Invenergy LLC
Thermal Energy Generating System Proposal

In the Matter of Xcel Energy's Competitive Resource Acquisition Process for up to 800 Megawatts of Firm Dispatchable Generation

Minnesota Public Utilities Commission Docket No. E002/CN-23-212

January 22, 2023

Submitted by Invenergy LLC and its affiliate Invenergy Cannon Falls LLC

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STATE OF MINNESOTA
MINNESOTA PUBLIC UTILITIES COMMISSION

In the Matter of Xcel Energy's Competitive Resource Acquisition Process for up to 800 Megawatts of Firm Dispatchable Generation

Docket No. E002/CN-23-212

Invenergy LLC
Alternative Proposal
Cannon Falls Thermal Energy Center

SUMMARY OF FILING
CANNON FALLS THERMAL ENERGY CENTER

Pursuant to the Minnesota Public Utilities Commission's November 3, 2023 Order Approving Petition and Requiring Compliance Filing, Invenergy LLC and its affiliate, Invenergy Cannon Falls LLC, submitted a proposal for the Cannon Falls Thermal Energy Center to meet Xcel Energy's need for up to 800 MW of firm dispatchable resources.

The Cannon Falls Thermal Energy Center is an existing gas-fired peaking capacity facility with a nameplate capacity of 357 MW located in Cannon Falls, Minnesota. The facility was commissioned in April 2008 and the energy generated from the facility is currently sold to Xcel Energy. The Cannon Falls Thermal Energy Center consists of two dual-fuel simple cycle combustion turbines. The primary fuel is natural gas but can utilize low sulfur distillate fuel oil as a backup. This proposal is to extend the existing contract with Xcel Energy to continue to supply low-cost and reliable energy and capacity to Minnesotans from an existing asset, without the need to add more thermal capacity to the grid.

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APPLICATION CONTENT REQUIREMENTS COMPLETENESS CHECKLIST

Minnesota Rule	Required Information	Application Section(s)	Exemption Granted
7849.0240	**Need Summary and Additional Considerations**		
Subp. 1	Need Summary – summary of major factors justifying need for facility	3.1	No
Subp. 2	Additional Considerations – Socially beneficial uses of the output of the facility, including to protect or enhance environmental quality	3.2	Yes
7849.0250	**Proposed LEGF and Alternatives Application**	4.0	
A	Description – Nominal generating capability and effects of economies of scale on facility size and timing	4.1	No
B	Discussion of Alternatives – Purchased power	-	Yes
C	Proposed Facility and Alternatives	-	Yes
D	System Map	4.2	No
E	Other relevant information about the facility and alternatives that may be relevant to a determination of need	-	-
7849.0270	**Peak Demand and Annual Consumption Forecast**	5.0	Yes
7849.0280	**System Capacity**	6.0	Yes
7849.0290	**Conservation Programs**	7.0	Yes
7849.0300	**Consequences of Delay**	8.0	Yes
7849.0310	**Environmental Information – Required Environmental Information**	9.0	No
7849.0320	**Generating Facilities**	10.0	Yes
7849.0340	**No-Facility Alternative**	-	Yes
IRP Order	**Supplementary Data Required for Alternative Providers**		No
A.	**Developer experience and qualifications.**		No
B.	**Pricing of the proposal,**		No
C.	**Scheduling provisions**		No
D.	**Discussion of the guaranteed performance factors, such as construction costs, unit completion, availability, and efficiency.**		No
E.	**Any other key contract terms the provider requires.**		No
Metric 32	**Minn. R. 7849.1500 Subp. 2: Impacts of Power Plants:**	9.0	No
(A)	The anticipated emissions of the following pollutants expressed as an annual amount at the maximum rated capacity of the project and as an amount produced per kilowatt hour and the calculations performed to determine the emissions: sulfur dioxide, nitrogen oxides, carbon dioxide, mercury, and particulate matter, including particulate matter under 2.5 microns in diameter;	9.3	No
(B)	The anticipated emissions of any hazardous air pollutants and volatile organic compounds;	9.3, 9.6	No

Minnesota Rule	Required Information	Application Section(s)	Exemption Granted
(C)	The anticipated contribution of the project to impairment of visibility within a 50-mile radius of the plant;	9.1	No
(D)	The anticipated contribution of the project to the formation of ozone expressed as reactive organic gases. Reactive organic gases are chemicals that are precursors necessary to the formation of ground-level ozone;	9.3	No
(E)	The availability of the source of fuel for the project, the amount required annually, and the method of transportation to get the fuel to the plant;	4.3	No
(F)	Associated facilities required to transmit the electricity to customers;	4.0	No
(G)	The anticipated amount of water that will be appropriated to operate the plant and the source of the water if known;	9.4	No
(H)	The potential wastewater streams and the types of discharges associated with such a project including potential impacts of a thermal discharge;	9.5	No
(I)	The types and amounts of solid and hazardous wastes generated by such a project, including an analysis of what contaminants may be found in the ash and where the ash might be sent for disposal or reuse; and	9.6	No
(J)	The anticipated noise impacts of a project, including the distance to the closest receptor where state noise standards can still be met.	9.7	No
§ 216B.1694, subd.(2)(5)	**Innovative Energy Project**	13.0	No
216B.2422, subd. 4	**Resource Planning; Renewable Energy**	14.0	No
216B.2426	**Opportunities for Distributed Generation**	15.0	No
216B.243, subd. 3(10)(12)	**Certificate of Need from Large Energy Facility**		No
216B.243, subd. 3a	**Certificate of Need from Large Energy Facility**	16.0	No

CANNON FALLS THERMAL ENERGY CENTER

1.0 EXECUTIVE SUMMARY

Invenergy LLC ("Invenergy") and its affiliate Invenergy Cannon Falls LLC ("Invenergy Cannon Falls") are pleased to submit this alternative proposal pursuant to the Minnesota Public Utilities Commission's ("Commission") competitive resource acquisition process for up to 800 MW of firm dispatchable resources to serve Northern States Power Company's, d/b/a Xcel Energy's Upper Midwest service territory. Invenergy is offering firm capacity from an existing facility located within Xcel Energy's service territory currently serving Xcel's customers.

Invenergy Cannon Falls, a Delaware limited liability company, is an independent power producer that operates the Cannon Falls Thermal Energy Center in Cannon Falls Township in Goodhue County, Minnesota (**Figure 1**).

By extending the life of an existing asset, Xcel Energy would continue to have access to a firm dispatchable peaking facility without the need to construct additional gas peaking facilities. The current pricing and offer are to extend its Power Purchase Agreement (PPA). Its existing PPA with Xcel is to expire spring 2028.

Invenergy is a global leader in the development and operation of sustainable energy solutions, having successfully developed over 31 GW of wind, solar, natural gas power generation, and energy storage projects across the Americas, Europe and Asia. As the largest privately held independent power producer in the United States, Invenergy has demonstrated a long track record of success, with a unique ability to remain nimble in an ever-changing marketplace, by executing on reliable, low-cost solutions tailored to individual customer needs. These are just a few of the many advantages of partnering with Invenergy.

2.0 GENERAL PROJECT INFORMATION

2.1 THE CANNON FALLS THERMAL ENERGY CENTER

The Cannon Falls Thermal Energy Center ("Cannon Falls Facility," "Facility," or "Project") is an existing gas-fired peaking capacity facility with a nameplate capacity of 357 megawatts (MW). The facility was commissioned in April 2008 and the energy generated from the facility is currently sold to Xcel Energy. The Cannon Falls Thermal Energy Center consists of two dual-fuel simple cycle combustion turbines. The primary fuel is natural gas but can utilize low sulfur distillate fuel oil as a backup.

The Cannon Falls Facility has been supplying reliable capacity and energy to Xcel Energy and its customers since 2008, while also creating jobs and contributing economic development dollars to Goodhue County. Invenergy Cannon Falls' existing power purchase agreement with Xcel expires May 31, 2028. Invenergy Cannon Falls proposes extending the current contract.

If this proposal is not selected to meet Xcel Energy's need for up to 800 MW firm dispatchable energy and capacity or the contract is not otherwise extended by Xcel, Invenergy

intends to offer the Cannon Falls Facility for sale to other utilities and corporate purchasers that have identified a need for additional capacity and/or energy.

The Cannon Falls Facility is located in the town of Cannon Falls in southeastern Minnesota. The Cannon Falls Facility, including transmission line interconnection facilities, has been sited within an approximately 55-acre footprint (Project Area). This proposal is not requesting any change to the size, footprint, configuration, or any other material modification to the facility. The purpose of this proposal is to simply extend the existing contract Invenergy Cannon Falls has with Xcel Energy to continue to supply low-cost and reliable energy and capacity to Minnesotans from an existing asset, without the need to add more thermal capacity to the grid.

The existing operating Facility consists of:

- Two (2) dual-fuel simple cycle combustion turbines;
- Two (2) combustion turbine generator trains;
- One (1) natural gas conditioning system;
  One (1) fire protection system including diesel fire pump;
- One (1) distillate fuel oil above ground storage tank;
- Security fencing and gates;
- Access roads;
- Administration control building;
- Project substation;
- Step-up transformer(s);
- Circuit breakers;
- Metering equipment;
- Ancillary equipment or buildings as necessary.

The Cannon Falls Facility interconnects to the Midcontinent Transmission System Operator ("MISO") via a 115 kV interconnection at the existing substation. As an existing facility, the Cannon Falls Facility is fully permitted and meets all current and expected future environmental laws and regulations.

The natural gas is supplied via a 13-mile lateral pipeline connecting to the existing Northern Natural Gas Company interstate pipeline. Water is provided through an interconnection with the City of Cannon Falls. Process and sanitary wastewater is discharged to the city's sewer system.

The Cannon Falls Facility is capable of utilizing a small blend of hydrogen in its fuel supply in lieu of natural gas. Invenergy Cannon Falls will continue to assess its options to increase the ability for the facility to run on hydrogen, which would not release greenhouse gases.

The Cannon Falls Facility can also be retrofitted to include black start capabilities via an onsite diesel generator. While this is not included in this proposal, Invenergy Cannon Falls is open to discussing this additional service with Xcel Energy as needed. The project has much of the infrastructure in place to support this type of additional capability.

2.2 APPLICANT INFORMATION

Invenergy Cannon Falls LLC is a Delaware limited liability company and an affiliate of Invenergy LLC, a clean energy infrastructure company. Invenergy is one of the leading independent power producers in the United States and internationally, having developed over 30,000 megawatts of natural gas-fueled and renewable power generation with its affiliates.

Invenergy has developed 68 projects across the Midwest region totaling more than 12,000 MW. The total is comprised of 41 wind projects, 19 solar projects, 3 natural gas facilities and 6 storage projects. These projects have generated investments of more than $67 million annually in local communities. In Minnesota, Freeborn Wind Energy LLC, an affiliate of Invenergy, recently completed development, permitting, and sale of the Freeborn Wind Project located in Freeborn County, Minnesota and Worth County, Iowa to Xcel Energy in 2019. Invenergy has also applied for a Certificate of Need for its Lake Wilson Solar Energy Center, which Invenergy submitted as a separate proposal in this competitive resource acquisition process.

2.3 PROJECT CONTACTS

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3.0 NEED SUMMARY AND ADDITIONAL CONSIDERATIONS (MINN. R. 7849.0240)

3.1 NEED SUMMARY

The Cannon Falls Facility is well-positioned to help meet the needs of Xcel Enegy and is aligned with the broader needs of the state of Minnesota. In its order for Xcel Enegy's 2019 Integrated Resource Plan ("IRP"), the Commission held that:

> it is more likely than not that there will be a need for approximately, but not more than, 800 MW of generic firm dispatchable resources between 2027 and 2029. In a future resource plan, Certificate of Need application, or applicable resource acquisition proceeding, Xcel shall include an evaluation of renewable resources and storage that can deliver the identified necessary grid attributes to meet the need for approximately, but not more than, 800 MW of generic firm dispatchable resources between 2027 and 2029.[1]

[1] *In re Xcel Energy's 2020-2034 Upper Midwest Integrated Resource Plan*, MPUC Docket No. E002/RP-19-368, Order Approving Plan with Modifications and Establishing Requirements for Future Filings at 32 (Order Point 3) (Apr. 15, 2022).

In this current proceeding, the Commission initiated a process to address Xcel's proposal for acquiring 800 MW of firm dispatchable resources consistent with its 2019 IRP order and facilitate the resource acquisition process using the Xcel-Bid Contested Case/Track 2 Process.[2]

Invenergy Cannon Falls is proposing to extend the life of its current contract with Xcel Energy to sell energy, capacity, and ancillary services. By extending this contract for an efficient and reliable combustion turbine, Xcel Energy will not need to add more new thermal energy to serve its Minnesota portfolio. Instead, Xcel Energy will be leveraging a known, reliable asset that can continue to serve its customers for years to come without constructing new thermal facilities, which is congruent with Minnesota's long-term vision of sustainability.

The State of Minnesota recently adopted a carbon-free standard to accelerate the energy transition to attain carbon-free electricity by 2040 with certain milestones along the way.[3] Firm dispatchable resources will be needed during this transition to 100% carbon-free electric generation. These resources are needed as baseload plants retire and additional renewable energy, which is intermittent by nature, comes online.

As an existing gas peaking plant, the Cannon Falls Facility is well positioned to avoid increasing carbon emissions by adding new combustion turbines to Xcel Energy's system. Further, it is likely the power generated from the Cannon Falls Facility would continue beyond 2028 in the event the power purchase agreement with Xcel Energy is not extended. The power purchase agreement could also contain an option to extend the term beyond 2040 in the event offramps in the carbon-free standard are triggered and utilities are unable to meet the statute's milestones. Lastly, it may be possible to include a commitment to retire renewable energy credits ("RECs") generated outside of this facility in conjunction with the supplied energy/capacity.

In its 2019 IRP, Xcel Energy proposed acquiring two new combustions turbines by 2029.[4] Although Xcel Energy stated that these turbines would have the option to run hydrogen in lieu of natural gas,[5] using hydrogen as the fuel source may not be realistic to come online between 2027 and 2029.

3.2 ADDITIONAL CONSIDERATIONS

3.2.1 Effects of Facility in Inducing Future Development

The Cannon Falls Facility generates approximately $1.5 million in property tax revenue annually and has seven permanent employees. The Cannon Falls Facility is operational and will not directly affect development in Goodhue County or hinder future development that can otherwise occur in surrounding agricultural areas.

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[2] Order Approving Petition and Requiring Compliance Filing (Nov. 3, 2023); *see also In re Xcel Energy's 2020-2034 Upper Midwest Integrated Resource Plan*, MPUC Docket No. E002/RP-19-368, Order Approving Plan with Modifications and Establishing Requirements for Future Filings at 33 (Order Point 6), Appendix A (Apr. 15, 2022).

[3] Minnesota 2023 Session Laws, Ch. 7, Section 10, H.F. 7 (amending Minn. Stat. § 216B.1691 to require investor-owned utilities, such as Xcel Energy, to achieve 80 percent of all electricity sold to be from carbon-free sources by 2030, 90% by 2035, and 100% by 2040).

[4] *In re Xcel Energy's 2020-2034 Upper Midwest Integrated Resource Plan*, MPUC Docket No. E002/RP-19-368, Order Approving Plan with Modifications and Establishing Requirements for Future Filings at 9 (Apr. 15, 2022).

[5] *Id*.

4.0 THE CANNON FALLS FACILITY (MINN. R. 7849.0250)

Cannon Falls Thermal Energy is a permitted, constructed and fully operating 357 MW peaking capacity facility located in Cannon Falls, Minnesota. The Project consists of two dual simple cycle combustion turbines which primarily fire natural gas with low sulfur distillate oil as a backup fuel. The two simple cycle gas-fired General Electric 7FA combustion turbine generators, each with a nominal capacity of 175 MW, and associated auxiliary equipment are operated for peak electric service. The distillate fuel oil contains a sulfur content no greater than 0.05 percent by weight. To control emissions of nitrogen oxides ("NO_x") while firing natural gas, the combustion turbines are equipped with dry low NO_x combustors.

Associated equipment includes the following:

- One 750,000-gallon distillate fuel oil aboveground storage tank;
- Two Combustion Turbine Generator Trains;
- One natural gas conditioning system; and
- One fire protection system including diesel fire pump.

The Project is located on an approximately 55-acre site in the business Park North area in Cannon Falls, Minnesota in Goodhue County. The property is located within Township 112 North, Range 17 West, in the northwestern ¼ of Section 6. Invenergy Cannon Falls LLC owns the 55-acre property on which the Project is located. The closest residential dwelling is located approximately 1,400 feet southwest of the Project and associated equipment. The nearest residential subdivision lies approximately one mile to the southeast.

The Project interconnects to the Midwest Independent Transmission System Operator (MISO) grid via a 115 kV interconnection at the existing substation. As an existing facility, the Project is fully permitted and meets all current and expected future environmental laws and regulations.

The natural gas is supplied via a 13-mile lateral pipeline connecting to the existing Northern Natural Gas Company interstate pipeline. Water is provided through an interconnection with the City of Cannon Falls. Process and sanitary wastewater is discharged to the City's sewer system.

4.1 NOMINAL GENERATING CAPABILITY AND EFFECT OF ECONOMIES OF SCALE

The Facility is capable of providing 357 MW of peaking capacity. As an existing and operating Facility, economies of scale no longer impact the proposed pricing as capital costs are covered.

4.2 ANNUAL CAPACITY FACTOR

The Annual Capacity Factor of the Cannon Falls Facility is 5.0% with a storage duration of 23.0 Nameplate Capacity hours.

4.3 FUEL

The Facility burns natural gas in its two combustion turbine generators and low distillate fuel oil as a backup. The pipeline from the Northern Natural Gas interstate pipeline is designed to deliver up to 95 million cubic feet ("MMcf") of natural gas per day at a nominal operating pressure of 500 to 900 psig. Each CTG can be expected to combust approximately 1.74 MMcf of natural gas per hour. As a minor air emission source, the natural gas consumption will be limited by air permit, issued by the Minnesota Pollution Control Agency, to 6635 MMcf per year per turbine.

The CTGs will combust low sulfur distillate fuel oil as a backup fuel supply. The air permit for the Cannon Falls Facility limits the amount of distillate fuel oil used. Invenergy Cannon Falls has installed a 750,000-gallon fixed roof aboveground storage tank to store low sulfur distillate fuel oil. Due to the low vapor pressure of the fuel oil (0.03 psia), potential fugitive volatile organic compounds ("VOC") emissions are negligible.

The fuel oil storage tank is of a "tank-within-a-tank" design. The design uses a ring wall foundation for tank support. The outer tank provides a secondary containment greater than the capacity of the inner tank. Secondary containment provided by the annular space prevents, in the event of a break in the inner tank wall, any contamination from reaching the surrounding environment. The annular space between the inner and outer tank walls is equipped with sensors to alert plant personnel in the event of a breach of the inner tank wall. The tank is filled by tanker truck from one of two truck unloading stations. Fuel oil from the storage tanks is pumped to the combustion turbines as needed. The unloading area has a containment capacity greater than 110% of the capacity of a tanker truck to safely contain any oil spills from the delivery tanker trucks.

To minimize rainwater or snowmelt in the containment area, there is a canopy over the unloading facilities. Any rainwater or snowmelt falling within the unloading area is routed to the Cannon Falls Facility's oil-water separator before being discharged to the city sewer system. The Cannon Falls Facility complies with all applicable state and federal requirements governing aboveground storage and spill control.

The Cannon Falls Facility stores diesel fuel for the emergency fire water pump and the emergency generator in aboveground storage tanks with secondary containment. These tanks have a storage capacity of less than 1,000 gallons. Due to the low volatility of the diesel fuel, potential VOC emissions are negligible.

4.4 ANTICIPATED HEAT RATE

The 7FA combustion turbine generator has a maximum firing capacity of approximately 1,900 MMBTu/hr at low temperature and ambient conditions. When firing distillate fuel oil, the combustion turbine generators has a maximum firing capacity of 2,100 MMBTu/hr (HHV) at low

temperature ambient conditions. The exhaust gas from each combustion turbine generators is directed to a 75-foot high exhaust stack.

The Cannon Falls Facility uses a proposed 9 MMBtu/hour natural gas-fired water bath gas heater to preheat the natural gas before it enters the combustion chamber. The natural gas is preheated prior to combustion as the equipment manufacturer requires a minimum level of superheat (degrees above the natural gas dewpoint temperature) which is not met by the delivered natural gas delivered. The heater operates only when a combustion turbine is operating on natural gas.

The below table describes the anticipated heat rates for natural gas through all four seasons at the Facility. Heat rates are equivalent for both simple cycle units. Heat rates are not calculated for the fuel oil option.

Table 1: Anticipated Heat Rates for Natural Gas Facility

	Summer		Winter		Shoulder (Spring/Fall)	
	Net Capacity (MW)	Heat Rate (Btu/kWh)	Net Capacity (MW)	Heat Rate (Btu/kWh)	Net Capacity (MW)	Heat Rate (Btu/kWh)
Simple Cycle (Min)	80	13500	80	13250	80	13350
Simple Cycle (25%)	99	12100	105	11850	101	12000
Simple Cycle (50%)	119	11200	130	11000	123	11100
Simple Cycle (75%)	138	10700	154	10500	144	10600
Simple Cycle (Max)	157	10500	179	10300	165	10400

4.5 FACILITY LOCATION

The Cannon Falls Facility is located on an approximately 55-acre site in the Business Park North are in Cannon falls, Minnesota in Goodhue County. The site boundaries are located approximately 600 feet west of Cannon Industrial Boulevard, 850 feet north of Holiday Avenue, and approximately 300 feet northwest of County Highway 29. The site shares its western boundary with the boundary separating Goodhue County and Dakota County. The property is located within Township 112 North, Range 17 West, in the northwestern ¼ of Section 6.

The City of Cannon Falls has zoned the Business Park North district for restricted light industry uses. Several commercial/industrial facilities are located adjacent to the project site/s southern boundary. The closest residential dwelling is located approximately 1,400 feet southwest

of the proposed Project and associated equipment. The nearest residential subdivision lies approximately one mile to the southeast.

4.6 MAP OF SYSTEM (MINN. R. 7849.0250(D))

Please see below for a map of the system layout and other facilities in close proximity.

Figures 1 & 2: Cannon Falls Facility System Map

5.0 PEAK DEMAND AND ANNUAL CONSUMPTION FORECAST (MINN. R. 7849.0270)

The Cannon Falls Facility is exempt from this statute per Appendix A of Attachment C to Xcel's posted RFP and Compliance Filing.

6.0 SYSTEM CAPACITY (MINN. R. 7849.0280)

The Cannon Falls Facility is exempt from this statute per Appendix A of Attachment C to Xcel's posted RFP and Compliance Filing.

7.0 CONSERVATION PROGRAMS (MINN. R. 7849.0290)

The Cannon Falls Facility is exempt from this statute per Appendix A of Attachment C to Xcel's posted RFP and Compliance Filing.

8.0 CONSEQUENCES OF DELAY–SYSTEM (MINN. R. 7849.0300)

The Cannon Falls Facility is exempt from this statute per Appendix A of Attachment C to Xcel's posted RFP and Compliance Filing.

9.0 ENVIRONMENTAL INFORMATION (MINN. R. 7849.0310)

9.1 VISUAL IMPACTS AND MITIGATION

As an existing facility, the Cannon Falls Facility will have no further impact on visual impairments in the county.

9.2 WILDLIFE

The effect of the Facility on wildlife and vegetation is expected to be minimal. Reseeded vegetation serves as a food source for wildlife on the site area not covered by impervious surfaces.

Prior to construction, the United States fish and Wildlife Service and the Minnesota Department of Natural Resources were consulted about possible threatened and endangered plant and animal species that could be affected by construction or operation of the Facility. No federally threatened or endangered species were identified within the project site area. Although the Minnesota Natural Heritage database found six known occurrences of rare species and natural communities within a one-mile radius of the project site, none of the six were located within the project site and none were found likely to be adversely affected by the project.

9.3 AIR EMISSIONS AND VOCS

The Cannon Falls Facility currently operates in compliance with the Title V Air Permit. The Facility is subject to the Acid Rain Program and the Cross State Air Pollution Rule, which require the Facility to obtain allowances to correspond to actual annual emissions. A consultant assists with obtaining allowances required for compliance.

The Cannon Falls Facility has the potential to emit the following regulated air pollutants: nitrogen oxides (NO_x), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter (PM/PM_{10}), and volatile organic compounds (VOC). The emission estimates below are based on firing natural gas at an operating load of 100%, 3,680 hours of operation per year, per unit, and at an ambient temperature of 45° F. Table 2 summarizes the potential air pollutant emissions for the Project.

Table 2:
Potential Air Pollutant Emissions
Cannon Falls Facility

Air Pollutant	Annual Emissions (tons/year)
Particulate Matter (PM/PM_{10})	75.7
Carbon Monoxide (CO)	138.8
Nitrogen Oxides (NO_x)	246.8
Sulfur Dioxide (SO_2)	59.9
Volatile Organic Material (VOC)	12.0

The CTGs are equipped with dry low NO_x ("DLN") combustors to control the concentration of NO_x exiting each CTG emission stack. DLN combustor technology premixes air

and a lean fuel mixture that significantly reduces peak flame temperature and thermal NO_x formation.

Distillate fuel oil used in the CTGs as a back-up fuel supply. This fuel is limited to a sulfur content of 0.05% by weight or less. When operating on distillate fuel oil, the combustion turbines use water injection to control emissions of NO_x.

Other potential air pollutant emissions (sulfuric acid mist and VOC) associated with the Facility are not expected to result in exceedances of the NAAQS.

9.4 WATER

Water is supplied from the City of Cannon Falls. Raw Water is stored in a 75,000-gallon raw water storage tank and pumped through mobile water treatment processing equipment to a 750,000-gallon demineralized water storage tank. The demineralized water is used in the CTGs when firing fuel oil and storage tank capacity provides for approximately 24 hours of operation under base load continuous operating conditions for all generating units when firing fuel oil. Mobile Demineralizer Trailers provide the make-up water.

9.5 WASTEWATER

Facility wastewater streams include sanitary, wastewater, CT package water wash wastewater, CT package false start drains, CTG evaporative cooler blowdown, rainwater captured within the fuel oil unloading containment area, and various equipment containment areas throughout the plant. The CT water wash and false start drains are collected in dedicated tanks for collection, removal and disposal off site by qualified waste disposal contractors. The various equipment containment drains are monitored and if no oil is present, discharged to grade. If oil is present, the waste is disposed of off-site by qualified waste disposal contractors. Water collected in the fuel oil unloading containment areas is sent to an oil water separator where the cleaned water is sent to the storm drain system and any oil is collected for removal and disposal off site by a qualified waste disposal contractor. Stormwater runoff is collected via a stormwater drainage system and collected in stormwater collection ponds located on the west and north sides of the site.

9.6 HAZARDOUS WASTE

As a simple cycle generating facility, the Cannon Falls Facility uses and stores on site only a small number of chemicals. The chemicals include mineral oil and sulfur hexafluoride for insulating transformers and switchyard equipment, lubrication oil for lubricating CTG bearings, diesel fuel for operating the fire water pump, and various liquid detergents for washing the CTGs.

All chemical storage areas have appropriate secondary containment (i.e., concrete floors, concrete curbing, etc.). Areas that have the potential for oil or lubrication spills are also protected by containment structures (i.e., concrete floors, concrete curbing, etc. Lockable drain valves are used where appropriate. Where present, floor drains are directed to an oil/water separator, holding tanks or chemical collection/treatment facilities.

In the unlikely event that waste generated during maintenance activities are determined to be hazardous as defined by the Resource Conservation and Recover Act (RCRA), they are managed in accordance with applicable requirements. The Cannon Falls Facility is categorized as a conditionally exempt small quantity generator (CESQG), as the quantity of hazardous waste generated by the Facility is anticipated to be much lower than the 200 pounds per month limit of a CESQG.

9.7 NOISE

As an operational Facility, the Cannon Falls Facility fully complies with the noise standards established by the State of Minnesota.

During typical operation of the plant, air flow through the combustion air intakes and exhaust gases discharging from the stacks are the primary sources of noise. Secondary sources of noise include low-frequency noise from transformers and noise from auxiliary pumps and ventilation and cooling equipment.

10.0 FACILITY INFORMATION FOR PROPOSED PROJECT AND ALTERNATIVES INVOLVING CONSTRUCTION OF AN LEGF (MINN. R. 7849.0320)

As an existing Facility, The Cannon Falls Facility is exempt from this statute per Appendix A of Attachment C to Xcel's posted RFP and its Compliance Filing .

11.0 SUPPLEMENTAL DATA

11.1 DEVELOPER EXPERIENCE AND QUALIFICATION

Invenergy's name is synonymous with innovation in an industry undergoing transformation. As the world's largest privately held developer and operator of renewable power, Invenergy works with leading utilities, global brands and public sector partners to take energy infrastructure projects from drawing board to reality. Invenergy's 2,000 employees are united by a vision to be innovators building a sustainable world. Headquartered in Chicago, Illinois, the company has successfully developed over 31 gigawatts of power projects across the Americas, Europe and Asia. See the image below for additional information.

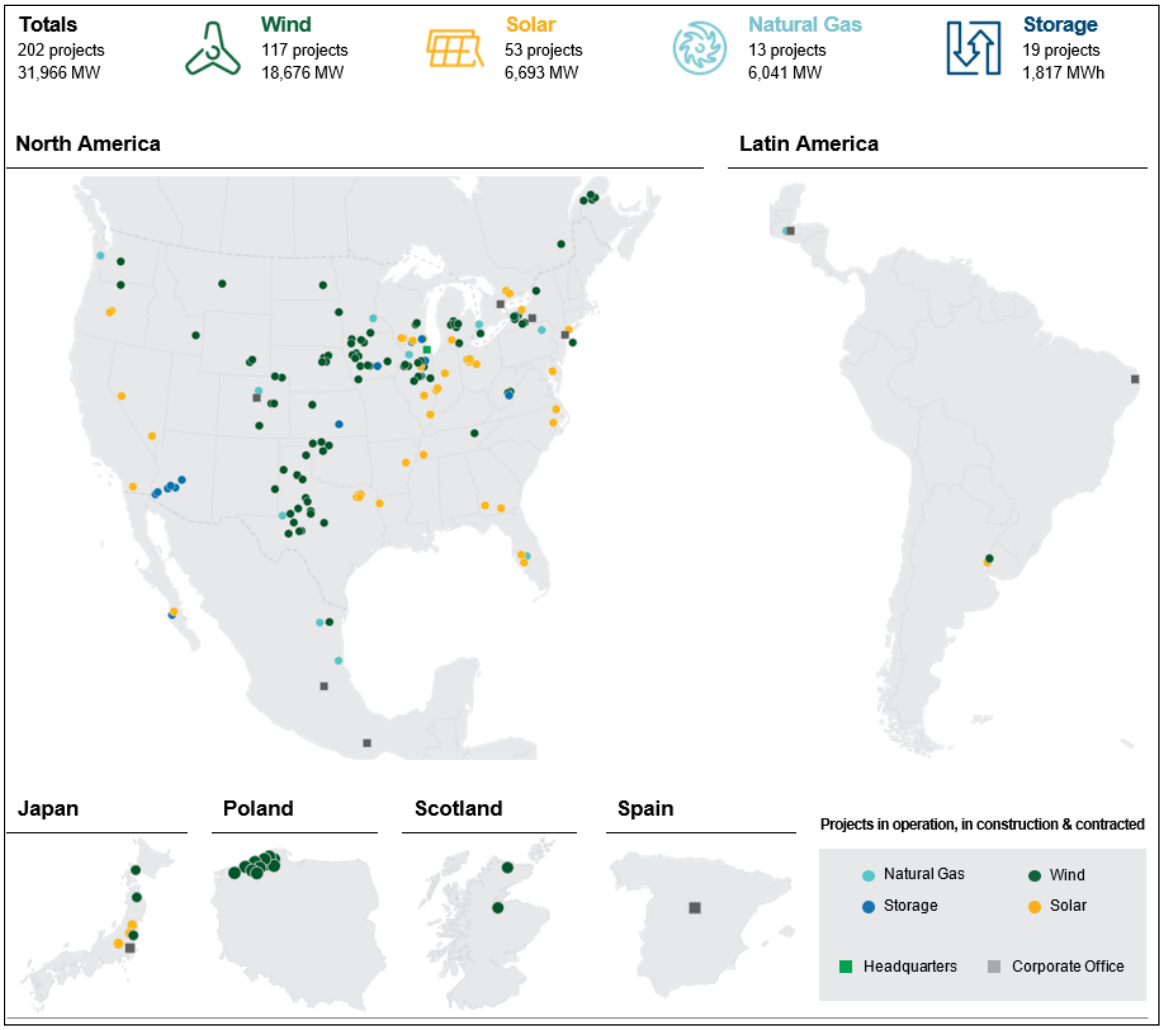

Figure 3: Invenergy Experience

Invenergy tailors natural gas solutions to meet customer and market needs. Invenergy has developed a full range of natural gas power solutions including combined cycle baseload facilities, simple cycle peaking plants, industrial cogeneration installations, and liquified natural gas conversion units. Invenergy undertakes this work in partnership with landowners and local communities and while prioritizing safety and environmental responsibility. Invenergy's in-house, dedicated professional staff has worked with industry-leading contractors and suppliers in successfully developing approximately 6 gigawatts of natural gas power across 13 projects throughout North America, including 1 project currently in construction totaling more than 300 megawatts.

Through its affiliate Invenergy Services, Invenergy has over 5,600 megawatts of natural gas power assets under management, including nearly 2,100 megawatts operated on behalf of other majority owners. With over fifteen years of operational experience, Invenergy Services' onsite teams and centrally based Invenergy Control Center, Asset Management and Engineering teams have full-service capabilities, ranging from operations and maintenance, asset management and

balance of plant, to day-ahead and real-time trading and scheduling across the major independent system operators and NERC regions. General practice across Invenergy's fleet includes gas turbine and steam turbine outages and inspections, quality insurance checks, and a comprehensive inventory of original equipment manufacturer-recommended spare parts maintained onsite at each project's maintenance warehouse.

11.2 PRICING

Table 3 below outlines key commercial terms for the Project proposal:

Table 3: Cannon Falls Facility Commercial Teams

Cannon Falls Facility – Commercial Terms	
Buyer	Xcel Energy
Seller	Invenergy Cannon Falls LLC
Technology	(2) GE 7FA.03s CTs in a 2x0 simple cycle configuration
Nameplate Capacity	357 MW
Delivery Point	Existing Project Substation
Pricing Conditions	See below exclusions list for pricing conditions.
Capacity Sale Pricing	
COD	Project is Operational
Product	Energy and Capacity
Generating Resource	Cannon Falls Facility
Offer Capacity	357 MW
Escalation	[NONPUBLIC DATA HAS BEEN EXCISED]
Heat Rate	
Delivery Period	[NONPUBLIC DATA HAS BEEN EXCISED]
Capacity Price at Project Busbar	[NONPUBLIC DATA HAS BEEN EXCISED]
Variable O&M Expenses ($ / MWh)	[NONPUBLIC DATA HAS BEEN EXCISED]
Start Payment ($ / Start)	[NONPUBLIC DATA HAS BEEN EXCISED]
Fixed O&M Payment ($/kW)	[NONPUBLIC DATA HAS BEEN EXCISED]
Fuel Payment ($/kW)	[NONPUBLIC DATA HAS BEEN EXCISED]
Tax Related Payments and Other Costs ($/kW)	[NONPUBLIC DATA HAS BEEN EXCISED]
Gas Interconnection Cost Price Adjustment ($/kW)	[NONPUBLIC DATA HAS BEEN EXCISED]

Invenergy Price Assumptions and Conditions for the Cannon Falls Facility:

- Price assumptions and conditions for The Cannon Falls Facility assume current state and federal taxes, tariffs, and laws and regulations.

- Pricing assumes gas supply costs, fuel costs and carbon costs will be a passthrough to Xcel Energy.
- Invenergy proposes to materially utilize the terms and conditions found in the existing PPA and relevant extensions between Cannon Falls and Xcel Energy.
- All pricing listed is in nominal 2028 USD.

11.3 SCHEDULING PROVISIONS

The Normal Up Ramp Rate and Normal Down Ramp Rate on Manual Control and Automatic Control is 14 MW/min. The expected annual forced outage rate is 2.2%. The Maximum Loads achievable in 10, 15 and 30 minutes are 0.0%, 50.0% and 100.0% respectively.

See Table 4 outlining the major maintenance schedule for the Cannon Falls Facility. The Cannon Falls Facility operates and maintains the Project itself in combination with a Contractual Services Agreement ("CSA") with General Electric, Inc. ("GEI"). A Facility Management Agreement between ICF and Invenergy Services LLC provides for all routine operating, maintenance, and administrative services.

Table 4: Cannon Falls Facility Scheduled Maintenance

Component	Scheduled Maintenance Date
Unit 1 CI	Spring 2031
Unit 2 CI	Spring 2032
Unit 1 HGPI	Spring 2039
Unit 2 HGPI	Spring 2040
Unit 1 CI	Spring 2046
Unit 2 CI	Spring 2047

11.4 GUARANTEED PERFORMANCE FACTORS SUCH AS CONSTRUCTION COSTS, UNIT COMPLETION, AVAILABILITY AND EFFICIENCY

As an existing facility, the Cannon Falls Facility has no further construction costs. The Facility is operational as of 2008 and delivery is available starting June 1, 2028, for the full 357 MW of peaking capacity.

11.5 OTHER KEY CONTRACT FACTORS

Invenergy has a preference for its existing contract terms as agreed to between Cannon Falls and Xcel Energy.

12.0 800 FD Order Supplementary Data Required for All Providers

12.1 Provide a climate change analysis of the proposal consistent with the Minnesota Environmental Quality Board's environmental assessment worksheet guidance for developing a carbon footprint and incorporating climate adaptation and resilience (Metric 32)

The Cannon Falls Facility is an existing facility and will not be undergoing future development. As such, the Facility poses no additional environmental risks to the surrounding community or climate.

12.2 Identifying whether the proposal is located in an environmental justice area using census criteria in Minnesota Statute 216B.1691, subd. 1e. (Metric 32)

The Cannon Falls Facility is not located within an Environmental Justice Area as defined by Minnesota Statute 216B.1691, Subd. 1e.

12.3 Information necessary for consideration of Energy Justice factors (Metric 61)

The Cannon Falls Facility generates approximately $1.5M in property tax revenue annually and has seven permanent employees. As an existing facility the Project is no longer pursuing additional suppliers.

13.0 Statutory Requirements

13.1 Use of Renewable Resource (Minn. Stat. §§ 216B.2422, subd. 4; 216B.243, subd. 3a)

The Cannon Falls Facility is an existing facility and as such, these statutes are not applicable.

13.2 Compliance with Renewable Energy Objectives and Purchasing Energy From C-BED Projects (Minn. Stat. 216B.243, subd. 3(10))

The Cannon Falls Facility is not a C-BED facility. The Facility does not produce renewable energy credits.

13.3 Opportunities for Distributed Generation (Minn. Stat. 216B.2426)

As an existing facility that has already been constructed, this statute does not apply.

13.4 Risk of Environmental Costs and Regulation Over The Expected Useful Life of The Project (Minn. Stat. 216B.243, subd. 3(12))

As an existing facility that has already been constructed, this statute does not apply to the Cannon Falls Facility.

13.5 INNOVATIVE ENERGY PROJECT (MINN. STAT. 216B.1694, SUBD. (2)(5)),

The Cannon Falls Facility does not meet the definition of an Innovative Energy Project.