



Cannon Falls Peaking Expansion

Invenenergy



Cannon Falls Peaking Expansion

Goodhue County, Minnesota

Prepared for:

Northern States Power Company

April 15, 2013



Table of Contents

1.0	BIDDER CONTACT INFORMATION	3
2.0	EXECUTIVE SUMMARY	4
3.0	DEVELOPER EXPERIENCE AND QUALIFICATIONS	5
3.1	INVENERGY EXPERIENCE	5
3.2	THERMAL DEVELOPMENT EXPERTISE	6
3.3	WIND AND SOLAR EXPERTISE	8
4.0	IN-SERVICE DATE	8
5.0	CAPACITY AMOUNT	8
6.0	DELIVERY	9
6.1	MARKET PARTICIPATION	9
6.2	MISO MODULE E CAPACITY	9
6.3	ENERGY DELIVERY POINT	9
7.0	RESOURCE TYPE	10
7.1	CTG OVERVIEW	10
7.2	NET CAPACITY RATING AND HEAT RATE	11
7.3	PRIMARY FUEL AND BACKUP ALTERNATIVE	12
7.4	STARTUP TIME	12
8.0	EMISSIONS AND CARBON DIOXIDE	12
8.1	OPERATING PERMITS	12
8.2	ENVIRONMENTAL COMPLIANCE	13
9.0	CAPACITY AND ENERGY PRICING	13
10.0	SCHEDULING PROVISIONS	16
11.0	CURTAILMENTS AND EXCUSES FOR REDUCED DELIVERY	16
12.0	SECURITY FOR PERFORMANCE	16
13.0	ADDITIONAL CONSIDERATIONS	17
13.1	SITE	17
13.2	SITE LAYOUT	17
13.3	ELECTRICAL INTERCONNECTION	17
13.4	GAS INTERCONNECTION	18
13.5	WATER RESOURCES	18
13.6	DESCRIPTION OF O&M PLAN	18
14.0	ATTACHMENT 1: INVENERGY MANAGEMENT TEAM	20
15.0	ATTACHMENT 2: HISTORICAL BASIS	23
16.0	ATTACHMENT 3: SITE LAYOUT	26

Public Version



1.0 Bidder Contact Information

Corporate Name: Invenergy Thermal Development LLC
State of Incorporation: Delaware Limited Liability Company
Corporate Address: One South Wacker Drive, Suite 1900
Chicago, IL 60606

Parent's Corporate Name: Invenergy Investment Company LLC
Parent's Corporate Address: One South Wacker Drive, Suite 1900
Chicago, IL 60606

Primary Contact

Name: Craig Gordon
Title: Director, Origination
Phone: 312-582-1467
Fax: 312-224-1444
E-mail: cgordon@invenergyllc.com

Confidential Bid Proposal and Proprietary Information

This document contains confidential and proprietary information. It has been prepared by Invenergy Thermal Development LLC and is submitted to Northern States Power Company on a confidential basis. Unless required by law, no part or any information concerning this proposal may be copied, exhibited or furnished, in whole or in part, by Northern States Power Company to an unaffiliated third party without the prior written consent of Invenergy Thermal Development LLC.

Disclaimer

This is a non-binding indicative proposal and does not constitute an offer or otherwise create a binding agreement or obligation to consummate any contemplated transaction, including supply of power. Any such obligation or agreement will be created only by the execution of definitive agreements, the provisions of which, if so executed, will supersede this proposal and all other agreements, if any, related to this proposal.



2.0 Executive Summary

Invenergy Thermal Development LLC ("Invenergy") is pleased to present this Power Purchase Agreement ("Agreement") proposal to Northern States Power Company ("NSP"). The proposal is for the development of approximately [REDACTED] using one simple cycle, GE 7FA Combustion Turbine Generator ("CTG") to be located at Invenergy's existing Cannon Falls facility in Goodhue County, Minnesota. The Cannon Falls Peaking Expansion ("Project" or "Facility") is scheduled to be operational as early as January 1, 2016, but no later than January 1, 2017.

Invenergy proposes to develop the Cannon Falls Peaking Expansion and sell the capacity and energy to NSP with terms and conditions substantially similar to the existing Power Purchase Agreement between Cannon Falls and NSP dated April 1, 2005.

The proposed Facility incorporates the following features and benefits, resulting in a compelling value proposition for NSP and its ratepayers:

[REDACTED] Project to include a fully dispatchable and operationally flexible highly efficient peaking generation resource, providing reliable generating capacity to the NSP network. To illustrate of the reliability of the proposed generation resource, the existing Cannon Falls peaking resource has had a [REDACTED]

- Project to be located just south of the Twin Cities metropolitan region, providing geographic diversity relative to other NSP generation resources located to the northwest and southwest of the Twin Cities.
- Project to be sited at Invenergy's existing Cannon Falls facility allowing the unit to utilize existing infrastructure such as the operations and maintenance building, fuel oil unloading and storage facilities, water treatment and storage and other miscellaneous auxiliary equipment minimizing the cost of the project and impact to the surrounding community.
- Project to be interconnected to the new 345 kV Hampton Substation via a combination of approximately one mile of new transmission line and eight miles of underbuild to the approved Hampton to Rochester transmission project thus requiring minimal changes to land use.



- Project to be interconnected to existing natural gas pipeline of Greater Minnesota Gas, Inc. at the Cannon Falls facility.
- Project personnel and operations to be integrated with the existing Cannon Falls facility, resulting in cost-saving synergies.
- Project to be developed and constructed by a skilled, experienced, and well-funded team that is a part of an organization that is among the top energy development companies in the United States.

Cannon Falls Site Location



3.0 Developer Experience and Qualifications

3.1 Invenergy Experience

Invenergy develops, owns, and operates power generation facilities in North America and Europe. It has a proven track record of establishing and maintaining longstanding, profitable relationships with utilities, suppliers, and the communities in which its projects are located.

Invenergy has developed approximately 6,600 MWs of utility-scale renewable and natural gas-fueled power generation facilities in the United States, Canada, and Europe. This includes more than 5,300 MWs of projects in operation, with more than 1,300 MWs



under contract or in construction. Invenergy is North America's largest independent wind power generation company. Invenergy's senior executives - each with an average experience of 25 years in energy generation - have worked together as a core group for over two decades. Invenergy founder, president, and CEO Michael Polsky is a recognized and respected industry leader, and is the majority owner of Invenergy and its affiliated companies.

Invenergy's expertise includes a complete range of fully integrated in-house capabilities: Project Development, Permitting, Transmission, Interconnection, Energy Marketing, Finance, Engineering, Project Construction, Operations and Maintenance. Invenergy is headquartered in Chicago, with regional offices in Denver and Toronto.

A brief narrative of key members of Invenergy's management team has been provided in Attachment 1.

3.2 Thermal Development Expertise

Invenergy has a large portfolio of natural gas-fueled electric generating facilities in the U.S. and Canada. This portfolio includes greenfield projects initiated by Invenergy, as well as facilities acquired and completed by it.

Operating projects total 2,275 MW and include Cannon Falls Energy Center (Minnesota), Spindle Hill Energy Center (Colorado), Hardee Power Station (Florida), Grays Harbor Energy Center (Washington), and St. Clair Energy Center (Ontario).

In addition to these projects, Invenergy is developing new environmentally-friendly natural gas-fueled electric generating facilities across North America. The projects are being designed to provide economic and reliable power, with minimal impact on air and water resources. The table below includes all thermal projects owned by Invenergy Thermal LLC.

Invenergy Thermal Projects

Project	Location	Status	Size
Cannon Falls	Minnesota	Operating	357.0 MW
Grays Harbor	Washington	Operating	620.0 MW
Hardee	Florida	Operating	370.0 MW
Spindle Hill	Colorado	Operating	314.0 MW
St. Clair	Ontario	Operating	584.0 MW
Nelson	Illinois	In Construction	584.0 MW
Total:			2,829.0 MW



Cannon Falls Energy Center

Cannon Falls Energy Center commenced commercial operations in 2008. The project located in Cannon Falls, Minnesota is similar to Spindle Hill. It is a 357 MW peaking facility, consisting of two simple cycle, dual fuel GE 7FA combustion turbines. The output of this project is sold to NSP under a long-term power purchase agreement.

Grays Harbor Energy Center

The 620 MW Grays Harbor Energy project was acquired by Invenergy in 2005. Invenergy closed project financing in 2007 to complete the construction of the project, and commercial operation was achieved in the second quarter of 2008. The Grays Harbor plant consists of two GE 7FA gas turbines, two HRSGs and a single steam turbine. The output is currently under contract with a financial institution.

Hardee Power Station

The Hardee Power Station is located in Bowling Green, Florida, approximately 40 miles east of Tampa. All of the plant's capacity and energy is sold to Seminole Electric Cooperative. The Hardee Power Station is a 370 MW facility consisting of a 220 MW combined cycle system and 150 MW peaking system. The combined cycle system consists of two GE Frame 7EA combustion turbines with bypass stacks, heat recovery steam generators and an 80 MW GE steam turbine. The peaking system is comprised of two GE 7EA combustion turbines.

Spindle Hill Energy Center

In 2007, Invenergy entered commercial operation with the Spindle Hill Facility. It is a 314 MW peaking facility consisting of two simple cycle, dual fuel GE 7FA combustion turbines in Frederick, Colorado. The output of Spindle Hill is sold to Public Service Company of Colorado under a long-term PPA.

St. Clair Energy Center

Invenergy completed the construction and commissioning of the 584 MW St. Clair project located in St. Clair Township, Ontario, Canada in 2009. Invenergy entered into a long-term power purchase agreement with the Ontario Power Authority for all of the capacity and energy from the project. St. Clair is configured as two 1 x 1 combined cycle units each consisting of a GE 7FA gas turbine, HRSG, and steam turbine.

Nelson Energy Center

In 2004, Invenergy completed the acquisition of the partially constructed Nelson Power Generating Facility located in Illinois. The Nelson facility, originally designed as a four unit 1,160 MW power project designed around General Electric 7FA gas turbine



technology, will be completed as a 584 MW combined cycle facility configured as two 1x1 combined cycle units. Commercial operation of the facility is planned for 2015.

3.3 Wind and Solar Expertise

In addition to the thermal generation portfolio, Invenergy also has a substantial wind energy portfolio, representing 3,684 MWs globally. This portfolio consists of 3,186 MWs of operating projects, 331 MWs of projects in construction, and another 167 MWs of projects under contract.

Invenergy has also expanded its clean energy portfolio to include solar energy generation. Invenergy's first operational solar project, completed in 2012, is the 20 MW Grand Ridge Solar facility in Illinois. Grand Ridge Solar is contracted on a long-term basis with Commonwealth Edison. Invenergy is currently constructing two 10 MW solar projects in Ontario and those projects are scheduled to be completed in 2013.

4.0 In-service Date

Provided that all Minnesota Public Utilities Commission approvals are obtained no later than January 1, 2014, Invenergy will begin the permitting process 2014 with construction to follow in 2015. The Project should be capable of an In-service date as early as January 1, 2016 but no later than January 1, 2017. Invenergy will target an In-service date of June 1, 2016 to align with the MISO capacity planning period.

Milestone	Date
Execute Power Purchase Agreement	Summer 2013
Receive Permit Approvals	December 2014
Site Mobilization	Spring 2015
Electrical Back Feed	Fall 2015
Commercial Operation (Projected)	June 1, 2016

5.0 Capacity Amount

The Project capacity shall range from approximately 155 MWs in the summer to 190 MWs in the winter. Actual available capacity shall be determined by temperature and relative humidity. The Project will have a Net Capability of 178.5 MWs at the point of interconnection.



6.0 Delivery

6.1 Market Participation

Invenergy proposes that NSP be the registered MISO Market Participant for the Project as it is for the existing Cannon Falls facility. As the Market Participant, NSP will be able to manage the Project within its existing portfolio of generating assets which should lead to overall contract cost reductions and streamlined operations.

6.2 MISO Module E Capacity

As the registered Market Participant with MISO, NSP shall be responsible for registering the Project as a MISO Module E Capacity resource. Invenergy will work with NSP prior to the Commercial Operations Date to ensure that the Project is eligible to participate as a capacity resource beginning in the first contract year.

6.3 Energy Delivery Point

NSP shall take title to the energy from the Project at the point of interconnection, which is proposed to be the planned Hampton Substation. However, since the Hampton Substation is not currently modeled in MISO, Invenergy evaluated two proxy nodes that are on the same 345 kV transmission line as the planned substation. The Prairie Island and Blue Lake generating stations are located to the east and northwest of the planned Hampton Substation and thus can be used for an indication of how Locational Marginal Prices ("LMP") will likely relate to NSP's load zone ("NSP.NSP"). The evaluation of historical LMPs of the existing Prairie Island and Blue Lake generators to the NSP load zone indicates a strong positive correlation between the LMPs and a relatively small difference in actual Real-time prices (LMP basis). Below is a table showing the correlations between each of the generators with the NSP load zone.

Hourly LMP Correlation:		
Year	Blue Lake: NSP	Prairie Island: NSP
2009	99.7%	99.1%
2010	99.0%	97.2%
2011	98.9%	98.5%
2012	94.7%	83.6%
Average	98.1%	94.6%

Source: Ventyx



Based on this evaluation, Invenergy anticipates that the Cannon Falls expansion at the Hampton Substation will have a strong positive correlation to NSP's load zone, and thus provide an effective hedge to load for NSP.

Below is a table showing the average Real-time basis between the two proxy CP Nodes and the NSP load zone. On average, the basis to the NSP load zone is relatively low. This relatively small amount of basis is indicative of low congestion risk and may eliminate the need for NSP to hedge the risk with FTRs.

Average Hourly On-Peak Basis		
Year	NSP – Blue Lake	NSP – Prairie Island
2009	\$0.49	\$1.04
2010	\$1.00	\$1.76
2011	\$0.67	\$1.69
2012	-\$0.27	*\$2.70
Four-Year Average	\$0.47	\$1.80

Source: Ventyx

* On five days in July and August 2012 (7/29, 8/1, 8/23, 8/24), the average on-peak basis was abnormally high, possibly owing to poor system conditions. On average, the high temperature for those five days was 90 degrees Fahrenheit compared to the average July and August temperature of 86 degrees Fahrenheit. Since the high temperatures on the five days weren't significantly higher than the two-month average, it's unlikely that weather alone was the source of the price separation. The 2012 basis excluding those days was \$1.37, resulting in a four-year average of \$1.47.

Based on the basis of the two proxy nodes, Invenergy anticipates that the proposed Cannon Falls expansion will provide NSP a cost-effective hedge. Because the Cannon Falls expansion is located in close proximity to the Twin Cities, there is minimal risk of sustained long-term basis risk, unlike other generating projects that are located further away and in more congested areas.

A monthly breakout of the LMP basis is provided in Attachment 2.

7.0 Resource Type

7.1 CTG Overview

Invenergy proposes to install one GE 7FA combustion turbine ("CTG") in a simple cycle configuration. Thermal energy is produced in the CTG through the combustion of



natural gas, and the thermal energy is converted into mechanical energy by the CTG turbine that drives the CTG compressor and electric generator. The CTG proposed for the Project is the GE 7241 ("7FA") combustion turbine generator. The approximate output of the combustion turbine is 179 MW (new and clean) at 40° F. The GE 7FA consists of a heavy duty, single shaft, combustion turbine-generator and associated auxiliary equipment. The CTG is equipped with dry low Nitrogen Oxide and Nitrogen Dioxide ("NOx") combustors designed for natural gas.

The GE fleet reliability of the 7FA gas turbine has consistently been 97 percent or better. This high reliability provides customers more days of operation per year while minimizing the overall life cycle cost of the gas turbine. The 7FA gas turbine is the industry leader in reduction of NOx and Carbon Monoxide ("CO") emissions. GE's Dry Low NOx ("DLN") 2.6 combustor produces less than 9 parts per million NOx and CO, which reduces costs by minimizing the need for exhaust cleanup systems. GE's DLN 2.6 is a proven product with hundreds of thousands of operating hours. It is assumed that there will not be a requirement for any additional emission control such as selective catalytic reduction or carbon monoxide catalyst systems.

The CTG will be equipped with evaporative inlet cooling to offset some of the power loss experienced at high ambient temperatures. Evaporative inlet cooling is a process where water is evaporated in the turbine air inlet. The evaporating water lowers the temperature of the compressor inlet air and increases the inlet air density. Denser air results in increased air mass flow and increased power output.

A complete, integrated digital control system will be provided and integrated into the existing centralized control room and related facilities. The Facility auxiliaries will be served through a station service transformer. The Facility will also be equipped with automatic generation control for regulation and ramping of the combustion turbine. The proposed plant includes black start capabilities.

To date, Invenergy has successfully installed eight (8) GE 7FA's in both combined cycle and peaking applications, including two peaking units for NSP and two peaking units for Public Service Company of Colorado which is an Xcel subsidiary.

7.2 Net Capacity Rating and Heat Rate

At base load, the single GE 7FA CTG is expected to generate approximately 178.5 MW at 40 degrees Fahrenheit (new and clean). Invenergy proposes to guarantee a predicted net heat rate of 10,900 Btu/kWh HHV when operating on natural gas at reference conditions of 95 degrees Fahrenheit and 30% relative humidity (new and clean).



7.3 Primary Fuel and Backup Alternatives

The primary fuel will be natural gas. The unit will also be capable of burning ultra-Low Sulfur #2 Fuel Oil as a backup. The unit will share the fuel oil unloading and storage facilities with the existing Cannon Falls units.

7.4 Startup Time

Start Type	Time
Cold	30 Minutes
Warm	30 Minutes
Hot	30 Minutes

8.0 Emissions and Carbon Dioxide

8.1 Operating Permits

The emission rates for this new unit will be comparable to those of the existing units at the Cannon Falls facility.

Fuel	NO _x	CO	VOC	SO ₂	PM ₁₀	Hg	CO ₂
Natural Gas	████████	████████	████████	████████	████████	████████	████████
Distillate Fuel Oil	████████	████████	████████	████████	████████	████████	████████

Operations based on operating at 100% load and at an ambient temperature of 45 degrees F.

A number of permits will be required for the addition of this new emission source. Invenergy anticipates a modification will need to be made to the existing Air Permit No. 04900088-001 from the Minnesota Pollution Control Agency ("MPCA"). The existing facility operates under a synthetic minor PSD air permit that limits the combined operating hours of the two existing units to 7,359 equivalent operating hours per year on a 12 month rolling sum basis where each operating mode (normal operations on natural gas or fuel oil, normal operation on power augmentation mode, and startup and shutdown on natural gas or fuel oil) is assigned a number of equivalent operating hours. This configuration allows the operator flexibility to operate the units as needed in different modes while ensuring that annual emissions from the site are not exceeded.



There are a number of possible approaches to modifying the existing permit. Our recommendation would be to simply share the presently permitted operating hours across the two existing units and the additional unit proposed here. The existing units do not operate near their existing limits and are not anticipated to do so in the future. This approach is environmentally friendly and should be easily justified with the MPCA. Alternatively, we could request that the permit be modified to add the additional unit and that a similar structure will be utilized whereby we will need to limit the operating hours of the new unit. The actual limitations will not be known until discussions have occurred with the MPCA, but it is anticipated to be in the range of 3,000-4,000 hours per year on a twelve month rolling basis.

In addition to the modifications to the Air Permit, we anticipate modifications or issuance of new permits for the following key permits:

- Minnesota PUC Certificate of Need
- Minnesota Environmental Quality Board – Site Permit – MEQB Docket No. 04-85-PPS-Cannon Falls EC issued 2/22/2005
- Minnesota Pollution Control Agency Construction Stormwater Permit
- City of Cannon Falls – Planned Unit Development Permit
- FAA determination of no hazard to air navigation.

In this case Invenergy is proposing to expand the usage of a site that has been previously evaluated for its current use and we anticipate that there will be no significant obstacles to obtaining new or modified permits.

8.2 Environmental Compliance

Invenergy's Environmental, Health, and Safety staff will work in conjunction with facility staff to maintain compliance with all applicable local, state, and federal regulations. The facility will implement a comprehensive compliance tracking program for the facility to help maintain environmental compliance. Permit requirements will be reviewed and entered into a tracking program which will alert the appropriate staff to upcoming requirements.

9.0 Capacity and Energy Pricing

Invenergy proposes to develop the Cannon Falls Peaking Expansion and sell the capacity and energy to NSP with terms and conditions substantially similar to the existing Power Purchase Agreement between Cannon Falls and NSP dated April 1, 2005. The key Commercial Terms are summarized below:



Commercial Terms	
Transaction Structure:	Power Purchase Agreement
Purchaser/Buyer:	Northern States Power Company
Seller:	Invenergy Thermal Development LLC or affiliate
Location (County, State):	Goodhue County, Minnesota
Technology:	One (1) GE 7FA CTG
Primary Fuel Type:	Natural Gas (with #2 Fuel Oil as backup)
Commercial On-Line Date:	June 1, 2016
Term:	Twenty (20) years (June 1, 2016 to May 31, 2036)
Capacity Price, (CP) (year 1):	[REDACTED]
Annual Capacity Price Escalation:	Beginning on the first anniversary of the Commercial On-Line Date and each anniversary thereafter, escalated annually by the change in the Consumer Price Index or other mutually agreeable index.
Heat Rate:	[REDACTED]
Net Capability, (NC):	[REDACTED]
Guaranteed Ramp Rate:	[REDACTED]
Point of Delivery:	[REDACTED]
Payment for Contract Capacity:	[REDACTED]

Public Version



Commercial Terms	
	[REDACTED]
Payment for Dispatchability:	[REDACTED]
Payment for Excess Capacity:	[REDACTED]
Payment for Variable O&M:	[REDACTED]
Heat Rate Adjustment:	[REDACTED]

Public Version



Commercial Terms	
	[REDACTED]
Payment for Turbine Starts:	[REDACTED]
Dispatch and Scheduling:	[REDACTED]
Fuel Supply:	[REDACTED]
Environmental Emissions Costs:	[REDACTED]

10.0 Scheduling Provisions

As the MISO Market Participant, NSP shall be responsible for all MISO market activities including, but not limited to, daily generation offers, outage scheduling, following start/stop signals, following MISO dispatch set-points, and operating in local mode or AGC.

11.0 Curtailments and Excuses for Reduced Delivery

Seller shall not bear financial or any other responsibility for curtailments or reduced deliveries as NSP will be the MISO Market Participant and will be the responsible party with respect to following MISO instructions. As noted above in Section 6.3, the LMP basis has been minimal over the last four years, signaling that economic curtailments are unlikely.

12.0 Security for Performance

Invenergy shall post performance security in the amount of [REDACTED] upon execution of the Agreement, and such performance security shall be reduced to [REDACTED] for the full term of the Agreement upon reaching the Commercial Online Date.



13.0 Additional Considerations

13.1 Site

The proposed turbine will be located at Invenergy's existing Cannon Falls facility which is located in Goodhue County. The new turbine will be installed on land that is directly north of the existing Cannon Falls units and is presently under the control of Invenergy's Cannon Falls entity. By siting the unit at Invenergy's Cannon Falls facility, Invenergy will be able to utilize existing infrastructure such as the operations and maintenance building, fuel oil unloading and storage facilities, water treatment and storage and other miscellaneous auxiliary equipment minimizing cost and impact to the surrounding community.

13.2 Site Layout

The site will be laid out in a manner consistent with prudent industry standards for combustion turbine power plants. The new unit will be located parallel to the existing units in the same east to west orientation. Stormwater drainage detention will need to be re-worked.

Please see Attachment 3 for the map of the proposed Project location and layout.

13.3 Electrical Interconnection

An initial Feasibility Study (Queue # [REDACTED]) to confirm adequate capacity of three potential interconnection locations and to determine the timing of required upgrades has been requested, but has not yet been completed. The existing Cannon Falls facility is interconnected to the high voltage transmission system at a 115kV voltage level via an existing 115kV substation adjacent to Invenergy's Cannon Falls Facility. Invenergy is familiar with the transmission system in the area and anticipates that interconnection to the 115kV substation at Cannon Falls may necessitate the need for substantial upgrades on either the 115kV or 161kV system or both.

Invenergy is proposing an interconnection to the new Hampton Corners 345kV Substation that will be installed approximately nine miles north of the project, just north of Hampton, MN as part of the CapX2020 Transmission Project. The Hampton to Rochester 345 kV Transmission Project (also part of CapX2020) will be installed in a corridor that runs approximately one mile west of the Cannon Falls Facility along Highway 52. We are proposing then that the new generator be interconnected to the grid via one mile of new transmission to the Hampton to Rochester corridor, then eight miles of transmission line that would be installed as a double circuit or underbuild on the proposed Hampton to Rochester line and one new breaker position at the new Hampton Substation. This configuration will benefit all parties by minimizing the impact to



surrounding land usage, minimizing upgrades to the overall electrical system and hence minimizing the overall cost of interconnection to the parties and ratepayers. Invenergy has included [REDACTED] in the project budget to account for these interconnection costs and will include an adjustment mechanism to the capacity price to the extent the interconnection costs can be completed for more or less.

Below is a table showing the expected milestone dates for the [REDACTED] interconnection request.

Interconnection Milestones	
Initial Interconnection Request – Feasibility Study	Submitted March 18, 2013
Enter Definitive Planning Phase Cycle	August 1, 2013
Execute Interconnection Agreement	Expected Q2 2014

13.4 Gas Interconnection

Natural gas is supplied to the existing Cannon Falls Facility by a 16" diameter lateral pipeline that is owned and operated by Greater Minnesota Gas (GMG) that connects to Northern Natural Gas transmission pipelines approximately 13.5 miles northwest of the project site. We have been in contact with GMT and they have indicated that the existing pipeline should be capable of serving both the new unit and the existing units with only minor upgrades or operational changes. The project has estimated [REDACTED] [REDACTED] in direct interconnection cost as the basis for this proposal.

It is assumed that gas compression will not be required to meet the plant's 550 psig gas pressure requirement when connected to nearby natural gas transmission pipelines.

13.5 Water Resources

The facilities relatively minor cooling needs can be met through modifications to the existing Cannon Falls infrastructure which includes a pipeline from the City of Cannon Falls.

13.6 Description of O&M Plan

Invenergy is an experienced operator through its wholly owned subsidiary, Invenergy Services, which will operate the proposed facility. Invenergy Services is staffed with experienced industry personnel and currently operates 5 thermal assets (3 combined



cycle and 2 simple cycle). Additionally, Invenergy Services operates 26 wind farms and 1 solar farm, with 3 wind farms and 2 solar farms under construction.

Invenergy anticipates leveraging the existing operations staff at Cannon Falls. This efficiency is reflected in the proposed pricing.

The plant manager reports to an asset manager based in Chicago, Illinois who has overall management responsibility for the facility including contract compliance. Both the plant and asset manager draw on the resources of Invenergy for all other functions such as accounting, human resources, legal, finance and engineering.

Invenergy will contract services as needed from qualified contractors and tradesmen.

The expectation for major maintenance activities is as follows:

Combustion Inspection	12,000 hours/400 starts	10 days
Hot Gas Path	24,000 hours/900 starts	21 days
Major Maintenance	48,000 hours/1,000 starts	28 days

In the absence of a scheduled combustion turbine major maintenance activity, the plant will require an annual 10 day outage for scheduled maintenance of the balance of plant systems.

Public Version



Public Version

Attachment 1: Invenergy Management Team



Michael Polsky- President and Chief Executive Officer – With thirty years of experience in the energy industry, Michael Polsky is widely recognized as a pioneer and an industry leader in the cogeneration and independent power industry in North America. He founded leading clean energy company Invenergy more than ten years ago. Previously, in 1991, Polsky founded Sky Gen Energy - a developer, owner, and operator of natural gas-fueled generating plants – which was purchased by Calpine Corporation in 2001. Before forming SkyGen, Polsky co-founded and was President of Indeck Energy Services Inc. Polsky holds an MSME Degree from Kiev Polytechnic Institute and an MBA from the University of Chicago. In 2002, Polsky endowed a center for Entrepreneurship at the University Of Chicago Graduate School Of Business, which is named after him.

Jim Murphy –Executive Vice President, Chief Financial Officer, Chief Operating Officer – Jim Murphy has more than thirty years of financial and management experience, primarily in the energy industry, having managed the negotiation and execution of more than \$10 billion in private equity and debt investments, power plant acquisitions and sales, and project debt and equity financing. He is a member of Invenergy’s founding group and is responsible for the general management of the company, as well as corporate and project finance, risk management, and asset optimization. Murphy currently is a member of the Board of Directors of the American Wind Energy Association (AWEA). Prior to the formation of Invenergy, he was Chief Financial Officer at Sky Gen Energy LLC, and previously was a Vice President with financial advisory and investment firm The Deerpath Group, Inc. and a manager with Arthur Andersen. He earned a BS from the University of Illinois, magna cum laude, and is a Certified Public Accountant.

Jim Shield – Executive Vice President and Chief Development Officer – With more than 25 years of experience in all aspects of the power generation industry, Jim Shield is responsible for the development, marketing, engineering, and construction of Invenergy’s wind, solar, and thermal energy projects worldwide. During his career, he has developed over 8,500 MW of power projects and negotiated 3,000 MW of long-term energy off-take agreements. Prior to joining Invenergy, Shield held various positions with Calpine Corporation, including Senior Vice President-East Region. Earlier, he was a key contributor in building SkyGen Energy from a start-up company, and a project manager at Indeck Energy Services. Shield has a BS in Mechanical Engineering from the University of Michigan and an MBA from DePaul University. He is a Registered Professional Engineer in the State of Illinois.

Alex George – Senior Vice President, Operations and Asset Management - Alex George leads the operations and asset management of Invenergy’s growing portfolio of wind and thermal energy plants. He has nearly 30 years of broad experience in the



power industry, having led the commissioning, operation, and asset management of more than 5,600 MW of natural gas generation and 1,800 MW of wind generation during his career. Prior to joining Invenergy in 2002, George was Vice President of Operations and Asset Management at Calpine. Before then, as one of the original team members at Sky Gen, he was Vice President of Operations and Asset Management. Previously, George was a professional engineer at both CRS Sistine Engineers and Sargent & Lundy. He has a BS in Mechanical Engineering from the University of Illinois and an MBA from the University of Illinois-Chicago.

Bryan Schueler – Senior Vice President, Development – A twenty-year veteran of the power industry, Bryan Schueler is responsible for project development at Invenergy. He has experience in plant operations and engineering, as well as the development, permitting, and construction of biomass, wind, landfill gas, and natural gas projects. Over the course of two decades, Schueler has successfully managed the development and construction of more than 20 wind farms and over 2,500 MW of natural gas-fired facilities. Before joining Invenergy, Schueler was a project director at Calpine, fulfilling the same role he held earlier at SkyGen. Previously, he was a performance engineer at a 1,000 MW coal station for Commonwealth Edison. Schueler has a BS in Mechanical Engineering from Purdue University and an MBA from the University of Illinois.

Randy Wood – Vice President, Origination - Randy Wood is responsible for identifying and executing power sales, energy hedges, and renewable energy credit transactions for Invenergy in North America. Having joined Invenergy in 2007, he has closed many long-term power sales and energy hedges for wind, solar, and gas-fired generation, as well as numerous renewable energy credit transactions. Wood has over ten years of energy industry experience, and prior to working at Invenergy, he held positions with Progress Energy Ventures and InterGen North America. A Certified Public Accountant, Wood earned a Bachelor of Business Administration from the University of Central Arkansas, and a Master's in Business Administration from Texas A&M University.

Kris Zadlo – Vice President, Regulatory Affairs and Transmission - With more than twenty years of electric power industry experience, Kris Zadlo oversees Invenergy's national and regional commercial activities pertaining to regulatory affairs and transmission. He is responsible for developing near- and long-term regulatory and transmission strategies for Invenergy. Previously, Zadlo was Vice President of Transmission for Calpine Corporation and earlier held various management positions during his ten years at Commonwealth Edison Company of Chicago. A Registered Professional Engineer in the State of Illinois, Zadlo graduated cum laude from Rose-Hulman Institute with a Bachelor of Science in Electrical Engineering. He received a Masters in Electrical Engineering from Purdue University.



Public Version

Attachment 2 Historical Basis



Average Hourly Basis (Real-time)				
Year-Month	NSP.NSP - NSP.BLUE_LK7		NSP.NSP - NSP.PRISL	
	On-Peak Basis	Off-Peak Basis	On-Peak Basis	Off-Peak Basis
2009-01	\$0.39	\$0.25	\$0.82	\$0.80
2009-02	\$0.33	\$0.27	\$0.81	\$0.82
2009-03	\$0.49	\$0.04	\$1.24	\$0.81
2009-04	\$0.63	\$0.18	\$1.63	\$0.88
2009-05	\$0.21	\$0.05	\$0.81	\$0.42
2009-06	\$0.59	\$0.25	\$1.21	\$0.89
2009-07	\$0.24	\$0.13	\$0.81	\$0.51
2009-08	\$0.88	\$0.11	\$1.00	\$0.71
2009-09	-\$0.08	-\$0.12	-\$0.24	-\$0.20
2009-10	\$0.47	\$0.21	-\$0.01	-\$0.54
2009-11	\$0.52	\$0.14	\$1.21	\$0.45
2009-12	\$1.24	\$0.06	\$2.25	\$0.75
Average 2009	\$0.49	\$0.15	\$1.04	\$0.52
2010-01	\$1.10	\$0.36	\$2.13	\$0.94
2010-02	\$0.51	\$0.24	\$0.91	\$0.86
2010-03	\$0.20	\$0.17	\$0.89	\$0.57
2010-04	\$0.48	\$0.16	\$0.31	\$0.38
2010-05	\$0.12	\$0.37	\$0.58	\$0.43
2010-06	\$1.72	\$1.01	\$2.12	\$0.91
2010-07	\$2.31	\$0.90	\$4.94	\$2.05
2010-08	\$1.83	\$1.03	\$2.26	\$0.85
2010-09	\$0.55	\$0.30	\$0.98	\$0.55
2010-10	\$0.42	\$0.54	\$1.41	\$0.91
2010-11	\$0.35	\$0.01	\$1.33	\$0.50
2010-12	\$2.35	\$0.58	\$3.31	\$0.85
Average 2010	\$1.00	\$0.47	\$1.76	\$0.82



Average Hourly Basis (Real-time)				
Year-Month	NSP.NSP - NSP.BLUE_LK7		NSP.NSP - NSP.PRISL	
	On-Peak Basis	Off-Peak Basis	On-Peak Basis	Off-Peak Basis
2011-01	\$0.41	\$0.34	\$1.14	\$0.87
2011-02	\$1.59	\$0.88	\$2.39	\$1.51
2011-03	\$0.43	\$0.49	\$1.23	\$1.22
2011-04	-\$2.84	-\$0.33	-\$0.24	\$0.80
2011-05	-\$0.34	\$0.51	\$1.08	\$0.92
2011-06	\$2.60	\$0.76	\$3.06	\$0.63
2011-07	\$1.31	\$0.49	\$3.03	\$1.33
2011-08	\$1.27	\$0.33	\$2.78	\$0.78
2011-09	\$0.91	\$0.38	\$1.58	\$0.75
2011-10	\$0.76	\$0.57	\$0.70	\$0.88
2011-11	\$0.23	\$0.23	\$0.49	\$0.90
2011-12	\$1.70	\$0.81	\$2.36	\$1.19
Average 2011	\$0.67	\$0.47	\$1.69	\$0.98
2012-01	\$0.70	\$0.53	\$1.23	\$0.83
2012-02	\$0.71	\$0.12	\$1.29	\$0.40
2012-03	\$1.17	\$0.58	\$0.98	\$0.49
2012-04	\$0.97	-\$0.22	\$0.66	-\$0.09
2012-05	-\$0.43	-\$0.41	\$0.89	\$0.97
2012-06	\$0.34	-\$1.31	\$1.73	\$1.45
2012-07	\$1.95	\$0.57	\$11.24	\$1.22
2012-08	\$0.80	\$0.14	\$10.05	\$3.32
2012-09	\$0.27	\$0.27	\$0.78	\$0.61
2012-10	-\$3.35	\$0.48	\$0.93	\$0.90
2012-11	-\$6.35	-\$5.63	\$1.70	\$1.10
2012-12	\$0.71	\$0.45	\$0.90	\$0.65
Average 2012	-\$0.27	-\$0.37	\$2.70	\$0.99
Average 2009- 2012	\$0.47	\$0.18	\$1.80	\$0.83

Source: Ventyx



Public Version

Attachment 3: Site Layout



Cannon Falls Energy Center
525 North Park Drive
Cannon Falls, MN

