear energy and ensuring that learnings translate to cost savings for future construction and deployment.

The **United States Army is also announcing that it will soon release a Request for Information to inform a deployment program for advanced reactors to power multiple Army sites in the United States**. Small modular nuclear reactors and microreactors can provide defense installations resilient energy for several years amid the threat of physical or cyberattacks, extreme weather, pandemic biothreats, and other emerging challenges that can all disrupt commercial energy networks. Alongside the current defense programs through the Department of the Air Force microreactor pathfinder at Eielson AFB and the Office of the Secretary of Defense (OSD) Strategic Capabilities Office (SCO) Project Pele prototype transportable microreactor protype, the Army is taking a key role in exploring the deployment of advanced reactors that help meet their energy needs. These efforts will help

inform the regulatory and supply chain pathways that will pave the path for additional deployments of advanced nuclear technology to provide clean, reliable energy for federal installations and other critical infrastructure.

Additionally, the Department of Energy **released today a new primer highlighting the expected enhanced safety of advanced nuclear reactors** including passive core cooling capabilities and advanced fuel designs. Idaho National Laboratory is also **releasing a new advanced nuclear reactor capital cost reduction pathway tool** that will help developers and stakeholders to assess cost drivers for new projects.

The Administration notes the completion of units 3 and 4 of the Vogtle nuclear power plant in Georgia, the first new reactors built in the United States in over 30 years, and a result of the efforts and collaboration between utilities, developers, and end users to finance new nuclear projects, as well as the over 9,000 workers, many of whom were union, and the residents of Georgia to help the project reach a successful outcome. The Vogtle site is now the largest source of clean power in America, with four operating nuclear reactors. DOE financing and support made this project possible. The DOE Loan Programs Office (LPO) has committed $12 billion in loan guarantees for the construction as well as technical expertise, project monitoring, and issue mitigation support that would have been otherwise unavailable in the private sector. LPO's low rates also means hundreds of millions of dollars in annual cost savings for Georgians.

The U.S. government will continue to take action to enable first movers to deploy advanced and innovative technologies. These announcements build upon a wide range of actions the Biden-Harris Administration has already taken, which include:

Reviving and revitalizing existing nuclear, while preserving jobs

- The Palisades nuclear plant in Michigan would be the first U.S. nuclear plant to restart after shutting down. It is supported by a $1.5 billion conditional loan commitment from the DOE Loan Programs Office to Holtec Palisades, LLC, to finance the restoration and resumption of service for an 800 MW nuclear generation station in Covert Township, Michigan. The project aims to bring back online the Palisades Nuclear Plant and upgrade it to produce clean, baseload power through at least 2050.
- Diablo Canyon in California is leveraging DOE's Civil Nuclear Credit program to fund the plant's life extension.
- The Inflation Reduction Act created a production tax credit (Internal Revenue Code (IRC) section 45U) for existing nuclear plants, giving them more economic security to keep operating.

Demonstrating and deploying new nuclear technologies

- DOE's Advanced Reactor Demonstration Program (ARDP) provides significant funding for nuclear demonstration and risk reduction projects. Awardees include Gen IV reactor vendors and developers TerraPower, X-energy, Kairos Power, Westinghouse, BWX Technologies, and Southern Company.
- The President signed a Congressional appropriations package providing $800 million to fund up to two Gen III+ SMR demonstration projects. The implementation of this will be announced later this year. This package also appropriated $100 Million for Gen III+ SMR design, licensing, supplier development, and site preparation.
- The Inflation Reduction Act enacted the Clean Electricity Production tax credit (IRC section 45Y) and Clean Electricity Investment tax credit (IRC section 48E) to support the deployment of all zero-greenhouse gas-emitting electricity generation, including from new nuclear electric generators.
- DOE released a coal-to-nuclear technical study and information guide, highlighting the potential for more than 300 plant conversions and their ability to transition jobs and can be an economic boom for the communities they support
- The Department of Defense (DOD) is funding Project Pele to develop a prototype microreactor (Gen IV) design for future use at defense installations.
- The Export-Import Bank of the United States (EXIM) and U.S. Department of State announced the "EXIM SMR Financing Toolkit," a

suite of financial tools to support SMR deployments and help U.S. exporters compete in the global SMR market.

- DOE, with support from our multidisciplinary national labs is working with, and providing resources for, industry partners to evaluate how international safeguards obligations and security can be integrated better early into the design process of new nuclear facilities from initial planning through deployment.

Streamlining licensing processes for building new reactors, extending the life of existing reactors, and expanding capacity of existing reactors

In anticipation of the growing interest in reactor deployment, the Nuclear Regulatory Commission (NRC) continues to make strides in reforming its licensing and permitting processes to ensure that its reviews and analyses can be performed efficiently without compromising safety.

- Demonstrating efficient licensing: NRC issued a construction permit to Kairos for the Hermes test reactor this past December; the first non-light water reactor (non-LWR) construction permit issued in the United States in 56 years. NRC completed its safety and environmental reviews of the Kairos Hermes test reactor construction permit application ahead of schedule and on-budget.
- New technology-neutral licensing pathway: The NRC Commission took important steps to improve the proposed draft rule for the new 10 CFR Part 53 technology-neutral licensing pathway in response to stakeholder feedback and to make it more useful to applicants.
- Reducing regulatory uncertainty: NRC issued licensing guidance for applicants seeking to use the existing Part 50 and 52 licensing pathways before the new optional Part 53 is completed. This guidance reduces the regulatory uncertainty for new reactor concepts that do not fit the mold of conventional reactor technologies.
- Streamlining environmental reviews: NRC staff approved a proposed rule for Commission approval which would utilize an advanced reactor generic environmental impact statement (GEIS) to streamline environmental reviews for licensing new reactors. NRC staff also expects to soon issue a GEIS for license renewal to streamline environmental reviews for extending the operating license for existing reactors.
- Preparing for factory-built microreactors: NRC staff identified potential regulatory solutions to enable licensing of microreactors that would be factory-built and then transported to a deployment site.
- Leveraging cooperation with international partners: NRC recently signed a memorandum of cooperation with the Canadian Nuclear Safety Commission and the UK Office for Nuclear Regulation to increase collaboration on the technical reviews of advanced reactor and SMR technologies.
- Modernizing safety and security reviews: NRC has initiated several process improvements for new reactor licensing such as the proposed rule for alternative physical security and new rule for emergency preparedness requirements for SMRs and non-LWRs that would provide regulatory stability, predictability, and clarity and minimize or eliminate uncertainty for applicants.
- Increasing transparency and accountability: NRC launched its licensing status dashboards to better enable stakeholders to track licensing review progress.

Advancing the supply chain and workforce

- The Biden-Harris Administration is delivering on its promise to ensure a supply chain for reliable energy security and to reduce dependencies on Russian energy. On May 13, President Biden signed into law the "Prohibiting Russian Uranium Imports Act" which imposes a ban on imported enriched uranium from Russia unless importers receive a waiver granted by the Secretary of Energy. It also unlocks up to $2.72 billion made available at the President's request by the Consolidated Appropriations Act of 2024 to jumpstart new enrichment capacity in the United States for LEU and HALEU.
- Centrus Energy Corporation produced the nation's first 100 kilograms of high-assay low-enriched uranium, a crucial material required by many advanced reactor designs. The production was the first of its kind in the United States in more than 70 years and completed a key milestone in

DOE's HALEU Demonstration project in Piketon, Ohio. Centrus is expected to ramp up its production rate of HALEU material to 900 kilograms per year starting in 2024. The Inflation Reduction Act of 2022 also provided $700 million to help establish a reliable domestic supply of fuels for advanced reactors using HALEU.

- X-Energy was allocated $148 million in tax credits under the Qualifying Advanced Energy Project Credit program (IRC section 48C) for an advanced nuclear fuel fabrication facility, which will make TRISO particle fuel.
- The Consolidated Appropriations Act of 2024 made available $100 million for nuclear workforce training programs at universities, 2-year colleges, trade schools.
- The Department of Energy's Advanced Research Program Agency-Energy (ARPA-E) is also hosting several earlier stage R&D programs for advanced nuclear, including $87 million of funding to 30 projects with the aims of lower capital costs, lower O&M costs, and reducing spent fuel.

Taken together, these actions represent the largest sustained push to accelerate civil nuclear deployment in the United States in nearly five decades. President Biden will continue to take steps to reestablish U.S. leadership in the industry, including continuing to keep existing nuclear plants operational, supporting the demonstration and deployment of advanced reactor technologies, making permitting processes more efficient and effective, securing and expanding the nuclear fuel supply, strengthening nuclear safety, security, and safeguards, and supporting an ambitious strategy to ensure the nation's nuclear leadership.

###

Without a plant currently operating in Iowa, does nuclear energy have a future in the state?

As of 2020, no nuclear power plants were operating in Iowa. With new technology emerging, could it make a comeback?

Author: **Taylor Kanost, Brandon Lawrence**
Published: **6:23 PM CDT May 19, 2022**
Updated: **6:53 PM CDT May 19, 2022**

DES MOINES, Iowa — Iowa's largest power provider wants to explore the possibility of using new nuclear power technology to heat and light our homes.

MidAmerican Energy is seeking approval on a $3.9 billion renewable energy project in Iowa called Wind PRIME in hopes of achieving net-zero greenhouse gas emissions.

Along with further investment in wind and solar energy, MidAmerican is looking to use the funds to explore new, green technologies such as energy storage, carbon capture and small modular nuclear reactors.

Since renewable sources like wind and solar do not consistently generate energy, the company is requesting permission from the Iowa Utilities Board to explore these

innovative, carbon-free technologies as a baseload power source.

"It's the first step in determining if any would be feasible," said MidAmerican Energy spokesman Geoff Greenwood. "It is not a commitment to utilize one over another or any at all."

In the proposal, MidAmerican requested a decision from the Iowa Utilities Board by October.

MidAmerican has never operated a nuclear facility, but does own a 25% stake in the Quad Cities Generating Station in Cordova, Illinois which supplied just under 4% of MidAmerican's generating capacity in 2021.

Click here for more climate change stories

Credit: WOI-TV

MidAmerican Energy provides electricity and natural gas to over 1.6 million customers in Iowa, Illinois, Nebraska and South Dakota.

RELATED: The pros and cons of a longer growing season

Nuclear energy is created through fission, a process where the splitting of uranium creates heat that boils water. This forms steam which spins turbines and generates electricity.

This process emits no carbon dioxide. But safety concerns, high costs and a large physical footprint have stifled its popularity. Now a scaled-down version of this nuclear technology is emerging called small modular reactors (SMRs).

Unlike traditional nuclear plants, SMRs are built off-site which helps save on costs.

"Instead of having to build a huge plan out in the field, you could manufacture most of the pieces of it, like Boeing would an aircraft, in a factory and then send it to site and basically plug it in," said senior nuclear engineer Tim Cahill.

SMRs have a power capacity of up to 300 megawatts: enough to power up to 200,000 homes. That's comparable to the capacity of an average U.S. coal plant.

"We're attempting to size these units such that they could effectively be a replacement for these older, dirtier forms of fossil fuel power," Cahill added.

With nuclear energy, safety is always top of mind. Nuclear accidents are rare, but can happen. Traditional reactors pump water to cool radioactive material, and backup generators are on site to power the pumps when electricity goes down at the plant.

In the case of Fukushima in 2011, the backup generators failed, leading to nuclear meltdown fears.

Because of their size, SMRs rely on natural forces, not pumps, to circulate water. This is a significant safety improvement nuclear energy proponents say increases its feasibility in the U.S.

"I would say the United States is the gold standard when it comes to nuclear safety," Cahill said.

Despite all of this, some environmentalists aren't convinced nuclear is the way to go.

"We say nuclear power is dirty, dangerous and expensive," said Wally Taylor from the Iowa Chapter of the Sierra Club. "Dirty because of the uranium extraction. Dirty because of the spent fuel that was radioactive for hundreds of thousands of years, and we don't know what to do with it."

The Duane Arnold Energy Center in Palo was the last operating nuclear power plant in Iowa until high winds from the Aug. 10, 2020 derecho caused damage and forced it to shut down.

Now, it will take decades to properly dispose of toxic waste at the site.

The Sierra Club has been fighting against nuclear energy in Iowa since the 1970s, lobbying at the statehouse to prevent nuclear initiatives from moving forward.

RELATED: Earth given 50-50 chance of hitting key warming mark by 2026

"Wind and solar, carbon sequestration through preserving and enhancing forests and other green areas, all of those efforts could be much more effective in reducing climate change than nuclear energy," Taylor said.

This falls in line with what the Intergovernmental Panel on Climate Change says will be most effective in reducing greenhouse gas emissions.

Although there is plenty of uncertainty surrounding the future of nuclear energy in Iowa, supporters say its potential to help reduce climate change shouldn't be ignored.

"This is generational," said Cahill. "It is sustainable. It is efficient, and it's getting us away from what's causing imminent global climate issues."

Office of
NUCLEAR ENERGY

Newly Signed Bill Will Boost Nuclear Reactor Deployment in the United States

July 19, 2024

Plant Vogtle, located in Waynesobor, GA, is the largest generator of clean power in the United States.

Georgia Power

President Biden signed the **Fire Grants and Safety Act** into law chalking up a BIG win for our nuclear power industry.

Included in the bill is bipartisan legislation known as the **ADVANCE Act** that will help us build new reactors at a clip that we haven't seen since the 1970s.

And there is no time like the present to get started.

Energy demand is **expected to grow** over the next decade as data centers, electric vehicles, and industrial processes all search for a clean and reliable source of power.

Nuclear will be part of that solution, which is why the United States has already committed to tripling our nuclear capacity and is **making moves** to help secure our clean energy future.

But in order to do that, we need legislation like the ADVANCE Act to help speed up the deployment and licensing of new reactors and fuels, and our office stands ready to support this effort.

Incentivizing Competition

The ADVANCE Act builds on the successes of **previous legislation** to develop a modernized approach to licensing new reactor technologies.

Many of the **advanced reactors** under development use different coolants than what is currently used in our commercial light-water reactors—making the regulatory process more of a challenge.

The ADVANCE Act directs the U.S. Nuclear Regulatory Commission (NRC) to reduce certain licensing application fees and authorizes increased staffing for NRC reviews to expedite the process.

It also introduces prize competitions that the U.S. Department of Energy (DOE) can award to incentivize deployment.

These awards are subject to Congressional appropriations but will cover the total costs assessed by the NRC for first movers in a variety of areas, including the first advanced reactor to receive an operating or combined license.

This should quicken the pace for innovation and get shovels in the ground sooner to start building more domestic reactors.

We've already seen some incredible progress in this area.

This past year, the NRC **certified** the nation's first small modular reactor. It also **issued** its first construction permit for a non-light water design as part of a project that we are supporting through our Advanced Reactor Demonstration program.

MILESTONE
NRC approves first construction permit application for Generation IV reactor.

ADVANCEs in Microreactor Deployments

Another development in this bill is its focus on small reactor technologies, known as **microreactors**.

These compact reactors will be small enough to fit on a semi-truck and can be deployed around the country, including remote locations and military bases for reliable heat and power.

The ADVANCE Act directs the NRC to develop guidance to license and regulate microreactor designs within 18 months. It also eliminates costs associated with pre-application activities and early site permits at DOE sites or other locations that are critical to our national security.

Both should expedite the demonstration and deployment of two microreactor projects that are being pursued by our military.

Alaska's Eielson Air Force Base **plans** to build a microreactor at its site as early as 2027. The Defense Department is also gearing up **to demonstrate** a high-temperature gas reactor design at Idaho National Laboratory around the same timeframe.

Microreactors are compact reactors that will be small enough to transport by truck and could help solve energy challenges in a number of areas.

Office of Nuclear Energy

Repowering Coal Sites with Nuclear

The ADVANCE Act also enables the cleanup and reuse of brownfield sites, including retired or retiring coal plants.

Our **analysis shows** that hundreds of these coal sites could be converted into nuclear power plants to help keep high-paying jobs and economic opportunities in these energy communities.

The NRC will examine and streamline licensing processes for nuclear facilities at these sites and will also take into account the associated infrastructure as part of the process.

The NRC is **currently reviewing** TerraPower's construction permit application to build its Natrium reactor near a retiring coal plant in Kemmerer, Wyoming.

If approved, it would be the first one issued by the NRC for a commercial non-light water reactor and will pave the way for other designs looking to do the same at similar brownfield sites.

Coal-to-Nuclear
Repowering coal plants with nuclear power can lead to several economic and environmental advantages.

Fueling the Future

Many of these new reactor designs will also require **high-assay low-enriched uranium**, known as HALEU, which is not yet commercially available in the United States.

The Biden-Harris Administration has taken **several steps** to strengthen our domestic nuclear fuel supply chain and grow our domestic capabilities to produce low-enriched uranium, including HALEU.

The ADVANCE Act bill builds on this work and Congress' **recent ban** on Russian uranium imports by also prohibiting certain fuel products made in China.

This move further strengthens our domestic nuclear fuel supply chain as we work to build up an adequate fuel supply for the United States and its allies.

DOE recently made up to **$2.7 billion available** to purchase low-enriched uranium from domestic sources to build capacity here in the states.

We also plan to award contracts this summer through our **HALEU Availability Program** to ensure there is enough material to support the development, demonstration, and deployment of new reactors.

Finally, we'll continue working with the NRC to help develop, qualify, and license new fuel concepts such as **accident tolerant fuels** for the commercial fleet, along with

TRISO fuels that can be used in future molten salt and high-temperature gas reactor designs.

Investing in America

Overall, this is yet another wave of momentum that the United States continues to ride to advance nuclear power under President Biden's Investing in America agenda.

The ADVANCE Act, along with the historic investments and tax incentives provided by the **Bipartisan Infrastructure Law** and **Inflation Reduction Act**, have truly reenergized our domestic nuclear power sector and repositioned us as a global leader on the technology we first developed.

We're excited to build on our **established collaborations** with the NRC to accelerate new reactor deployments in the United States and look forward to streamlining our efforts across the government to help build a new secure, clean energy economy that brings everyone along for the ride.

Let's get to work!

Dr. Michael Goff is the Acting Assistant Secretary for the U.S. Department of Energy's Office of Nuclear Energy.

What is a Nuclear Microreactor?

Microreactors are compact reactors that will be small enough to transport by truck and could help solve energy challenges in a number of areas.

Office of Nuclear Energy

Nuclear is getting smaller ... and it's opening up some big opportunities for the industry.

A handful of microreactor designs are under development in the United States, and they could be ready to roll out within the next decade.

These compact reactors will be small enough to transport by truck and could help solve energy challenges in a number of areas, ranging from remote commercial or residential locations to military bases.

Features

Microreactors are not defined by their fuel form or coolant. Instead, they have three main features:

1. **Factory fabricated:** All components of a microreactor would be fully assembled in a factory and shipped out to location. This eliminates difficulties associated with large-scale construction, reduces capital costs and would help get the reactor up and running quickly.
2. **Transportable:** Smaller unit designs will make microreactors very transportable. This would make it easy for vendors to ship the entire reactor by truck, shipping vessel, airplane or railcar.
3. **Self-adjusting:** Simple and responsive design concepts will allow microreactors to self-adjust. They won't require a large number of specialized operators and would utilize passive safety systems that prevent any potential for overheating or reactor meltdown.

Benefits

Microreactor designs vary, but most would be able to produce 1-20 megawatts of thermal energy that could be used directly as heat or converted to electric power. They can be used to generate clean and reliable electricity for commercial use or for non-electric applications such as district heating, water desalination and hydrogen fuel production.

Other benefits:

- Seamless integration with renewables within microgrids
- Can be used for emergency response to help restore power to areas hit by natural disasters
- A longer core life, operating for up to 10 years without refueling
- Can be quickly removed from sites and exchanged for new ones

Most designs will require fuel with a higher concentration of uranium-235 that's not currently used in today's reactors, although some may benefit from use of high temperature moderating materials that would reduce fuel enrichment requirements while maintaining the small system size.

The U.S. Department of Energy supports a variety of advanced reactor designs, including gas, liquid metal, molten salt and heat pipe-cooled concepts. American microreactor developers are currently focused on gas and heat pipe-cooled designs that could debut as early as the mid-2020s.

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EIELSON AIR FORCE BASE

MICRO-REACTOR PILOT PROGRAM

Eielson Air Force Base (AFB) is the Department of the Air Force's (DAF) preferred location to pilot its first micro-reactor. The next-generation energy technology has the potential to provide the installation with a clean, reliable, and resilient energy supply for critical national security infrastructure.

Micro-reactors are small nuclear reactors that can produce clean energy and are equipped with built-in safety features that self-adjust to prevent overheating. The technology's ability to operate independently from the commercial grid and reduce greenhouse gas emissions make micro-reactors a promising power source for remote domestic military installations critical to national security.

The Department of the Air Force Micro-Reactor pilot was initiated in response to the Fiscal Year 2019 National Defense Authorization Act requirement to identify potential locations to site, construct, and operate a micro-reactor. The department is partnering with the Defense Logistics Agency (DLA) Energy Office to execute a power purchase agreement with a third-party developer.

The procurement process is currently paused, following a bid protest filed with the Government Accountability Office. The pause will allow for additional proposal review, which is anticipated to conclude by end of Summer 2024. Unanticipated milestone shifts have not halted our efforts and the department remains steadfast in our exploration of this innovative technology to assure resilience at mission critical locations and to meet the evolving challenges of Great Power Competition.

As the first pilot program of its kind, the micro-reactor pilot program must undergo significant scrutiny and coordination from all agencies involved. The Department of the Air Force is partnered with key regulatory authorities to ensure the pilot is executed safely and is committed to frequent, clear, and transparent communication with all local stakeholders – including Fairbanks North Star Borough, Tanana Chiefs Conference, and University of Alaska, and many other community groups – to ensure this project benefits both the installation and the broader local community.

CONTACT US

Questions regarding the pilot can be directed to SAF.IEE.Micro-ReactorPilot@us.af.mil.

MICRO-REACTOR QUARTERLY NEWSLETTER

February 2022 Newsletter

August 2022 Newsletter

September 2022 Newsletter

February 2023 Newsletter

July 2023 Newsletter

EIELSON AIR FORCE BASE

NEWS

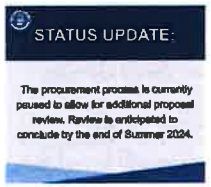
Eielson AFB Announced as Site for Air Force Micro-Reactor Pilot

The Department of the Air Force has selected Eielson Air Force Base (AFB) to pilot its first micro-reactor. The next-generation energy capability will provide the installation with a clean, reliable, and resilient energy supply technology for critical national security infrastructure... (Read more)

Request for proposal released for Eielson Air Force Base Micro-Reactor Pilot Program

The Department of the Air Force, in partnership with the Defense Logistics Agency Energy, released a request for proposal for the Eielson Air Force Base Micro-Reactor Pilot Program today... (Read more)

PILOT PROJECT STATUS



EDUCATIONAL VIDEOS

Eielson Air Force Base Micro-reactor

Micro-reactor Pilot Program - Increasing Resilience Through Carbon Pollution-Free Technology

Ready to Go at 50 Below

REQUEST FOR PROPOSAL (RFP)

Eielson AFB Micro-Reactor RFP

RESOURCES

Fact Sheet

FAQs

PROJECT PELE

MOBILE NUCLEAR REACTOR

Background

In 2016 the Defense Science Board (DSB) identified energy as a critical enabler of future military operations. The study noted that battlefield energy usage will likely increase significantly over the next few decades with energy needs of current and future military capabilities and operations likely outpacing improvements to energy efficiency and management. The DSB found that intermittent character of many alternative energy sources do not appear able to keep pace with the growth of the Department of Defense's (DoD) energy needs, concluding that, "the U.S. military could become the beneficiaries of reliable, abundant, and continuous energy through the deployment of nuclear energy power systems."

Consequently, the DoD's Strategic Capabilities Office (SCO) launched Project Pele. The project's objective is to design, build, and demonstrate a prototype mobile nuclear reactor within five years, following the DSB study recommendations. This effort will leverage state-of-the-art technologies and recent advances in nuclear engineering to deliver an inherently safe nuclear reactor. The reactor will be designed to provide reliable and resilient power, while minimizing risk of nuclear proliferation, environmental damage, or harm to nearby personnel or populations.

Project Pele is led by SCO in close collaboration with the Department of Energy, Nuclear Regulatory Commission, U.S. Army Corps of Engineers, as well as with industry partners.

Environmental Impact Statement

Copies of the Draft and Final EIS can be accessed from the links below:

Draft EIS
(September 2021)

Final EIS Vol 1
(February 2022)

Final EIS Vol 2
(February 2022)

Office of
NUCLEAR ENERGY

NRC Dockets Construction Permit Application for TerraPower's Natrium Reactor

NUCLEAR MILESTONES

Rendering of TerraPower's Natrium power plant

The U.S. Nuclear Regulatory Commission (NRC) accepted TerraPower's construction permit application for review, marking the first time in more than 40 years that the NRC has docketed a Part 50-based application for a commercial non-light water reactor.

The advanced reactor company, based in Bellevue, Washington, is seeking permission to build its Natrium reactor in Kemmerer, Wyoming, as part of a demonstration project supported by the U.S. Department of Energy (DOE).

If approved, the construction permit will be the first ever issued by the NRC for a commercial non-light water power reactor.

A Step Foward for Advanced Reactor Licensing

TerraPower's application applied **new technology-inclusive guidance** that was recently issued by the NRC to ensure consistency, quality, and uniformity of reviews for non-light water reactor applicants.

The new guidance included an endorsement of the **industry-led TICAP project** to deliver a more risk-informed review of the safety analysis report.

The project is an important next step in implementing the **licensing modernization project**, which was supported by DOE and also involves collaboration with industry and the NRC.

"We're excited to have our construction permit application docketed for review by the NRC," **said Jeff Navin, the director of external affairs for TerraPower**. "By implementing the licensing modernization project framework, TerraPower is helping to demonstrate a more streamlined approach to licensing non-light water advanced reactors."

A Win for Wyoming

The Natrium reactor is a 345-megawatt electric sodium-cooled fast reactor with a molten salt energy storage system that is being designed to flexibly operate with renewable power generators to help decarbonize the electric grid.

The first Natrium reactor will be built in Lincoln County, Wyoming, near the retiring Naughton coal plant—a transition to nuclear power that could bring **new economic and environmental benefits** to the community.

Non-nuclear construction on the project is expected to start later this summer.

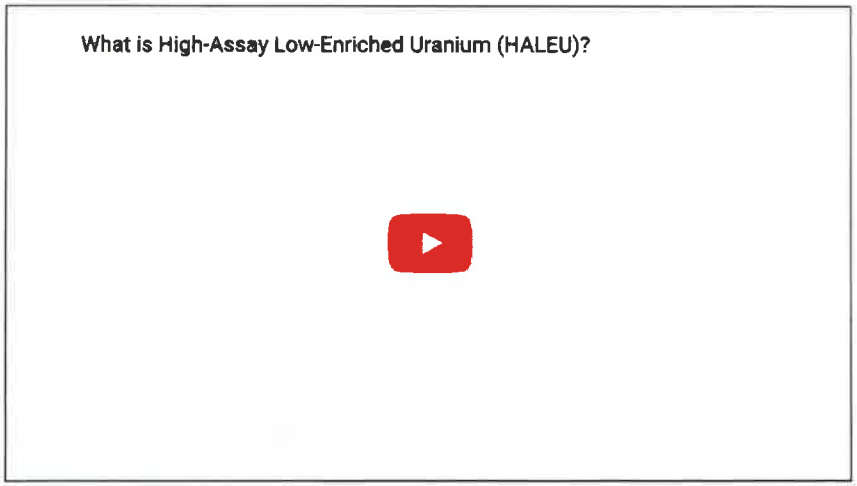
Natrium is one of two clean energy projects supported by the U.S. Department Energy through President Bidens' Bipartisan Infrastructure Law to demonstrate first-of-a-kind reactor technologies.

Both projects are managed through the Office of Clean Energy Demonstrations and are implementing the licensing modernization project methodology.

Office of
NUCLEAR ENERGY

What is High-Assay Low-Enriched Uranium (HALEU)?

Office of Nuclear Energy » What is High-Assay Low-Enriched Uranium (HALEU)?



ANIMATION: Learn the basics on high-assay low-enriched uranium.

Video courtesy of the Department of Energy

More than 20 U.S. companies are **developing advanced reactors** that will completely change the way we think about the nuclear industry.

Most of these new reactor designs will be smaller, more flexible and less expensive to build and operate. Some of them may consume used nuclear fuel or help bring clean water and reliable power to communities never thought possible.

The majority of these designs will require a fuel that isn't yet available at a commercial scale.

It's what the industry calls high-assay low-enriched uranium, or HALEU for short, and these companies can't bring their reactors to life without it.

What is High-Assay Low-Enriched Uranium?

Our existing fleet of reactors runs on uranium fuel that is enriched up to 5% with uranium-235—the main fissile isotope that produces energy during a chain reaction.

By definition, HALEU is enriched between 5% and 20% and is required for most U.S. advanced reactors to achieve smaller designs that get more power per unit of volume. HALEU will also allow developers to optimize their systems for longer life cores, increased efficiencies and better fuel utilization.

Click to view or download our HALEU infographic.

The Growing Need for HALEU

There's a pressing need for HALEU now that could force some companies to reevaluate their plans if they can't access this fuel.

The U.S. Department of Energy (DOE) projects that **more than 40 metric tons of HALEU** will be needed before the end of the decade, with additional amounts required each year, to deploy a new fleet of advanced reactors.

To help mitigate that risk, DOE is exploring three options to support the testing and demonstration of these advanced reactors with HALEU fuel.

Near-Term Solutions

DOE and its national labs are working on two chemical processes to provide small amounts of HALEU to vendors in the near-future. Both methods involve the recycling of used nuclear fuel from government-owned research reactors to recover highly enriched uranium (greater than 20%) that can then be downblended to make HALEU fuel.

Electrochemical Processing

Irradiated fuel from DOE-research reactors is prepared and placed into a high-temperature molten salt chemical bath. An electric current is then used to separate the highly enriched uranium metal from the fission products. The recovered uranium is cleaned and mixed with lower enriched uranium to create HALEU. The uranium is then fabricated into new fuel in a high-temperature furnace.

Idaho National Laboratory is working to make up to 10 metric tons of HALEU using this process in the near-term to support current testing and demonstration projects.

Hybrid Zirconium Extraction Process (ZIRCEX)

Irradiated fuels are dissolved in hydrochloric acid gas to remove the aluminum or zirconium cladding. The fuel is then passed through a modular solvent extraction system to separate the uranium from its fission products. The uranium is then downblended with lower enriched uranium and returned to its solid form to produce HALEU.

Idaho National Laboratory is currently testing a small-scale pilot facility on unirradiated materials to research and scale-up a new ZIRCEX process. Argonne, Oak Ridge and Pacific Northwest national laboratories are collaborating on this project.

The Long-Term Solution

A three-year demonstration project is underway to send a strong signal to potential vendors that there will be a proven domestic capability to produce HALEU when the market demands it.

DOE is partnering with Centrus to manufacture 16 advanced centrifuges for deployment at an enrichment facility in Piketon, Ohio.

The company's AC-100M machine was developed through the years with support from DOE and will demonstrate enrichment of uranium hexafluoride gas to produce HALEU.

The HALEU will be used for advanced reactor fuel qualification testing and reactor demonstration projects. The AC-100M technology will be available for commercial deployment at the conclusion of the demonstration.

Learn more about the Office of Nuclear Energy's **work with HALEU**.

4 Crucial Steps the Biden-Harris Administration is Taking to Secure a Nuclear Fuel Supply Chain

Over the last several years, the Biden-Harris Administration has taken decisive action to establish a U.S. nuclear fuel supply chain to strengthen the nation's economic, climate, and national security priorities.

A **reliable uranium supply chain** is essential to powering the world's largest fleet of 93 commercial reactors in the U.S., producing life-saving medical isotopes, and deploying new advanced reactors that can spark job creation and reduce carbon dioxide emissions in communities across the country.

However, current U.S. dependence on Russian-sourced nuclear materials and fuels undermines the security of this supply chain, which is why the Administration has taken the following actions to sever these ties and expand the nation's capacity to produce low-enriched uranium — including **high-assay low-enriched uranium (HALEU)** for advanced reactors.

Securing a Domestic Nuclear Fuel Supply Chain

Decisive steps by the Biden-Harris Administration to secure a domestic nuclear fuel supply chain free from Russian-influence:

- Award contracts in 2024 to **purchase enrichment and deconversion services** to establish a high-assay low-enriched uranium (HALEU) supply chain in support of advanced reactors.
- Demonstrate the **American Centrifuge Project**, which has enriched more than 100 kgs of HALEU in Piketon, OH with future plans to expand to 900 kgs.
- Mobilized more than $4 billion in pledged funding to **expand enrichment and conversion services** through the Sapporo 5 partnership between the U.S., Canada, France, Japan, and U.K.
- Appropriated more than **$3.4 billion** through the Inflation Reduction Act and FY24 spending bill to **support domestic uranium enrichment capabilities**

Expanding domestic enrichment of low-enriched uranium, including HALEU, is essential to fueling existing and new advanced reactors that can:



Reduce emissions across all sectors | **Deliver high-paying jobs across the country** | **Secure our energy security**

Reestablishing the Domestic Nuclear Industry

Establishing a reliable, domestic nuclear fuel supply chain is a key part to the Administration's larger efforts to reassert leadership in the nuclear energy sector both at home and abroad.

Through the Bipartisan Infrastructure Law (BIL), along with tax incentives and programs through the **Inflation Reduction Act (IRA)**, the U.S. has built a wave of momentum that will swiftly and competitively help meet President Biden's clean energy objectives, which includes **tripling nuclear energy capacity** by 2050.

Some major highlights include:

- $6 billion in BIL funding to prevent the premature retirement of operating reactors across the country. This includes a **$1.1 billion conditional award** of credits to extend operations at the Diablo Canyon nuclear power plant an additional 5 years, preserving hundreds of jobs at the plant.
- $2.5 billion in BIL funding to support the demonstration of X-energy's Xe-100 **high temperature gas reactor** and TerraPower's Natrium s**odium-cooled fast reactor** by the early 2030s.
- $1.52 billion in a **conditional commitment** loan guarantee through the IRA-created Energy Infrastructure Reinvestment program to help upgrade and re-power the Palisades Nuclear Generating Station in Michigan by 2025.
- $2.72 billion appropriated in the **FY24 spending bill** to establish and expand enrichment and conversion services to meet nuclear fuel requirements for the U.S. and its allies.
- $800 million to demonstrate two advanced light-water small modular reactor systems

Explore more nuclear energy wins from the Biden-Harris Administration over the last year **HERE**.

See what's coming up next with our FY25 budget request **HERE**.

Learn more about the Biden-Harris Administration's actions to secure a U.S. nuclear fuel supply chain **HERE**.

Office of
NUCLEAR ENERGY

New DOE and NRC Agreement Will Lead to Faster Deployment and Licensing of U.S. Nuclear Technologies

Office of Nuclear Energy »

New DOE and NRC Agreement Will Lead to Faster Deployment and Licensing of U.S. Nuclear Technologies

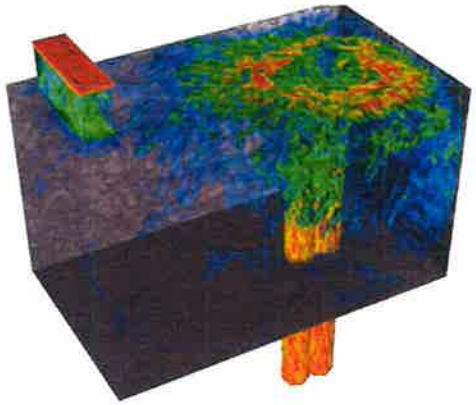
The United States needs to move with a sense of urgency to deploy advanced nuclear energy technologies to meet our energy, environmental, and national security needs.

More than 50 U.S. companies are currently working on new designs that will be smaller and more affordable to build and operate. Advanced reactors have enormous potential to lower emissions, create new jobs and build an even stronger economy.

But if we don't act soon, we will lose ground to countries like China and Russia in deploying the same technologies that we developed.

That's why the U.S. Department of Energy (DOE) **recently agreed** to work with the U.S. Nuclear Regulatory Commission (NRC) to accelerate the deployment and licensing of these world-changing technologies.

Understanding Advanced Nuclear



This image simulates flow into an advanced recycling nuclear reactor.

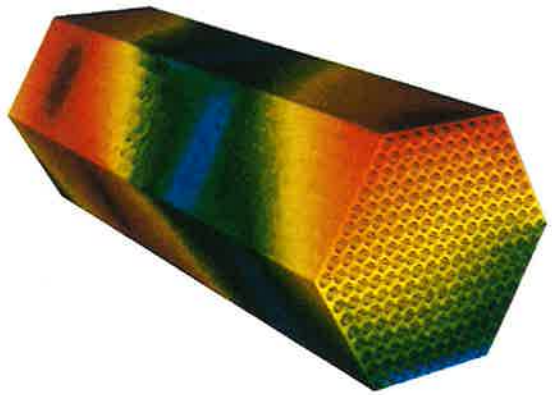
Argonne National Laboratory

DOE will work with the NRC through the Department's **National Reactor Innovation Center**, or NRIC. This new initiative was established under the **Nuclear Energy Innovation Capabilities Act of 2017** and is designed to help private developers test and demonstrate their reactor concepts at DOE-owned sites.

This is an excellent opportunity for both federal agencies to share the technical expertise needed to develop the knowledge, data, skills and capacity to perform safety reviews of advanced reactor concepts.

DOE will also open its sites up to NRC regulators to see these reactors in action, including the development of our **proposed fast test reactor**. This will further broaden NRC's understanding of advanced technology and inform its approach to licensing new technologies.

Advanced Modeling Capabilities



Coolant-flow pressure distribution simulation.

Argonne National Laboratory

In addition to information sharing, DOE will also provide the NRC access to state-of-the-art computing capabilities and modeling codes to support licensing of advanced nuclear reactors.

These updated codes can help expedite the review process and can be used to predict expected reactor operations, including fuel and material performance.

These capabilities will ultimately reduce the time it takes to validate and certify new designs, enabling a faster commercialization process.

Navigating the Review Process

Finally, the NRC will provide DOE and the nuclear energy community with accurate, current information on the NRC's regulations and licensing processes. This knowledge will eliminate any surprises further down the road as these technologies are applying for design certification and licenses.

By keeping everyone on the same page, expectations will be clear throughout the process, allowing the United States to quickly deploy our technologies domestically and globally to more places than ever before.

I look forward to working with industry and the NRC to make advanced nuclear a reality, much sooner rather than later.

English (/newscenter/news/what-are-small-modular-reactors-smrs)

العربية (/ar/newscenter/news/m-hy-lmflt-lnmty-lsgyr) 中文 (/zh/newscenter/news/SMR2021120301)

Français (/fr/newscenter/news/que-sont-les-petits-reacteurs-modulaires-prm)

Русский (/ru/newscenter/news/chto-takoe-malye-modulnye-reaktory-mmr)

Español (/es/newscenter/news/que-son-los-reactores-modulares-pequenos-smr)

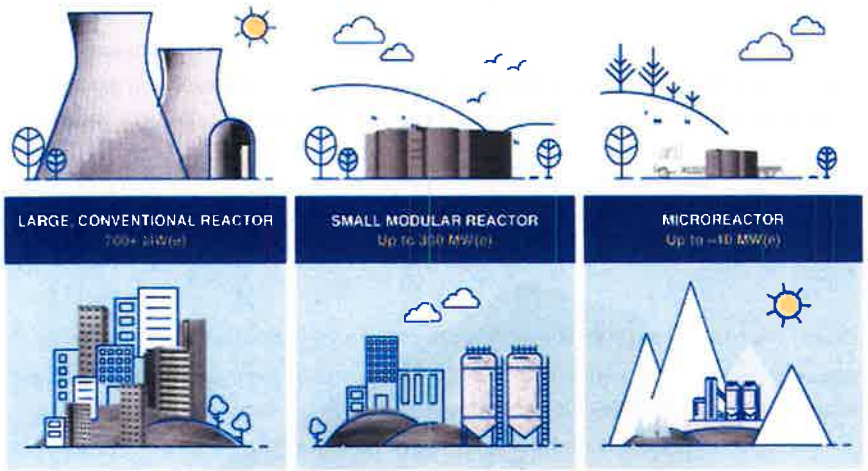
IAEA International Atomic Energy Agency (/)

What are Small Modular Reactors (SMRs)?

Nuclear Explained

13 Sep 2023

Joanne Liou, IAEA Office of Public Information and Communication



(https://www.iaea.org/sites/default/files/styles/original_image_size/public/smr-vs-npp-v5_0.png?itok=BigbkheT)

Small modular reactors (SMRs) have a power capacity of up to 300 MW(e) per unit. Many SMRs, which can be factory-assembled and transported to a location for installation, are envisioned for markets such as industrial applications or remote areas with limited grid capacity. (Image: A. Vargas/IAEA)

Small modular reactors (SMRs) are advanced nuclear reactors that have a power capacity of up to 300 MW(e) per unit, which is about one-third of the generating capacity of traditional nuclear power reactors. SMRs, which can produce a large amount of low-carbon electricity, are:

- **Small** – physically a fraction of the size of a conventional nuclear power reactor.
- **Modular** – making it possible for systems and components to be factory-assembled and transported as a unit to a location for installation.
- **Reactors** – harnessing nuclear fission to generate heat to produce energy.

Learn more about nuclear fission and energy (/newscenter/news/what-is-nuclear-energy-the-science-of-nuclear-power).

Advantages of SMRs

Many of the benefits of SMRs are inherently linked to the nature of their design – small and modular. Given their smaller footprint, SMRs can be sited on locations not suitable for larger nuclear power plants. Prefabricated units of SMRs can be manufactured and then shipped and installed on site, making them more affordable to build than large power reactors, which are often custom designed for a particular location, sometimes leading to construction delays. SMRs offer savings in cost and construction time, and they can be deployed incrementally to match increasing energy demand.

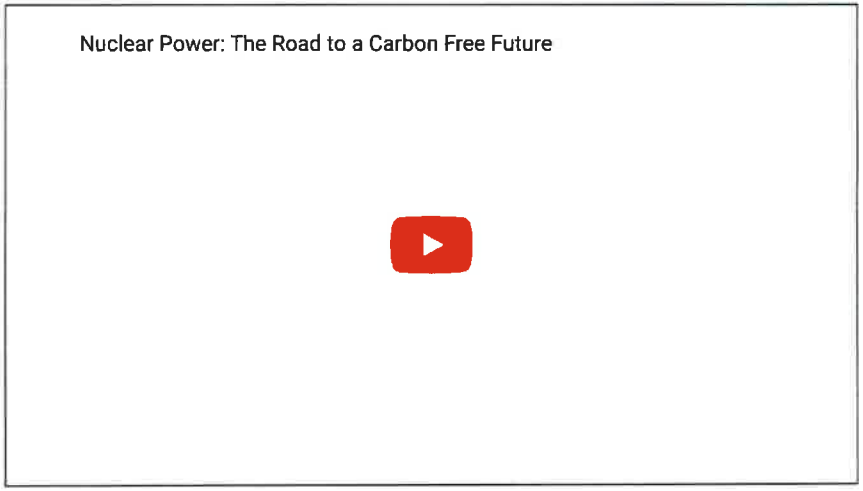
One of the challenges to accelerating access to energy is infrastructure – limited grid coverage in rural areas – and the costs of grid connection for rural electrification. A single power plant should represent no more than 10 per cent of the total installed grid capacity. In areas lacking sufficient lines of transmission and grid capacity, SMRs can be installed into an existing grid or remotely off-grid, as a function of its smaller electrical output, providing low-carbon power for industry and the population. This is particularly relevant for microreactors, which are a subset of SMRs designed to generate electrical power typically up to 10 MW(e). Microreactors have smaller footprints than other SMRs and will be better suited for regions inaccessible to clean,

reliable and affordable energy. Furthermore, microreactors could serve as a backup power supply in emergency situations or replace power generators that are often fuelled by diesel, for example, in rural communities or remote businesses.

In comparison to existing reactors, proposed SMR designs are generally simpler, and the safety concept for SMRs often relies more on passive systems and inherent safety characteristics of the reactor, such as low power and operating pressure. This means that in such cases no human intervention or external power or force is required to shut down systems, because passive systems rely on physical phenomena, such as natural circulation, convection, gravity and self-pressurization. These increased safety margins, in some cases, eliminate or significantly lower the potential for unsafe releases of radioactivity to the environment and the public in case of an accident.

SMRs have reduced fuel requirements. Power plants based on SMRs may require less frequent refuelling, every 3 to 7 years, in comparison to between 1 and 2 years for conventional plants. Some SMRs are designed to operate for up to 30 years without refuelling.

Nuclear Power: The Road to a Carbon Free Future



Nuclear power provides 10 per cent of the world's electricity, but to stem climate change, far greater amounts of clean and reliable energy are needed. Thirty countries currently operate nuclear power plants. More than two dozen others are looking at nuclear energy to meet their power and climate needs. In the western United States, more than 30 towns and cities are also looking to the future. They want to go carbon free, and they are betting on SMRs to get there.

What is the status of SMRs?

Both public and private institutions are actively participating in efforts to bring SMR technology to fruition within this decade. Russia's Akademik Lomonosov, the world's first floating nuclear power plant that began commercial operation in May 2020, is producing energy from two 35 MW(e) SMRs. Other SMRs are under construction or in the licensing stage in Argentina, Canada, China, Russia, South Korea and the United States of America.

More than 80 commercial SMR (https://aris.iaea.org/Publications/SMR_booklet_2022.pdf) designs being developed around the world target varied outputs and different applications, such as electricity,

hybrid energy systems, heating, water desalinisation and steam for industrial applications. Though SMRs have lower upfront capital cost per unit, their economic competitiveness is still to be proven in practice once they are deployed.

Read how international collaboration (/newscenter/news/international-collaboration-key-to-effective-microreactor-development-deployment) will help bring SMRs, including microreactors, to fruition.

SMRs and sustainable development

SMRs and nuclear power plants offer unique attributes in terms of efficiency, economics and flexibility. While nuclear reactors provide dispatchable sources of energy – they can adjust output accordingly to electricity demand – some renewables, such as wind and solar, are variable energy sources that depend on the weather and time of day. SMRs could be paired with and increase the efficiency of renewable sources in a hybrid energy system (/newscenter/news/nuclear-and-renewables-modelling-tool-to-evaluate-hybrid-energy-systems). These characteristics position SMRs to play a key role in the clean energy transition, while also helping countries address the Sustainable Development Goals (https://sdgs.un.org/goals) (SDGs).

Efforts to achieve the target of universal access to energy, SDG 7 (https://sdgs.un.org/goals/goal7), has made visible progress; however, gaps are still prevalent, mainly concentrated in remote and rural regions. As global efforts seek to implement clean and innovative solutions, the increased use of renewable energy coupled with the introduction of SMRs has the potential to fill such gaps.

Find out how nuclear can replace coal as part of the clean energy transition (/newscenter/news/how-can-nuclear-replace-coal-as-part-of-the-clean-energy-transition).

What is the role of the IAEA?

The SMR Regulators' Forum, created in March 2015, provides enabling discussions among countries and stakeholders to share SMR regulatory knowledge and experience.

- The IAEA has established the Platform on SMRs and their Applications (/newscenter/news/iaea-presents-new-platform-on-small-modular-reactors-and-their-applications), a one-stop shop for countries to coordinate support related to all aspects of SMR development, deployment, oversight and their electric and non-electric applications, such as use in district heating and desalination systems.
- The IAEA is assessing the level to which existing IAEA safety standards (/resources/safety-standards) can be applied to innovative technologies. The IAEA expects to publish a Safety Report on the applicability of IAEA safety standards to SMR technologies in 2022.
- The IAEA's Technical Working Group on Small and Medium Sized or Modular Reactors (/topics/small-modular-reactors/technical-working-group-on-small-and-medium-sized-or-modular-reactors-twg-smr) (TWG-SMR) and the SMR Regulators' Forum (/topics/small-modular-reactors/smr-regulators-forum) unites experts to discuss challenges and share experiences related to the development and future deployment of SMRs.
- The IAEA fosters sustainable nuclear energy development (/about/organizational-structure/department-of-nuclear-energy). The IAEA hosts technical meetings (/events/evt2000098), produces scientific and technical publications

(/publications/search/topics/small-modular-reactors) and facilitates coordinated research projects (/projects/coordinated-research-projects?type=3720&status=5017&topics=2936).

This article was first published on 4 November 2021.

Related resources

- Small modular reactors (SMR) (https://www.iaea.org/topics/small-modular-reactors)
- The SMR Platform and Nuclear Harmonization and Standardization Initiative (NHSI) (https://www.iaea.org/services/key-programmes/smr-platforms-nhsi)
- Advances in Small Modular Reactor Technology Developments (https://aris.iaea.org/Publications/SMR_booklet_2022.pdf)
- Nuclear Energy for a Net Zero World (https://www.iaea.org/sites/default/files/21/10/nuclear-energy-for-a-net-zero-world.pdf)
- Nuclear Explained – Nuclear Reactors and the Future of Nuclear Power, Part II (https://www.iaea.org/podcasts/nuclear-explained-nuclear-reactors-and-the-future-of-nuclear-power-part-ii)
- Nuclear Power: The Road to a Carbon Free Future (https://www.iaea.org/newscenter/multimedia/videos/nuclear-power-the-road-to-a-carbon-free-future)

More

Last update: 14 Sep 2023

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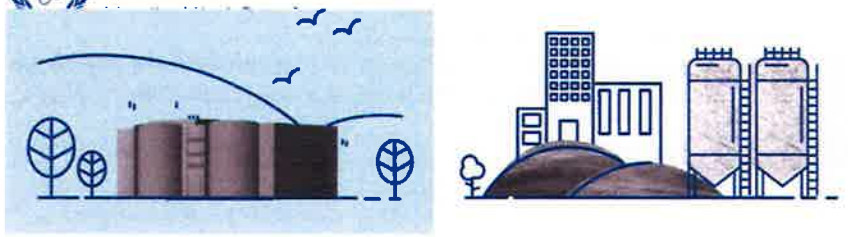

(/topics/small-modular-reactors)

Small modular reactors

Small and medium-sized or modular reactors are an option to fulfil the need for flexible power generation for a wider range of users and applications. Small modular reactors, deployable either as single or multi-module plant, offer the possibility to combine nuclear with alternative energy sources, including renewables.

Small modular reactors: flexible and affordable power generation

Global interest in small and medium sized or modular reactors has been increasing due to their ability to meet the need for flexible power generation for a wider range of users and applications and replace ageing fossil fuel-fired power plants. They also display an enhanced safety performance through inherent and passive safety features, offer better upfront capital cost affordability and are suitable for cogeneration and non-electric applications. In addition, they offer options for remote regions with less developed infrastructures and the possibility for synergetic hybrid energy systems that combine nuclear and alternate energy sources, including renewables.

Many Member States are focusing on the development of small modular reactors, which are defined as advanced reactors that produce electricity of up to 300 MW(e) per module. These reactors have advanced engineered features, are deployable either as a single or multi-module plant, and are designed to be built in factories and shipped to utilities for installation as demand arises.

There are more than 80 SMR designs and concepts globally. Most of them are in various developmental stages and some are claimed as being near-term deployable. There are currently four SMRs in advanced stages of construction in Argentina, China and Russia, and several existing and newcomer nuclear energy countries are conducting SMR research and development.

The IAEA is coordinating the efforts of its Member States to develop SMRs of various types by taking a systematic approach to the identification and development of key enabling technologies, with the goal to achieve competitiveness and reliable performance of such reactors. The Agency also helps them address common infrastructure issues that could facilitate the SMRs' deployment.

Publications

8 July 2024

Application of the Principle of Defence in Depth in Nuclear Safety to Small Modular Reactors (/publications/15676/application-of-the-principle-of-defence-in-depth-in-nuclear-safety-to-small-modular-reactors)

21 December 2023

Considerations for the Back End of the Fuel Cycle of Small Modular Reactors (/publications/15519/considerations-for-the-back-end-of-the-fuel-cycle-of-small-modular-reactors)

30 November 2023

Applicability of IAEA Safety Standards to Non-Water Cooled Reactors and Small Modular Reactors (/publications/15228/applicability-of-iaea-safety-standards-to-non-water-cooled-reactors-and-small-modular-reactors)

28 November 2023

Advancing the State of the Practice in Uncertainty and Sensitivity Methodologies for Severe Accident Analysis in Water Cooled Reactors of PWR and SMR Types (/publications/15405/advancing-the-state-of-the-practice-in-uncertainty-and-sensitivity-methodologies-for-severe-accident-analysis-in-water-cooled-reactors-of-pwr-and-smr-types)

More publications → (/publications/search/topics/small-modular-reactors)

News

(/newscenter/news/iaea-initiative-examines-role-of-non-nuclear-codes-in-standardizing-smr-deployment)

IAEA Initiative Examines Role of Non-Nuclear Codes in Standardizing SMR Deployment (/newscenter/news/iaea-initiative-examines-role-of-non-nuclear-codes-in-standardizing-smr-deployment)

(/newscenter/news/international-conference-on-spent-fuel-management-starts-today)

International Conference on Spent Fuel Management Starts Today (/newscenter/news/international-conference-on-spent-fuel-management-starts-today)

More news → (/news?topics=2936)

4 (/projects/coordinated-research-projects?type=3720&status=5017&topics=2936)

Active Coordinated Research Projects

Related resources

- Advanced Reactor Information System (ARIS) (https://aris.iaea.org/)
- Advances in Small Modular Reactor Technology Developments (2020) (https://aris.iaea.org/Publications/SMR_Book_2020.pdf)
- Technical Working Group on Small and Medium Sized or Modular Reactors (TWG-SMR) (https://www.iaea.org/topics/small-modular-reactors/technical-working-group-on-small-and--medium-sized-or-modular-reactors-twg-smr)

‹ Nuclear power reactors (/topics/nuclear-power-reactors)

› Small Modular Reactor (SMR) Regulators' Forum (/topics/small-modular-reactors/smr-regulators-forum)

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Official Email (/contact/official-mail)

ok Principal allowed use C Conditional use A Accessory use TU Temporary use -- Prohibited use	AP	AE	NR	SR	GC	HC	LI	GI
Hospice facility	C	C	C	C	--	--	--	--
Hospice services	--	--	--	--	ok	--	--	--
Substance abuse counseling	C	C	--	--	ok	--	--	--
Soup kitchens	--	--	--	--	ok	--	--	--
Transportation, communication and public services								
Air transportation								
Airport and heliport	C	C	--	--	--	--	--	--
Bus garage	C	--	--	--	ok	--	ok	--
Pipelines								
Pipelines	C	C	C	C	C	C	C	C
Pipeline terminals, pumping stations, etc.	C	--	--	--	--	--	C	C
Public services								
Ambulance stations	C	C	C	C	ok	--	--	--
Fire stations	C	C	C	C	ok	--	--	--
Police stations	C	C	C	C	ok	--	--	--
Public service garage	--	--	--	--	C	C	ok	C
Railroads								
Rail lines	C	C	C	C	C	C	C	C
Rail switch yards, equipment repair & maint.	C	--	--	--	--	--	C	C
Signs								
Off-premise	--	--	--	--	C	C	--	--
On-premise	A	A	A	A	A	A	A	A
Telecommunication towers and facilities								
Antennas on existing structures	ok	ok	ok	ok	ok	ok	ok	ok
Telecommunication towers	C	C	C	C	C	C	C	C
Utilities								
Electrical energy generation (not incl. wind)	--	--	--	--	--	--	--	C
Electrical energy wind generation (Commercial)	C	--	--	--	--	--	--	C
Sewage treatment plants	C	C	C	C	C	C	C	C
Utility substations	ok	ok	--	--	ok	--	--	ok
Electric wind generator (Private use)	C	C	C	C	C	C	C	C
Solar Energy Systems (Private use)	A	A	A	A	A	A	A	A
Solar Energy Systems, Utility Scale	--	--	--	--	--	--	--	C
Sewage treatment for subdivision	C	C	C	C	C	C	C	C
Sewage lagoon	C	C	C	C	C	C	C	C
Water storage tanks	C	C	C	C	C	C	C	C

4. No detached accessory building or structure shall exceed the height of the principal building or structure.
5. Detached accessory structures shall not be located closer to any other accessory or principal building than ten feet.

Section 4.13: Building prohibited.

The Natural Resources Conservation Service (NRCS) has identified areas that are potentially subject to inundation by waters released due to partial or complete failure of a dam or other water retention or detention facility. No building shall be constructed in such identified potential water inundation areas.

Section 4.14: Home Occupation Uses.

"Home occupation" is defined as any business, occupation or activity conducted for gain within a residential building, or an accessory building, which is incidental or secondary to the use of such building for dwelling purposes and which does not change the essential residential character of the property. The regulations of this section dealing with home occupations are designed to protect and maintain the residential character of a neighborhood while permitting certain limited commercial activities.

1. The home occupation must be the enterprise of a person living on the premises.
2. Only three persons who do not reside on the premises may be employed in the home occupation.
3. The home occupation shall be conducted entirely within an enclosed building and there shall be no display or outdoor storage that would indicate from the exterior that the building is being used in part for any purpose other than residential.
4. Home occupation and employee vehicles shall be stored either in a building or screened from view from a public or private road or from an adjacent property.
5. Only one on-premise unlighted sign not more than 25 square foot in area shall be allowed.
6. No equipment or process shall be used in a home occupation that produces noise, vibration, glare, fumes, odors, or electromagnetic interference detectable beyond the premises to the extent that the home occupation is determined to be noxious, offensive or hazardous.
7. Prohibited home occupations: The following uses are specifically prohibited as home occupations:
   A. Adult uses.

Section 4.15: Junk vehicles.

1. Junk vehicles may not be stored outside an enclosed building except
   A. In a properly screened storage area as part of either an automotive salvage business or an automotive towing business as allowed in the Land Use Summary Table in Section 3.03-4.
   B. Not more than two junk vehicles may be stored outside an enclosed building in a location adequately screened from view from a public roadway or adjacent property.
2. Parts removed from vehicles may not be stored outside an enclosed building.

Abbreviations – DU – Dwelling unit GFA – Gross floor area GLA – Gross land area	Required Number of Parking spaces	Required Number of Loading spaces
Churches, synagogues, temples and religious shrines	1 per 4 seats	None
Schools (unless otherwise noted below)	1 per employee + 1 per 4 seats in assembly	One
Secondary schools	1 per employee + 1 per 3 students	One
Social services (unless otherwise noted below)	1 per employee	None
Hospice facility	1 ½ per employee	
Substance abuse counseling	2 per employee	
Transp., Comm., & Pub. Svc. (unless otherwise noted below)	1 per employee	None
Pipeline (incl. terminals, pump station,	None	None
Rail lines	None	None
Signs	None	None
Telecommunication towers and facilities	None	None
Utilities		
Electrical wind generation (Commer-	None	None
Utility substations	None	None
Electric wind generator (Private use)	None	None
Sewage treatment for subdivision	None	None
Sewage lagoon	None	None
Water storage tanks	None	None

Section 5.02: Sign Requirements

1. **Purpose.** The purpose of this section is to set forth minimum requirements for use, size and location of signs in order to ensure public health safety and welfare and promote implementation of the comprehensive plan.
2. **Scope of regulations.** The regulations contained in this section apply to signs in all zoning districts. No sign may be located, erected or maintained except in compliance with the regulations of this section.
3. **Nonconformities.** Any sign legally in existence on the effective date of this ordinance that is made nonconforming by these regulations or any amendments thereto may continue subject to the requirements of Section 4.02, including provisions for amortization of nonconformities in subsection 4.02-4. C.
4. **Permit required.** A sign permit, issued by the Zoning Director in response to an application containing information needed to determine compliance with the requirements of this Section, shall be required prior to erection of any sign, except exempt signs as described in subsection 6 below.
5. **Prohibited signs.**

A. No sign shall be placed on or over any road right-of-way other than an official traffic or street sign and such other signs approved for placement by the controlling public agency.

B. No sign shall be placed on any public or private party without the consent of the owner or authorized agent of the owner of the property.

C. No sign shall be placed at any location where it may, by reason of its size, shape, design, location, content, coloring, manner of illumination or changing display capability, constitute a traffic hazard or a detriment to traffic safety by obstructing the vision of drivers by obscuring or otherwise physically interfering with any official traffic control device, or that may be confused with an official traffic control device. Signs must conform to the corner visual clearance requirements of section 4.09.

6. Exempt signs. The following signs are exempt from the regulations of this section.

A. Traffic control signs approved by the controlling public agency for placement on the public right-of-way and other signs required by law or government order.

B. Display of any official flag or emblem of the nation or state.

C. Any sign located within a building that is not visible from a public right-of-way.

D. Grave markers, memorials and statues of persons or events that are non-commercial.

E. Temporary holiday decorations and displays.

F. Community event notices.

G. Signs attached to or applied directly to a motor vehicle that is used in the normal course of business. A sign-bearing vehicle that is parked more or less permanently in a location visible from a traveled road may be determined to be a sign and therefore subject to the requirements of this section.

H. Information signs to provide direction, safety or convenience of the public to assist in finding entrances, exits, parking, rest rooms, telephones, etc.

I. Address signs containing only the address of the premises.

J. Political signs promoting a public issue or a candidate for public office.

K. Real estate for sale or rent signs that comply with the size and location standards for on-premise signs in the zoning district.

L. Construction site signs identifying a development, developer, principal contractors, designers, etc.

M. Incidental signs serving the interest of the property owner, such as “No Hunting”, “No Trespassing”, etc.

7. Standards for on-premise advertising signs. Standards for on-premise advertising signs are set forth in the following tables.

A. Free-standing signs.

(1) Pylon signs

	Allowed?	Maximum Size	Required Setbacks	Maximum Height	Minimum Clearance from Grade
AP	No	N/A			
AE					
NR					
SR					
GC	Yes	100 sq. ft.	10 ft. Front 5 ft. Side	45 ft.	12 ft.
HC		200 sq. ft.			
LI		100 sq. ft.			
GI					

(2) Ground signs

	Allowed?	Maximum Size	Required Setbacks	Maximum Height	Minimum Clear-ance from Grade
AP	Home Oc-cupation Signs	25 sq. ft.	10 ft. Front 5 ft. Side	6 feet	None
AE					
NR					
SR	Home Oc-cupation Signs & Apt. Ident. Signs				
GC	Yes	100 sq. ft.		10 feet	
HC		200 sq. ft.			
LI		100 sq. ft.			
GI					

B. Building signs.

(1) Wall signs

	Allowed?	Maximum Size	Maximum Height
AP	Home Occupation Signs	25 sq. ft.	Not above eave or parapet
AE			
NR			
SR	Home Occupation Signs Apt. Ident. Signs	10 sq. ft.	
GC	Yes	20% of wall area	
HC			
LI		10% of wall area	
GI			

(2) Window signs

	Allowed?	Maximum Size	Maximum Number of Signs
AP	No	N/A	
AE			
NR			
SR			
GC	Yes	25% of window area	2 per building side
HC			
LI	No	N/A	
GI			

(3) Projecting signs

	Allowed?	Maximum Size	Maximum Height	Maximum Projection from Bldg	Minimum Clearance
AP	No	N/A			
AE					
NR					
SR					
GC	Yes	12 sq. ft	Not above eave or par-apet	6 ft.	8 ft. over walkway 14' over driveway
HC					
LI	No	N/A			
GI					

8. Standards for off-premise advertising signs.

A. Standards for off-premise advertising signs (e.g. billboards) are set forth in the following table:

	Allowed?	Required Separation	Maximum Size	Required Setbacks	Maximum Height
AP	No	N/A	N/A	N/A	N/A
AE					
NR					
SR					
GC	Conditional Use approved by Board of Adjustment	1000 ft. between off-premise signs; 1000 ft. from AE, NR, SR zones	500 sq. ft. + 1 addl. sq.ft. per 1' addl. separation up to 672 sq.ft.	Zoning district setbacks	35 ft.
HC					
LI	No	N/A	N/A	N/A	N/A
GI					

B. No off-premise advertising signs shall be located within 660 feet of the nearest right-of-way line or in a location visible from the nearest right-of-way line of U.S. Highway 75 between its intersection with U.S. Highway 20 and the Plymouth County line.

Section 5.03: Floodplain Management Ordinance

1. Definitions

Unless specifically defined below, words or phrases used in this Ordinance shall be interpreted so as to give them the meaning they have in common usage and to give this Ordinance its most reasonable application.

A. Appurtenant Structure – A structure which is on the same parcel of the property as the principal structure to be insured and the use of which is incidental to the use of the principal structure.

B. Base Flood - The flood having one (1) percent chance of being equaled or exceeded in any given year. (Also commonly referred to as the "100-year flood").

C. Base Flood Elevation (BFE) – The elevation floodwaters would reach at a particular site during the occurrence of a base flood event.

D. Basement - Any enclosed area of a building which has its floor or lowest level below ground level (subgrade) on all sides. Also see "lowest floor."

E. Development - Any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation, drilling operations or storage of equipment or materials. "Development" does not include "minor projects" or "routine maintenance of existing buildings and facilities" as defined in this section. It also does not include gardening, plowing, and similar practices that do not involve filling or grading.