# City of Seward, NE

## Tuesday, May 17, 2016

## Regular Session

## Item G8

# CONSIDERATION OF APPLICATION FOR NEBRASKA PUBLIC POWER DISTRICT APPROVAL TO CONNECT DISTRIBUTED OR LOCAL GENERATION - Bruce Smith

**Administrative Report: If City Council approves Power Production Agreement with BlueStem Energy, the City needs to make application to NPPD to connect the wind turbine to the City's electric system.**

**Following review and discussion, Council to take appropriate action.**

**Staff Contact:**

K450-0514EF

Retention Code O20

# Nebraska Public Power District Application for NPPD Approval to Connect Distributed or Local Generation

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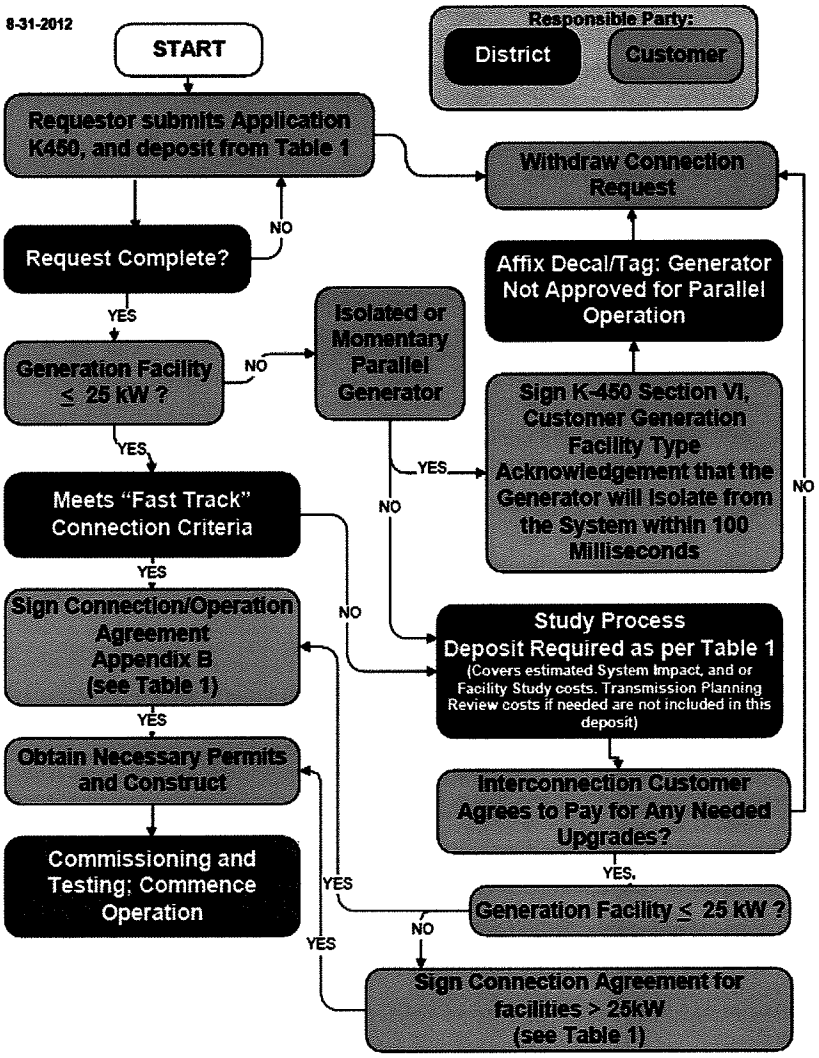
## Application Process

The application process is the series of prescribed steps (Figure 1) to be taken by the Interconnection Customer who desires to connect to NPPD's electric system, which includes connection directly to transmission, subtransmission, or distribution facitilites owned and/or operated by NPPD, as well as connection of parallel operated generation 500 kW or greater that is connected to another utility's facilities interconnected with NPPD (since this may also impact NPPD's electric system). NPPD requires information such as location, technical and design parameters, and operational and maintenance procedures. Interconnections that create flow and stability issues that impact the transmission system will be required to also comply with NPPD's Facility Connection Requirements document and additional submittals may be required. All generators greater than 5MW must be reported to SPP as per Business Practice Revision BPR0018 Guildeline for determining Jurisdiction of SPP Generator Interconnection Procedure.The application forms include the steps that must be taken to properly account for site-specific concerns and address the technical and procedural requirements of the connection standard. In some cases, NPPD may reject the proposed connection for reliability or safety issues.

**Figure 1. Application Process**
**(Some steps may not apply to non-NPPD Interconnection Customers.)**



# Terms and Conditions for Customer Generation Connection on Qualified & Non-Qualified Facilities >25KW

1. It is the responsibility of the Interconnection Customer to obtain any and all permits and jurisdictional approvals and to comply with all applicable codes such as National Electric Code (NEC), National Fire Protection Association (NFPA), etc.

2. Connection Expenses: The Interconnection Customer shall be responsible for all costs incurred by NPPD for equipment or services that are required for the connection of a Qualified or Non-Qualified Facility.

   Connection requests may require System Impact and Facilities Studies. The deposit collected (see Table 1) will be applied to these study fee requirements. If the fee collected exceeds the cost of these studies, the excess will be refunded. The Interconnection Customer will also be responsible for paying the portion of the studies that exceed the amount of the deposit.

   If the Interconnection requires Transmission Planning review, costs for this review will be billed separately and an additional deposit of $25,000 will be required. If the fee collected exceeds the cost of these studies, the excess will be refunded. The Interconnection Customer will also be responsible for paying the portion of the studies that exceed the amount of the deposit.

   Other services, deemed to be above and beyond the standard for connection, but which may cause NPPD to perform extra ordinary review or work include, but shall not be limited to: qualified facility site inspection, system control map processing, engineering studies, facility service wire/cable, transformer(s), and appurtenant items. These services are provided at NPPD's discretion and at NPPD's prevailing charge out rates, and the costs associated therewith may be charged and collected prior to energization of the Qualified or Non-Qualified Facility.

3. The Interconnection Agreement for facilities > 25 kW will be a separately drafted document addressing the specific requirements of the generator facility.

4. Customer Generation minimum system protective relays function types for classes 0 and I: 25-Synchronism check, 27-Undervoltage function, 59-Overvoltage function, 81O/U-Over/under frequency. Refer to Table 1 for additional protective relay requirements for generation classes II and III.

## (Items below are applicable only if NPPD is the Host Utility)

5. All Distributed and Local Generation, Qualified, and Non-Qualified Facilities shall comply with local electrical inspection jurisdiction prior to energization. Prior to energization, the Interconnection Customer is responsible to provide verification to NPPD that all necessary or required inspections have occurred. If NPPD, in its sole judgment, determines that the installation would be unsafe for the public or employees or agents of NPPD, NPPD reserves the right to refuse connection until the safety-related deficiencies are remedied.

6. NPPD has the right to immediately disconnect the generation facility connection without advance notice or liability if the Customer Generation connection poses a risk to the Customer, NPPD employees, other customers or the general public. The Interconnection Customer is responsible for all costs associated with removal of the physical connection to the NPPD electric system in the event the facility is deemed by NPPD to be non-compliant with applicable safetyrequirements.

7. Customer Generation Accessibility: Interconnection Customer agrees to allow NPPD access to the Customer Generation facility under both normal and emergency conditions.

***I (we), the Interconnection Customer(s), acknowledge receipt of and agree to the Terms and Conditions listed above.***

_____ Date

*Interconnection Customer*

## Table 1. K450 Application and Connection Requirements

| Size[2] | Operating Characteristics | Class | Deposit[1] (System Impact and Facilities Study only) | Connection Agreement | Required Minimum Protective Relays[3] |
|---|---|---|---|---|---|
| All Sizes | Isolated or Momentary Parallel | N/A | None | K450 Acknowledgement Section VI | |
| Up to 25 kW | Sustained Parallel operation, w/ or w/o power export | 0 | None | Appendix B | 25, 27, 59, 81O, 81U |
| >25 kW – 1 MW | Sustained Parallel operation, "line" dependent | I | $5 x kW Rating | Drafted based on specific Generator requirements. | 25, 27, 59, 81O, 81U |
| >25 kW – 1 MW | Sustained Parallel operation, "self" dependent | II | $5 x kW Rating | Drafted based on specific Generator requirements.[4] | 25, 27, 59, 81O, 81U, 67, 67N |
| >1 MW – 5 MW | Sustained Parallel Operation | II | $5 x kW Rating | Drafted based on specific Generator requirements.[4] | 25, 27, 59, 81O, 81U, 67, 67N |
| >5 MW | Sustained Parallel Operation | III | $25,000 | Drafted based on specific Generator requirements.[5] | 25, 27, 59, 81O, 81U, 67, 67N, 32 |

**Note (1) -** Deposit collected will be applied to study fee requirements. If the deposit collected exceeds the cost of the System Impact and Facilities Studies, the excess will be refunded to the Customer. Likewise, the Customer will also be responsible for paying the portion of study costs that exceed the deposit collected.

**Note (2) -** If the Interconnection requires Transmission Planning review, costs for this review will be billed separately and an additional deposit of $25,000 will be required. If the fee collected exceeds the cost of these studies, the excess will be refunded. The Interconnection Customer will also be responsible for paying the portion of the studies that exceed the amount of the deposit.

**Note (3)** – Number represents ANSI Standard Device Designation for electric protective relays. Definitions for applicable relay numbers are listed below:

- **25 – Synchronizing or Synchronism-Check Device** is a device that operates when two a-c circuits are within the desired limits of frequency, phase angle, or voltage, to permit or to cause the paralleling of these two circuits.
- **27 – Undervoltage Relay** is a relay that functions on a given value ofunder-voltage.
- **32 – Directional Power Relay** is a device that functions on a desired value of power flow in a given direction or upon reverse power resulting from arcback in the anode or cathode circuits of a power rectifier.
- **59 – Overvoltage Relay** is a relay that functions on a given value ofover-voltage.
- **67 – A-C Directional Overcurrent Relay** is a relay that functions on a desired value of a-c over-current flowing in a predetermined direction. (**N** denotes Neutral)
- **81 – Frequency Relay** is a relay that functions on a predetermined value of frequency (either under (**U**) or over (**O**) or on normal system frequency) or rate of change offrequency.

**Note (4) –** Level II Customer Generation Facilities may require documents submitted bear the stamp of a Professional Electrical Engineer registered in Nebraska.

**Note (5) –** Level III Customer Generation Facilities will require documents submitted bear the stamp of a Professional Electrical Engineer registered in Nebraska

## Form K450

# Nebraska Public Power District
# Application For NPPD Approval
# to Connect Distributed or Local Generation

Submit completed Application to your local NPPD office (Call 1-877-ASK-NPPD for the nearest location).

*The Distributed Generation or Local Generation (both referred to throughout this document as Customer Generation) Interconnection Customer requests NPPD approval to connect generation equipment with the NPPD-operated electric system.*

| | |
|---|---|
| *NPPD Office Use Only* | *Notification No.:*<br>*NPPD Account No.:*<br>*Host Utility:* |

## I. Customer Generation Facility Information:

Interconnection Customer: City of Seward Electric Department

Service Address: 1345 River St City: Seward State: NE Zip Code: 68434

Mailing Address: 1345 River St City: Seward State: NE Zip Code: 68434

Day Phone: 402-643-3151 Night Phone: Fax: 402-643-3151

Email:

## II. Facility Design / Engineering (If applicable):

Company: Consulting Engineers Group, Inc.

Representative: Vince Granquist

Address: 21210 Eaton Ave., Ste C City: Farmington State: MN Zip Code: 55024

Phone: 651-463-6350 Fax: 651-463-6179 Email: VGranquist@ceg-engineers.com

## III. Customer Generation Facility Electrical Contractor:

Company: Bluestem Energy Solutions

Representative: Matt Robinette

Address: 4361 Lafayette Ave City: Omaha State: NE Zip Code: 68131

Phone: 402-553-1804 Fax: Email: mrobinette@bstem.biz

## IV. Customer Generation Equipment Information:

Describe installation including number and type of generating units and inverters. Attach manufacturer's data.
GE 1.715 MW Wind turbine generator, quantity 1 connecting to City of Seward Walker Substation_____

_____

Electrical Panel Size and Voltage: _____

Generator Manufacturer(s)/Model(s): _____

UL Certification Section: N/A_____

## V. Schedule:

NPPD requires sixty (60) days notice prior to installation and connection for Qualified Facilities ≤ 25 kW. Connection of Qualified Facilities > 25 kW & all Non-Qualified Facilities Installations may exceed sixty (60) days, based on the proposed connection location.

Date scheduled for start of installation/construction: TBD

Date scheduled for completion of installation/construction: TBD

## VI. Customer Generation Facility Type (see Glossary for Definitions) :

☐ Distributed Generation ☒ Local Generation

Size:
☐ 25 kW or less ☐ 26 kW to < 500 kW ☒ 500 kW to < 2 MW ☐ 2 MW to < 5 MW ☐ 5 MW or greater

Qualified Facility Type:
☐ Methane ☒ Wind ☐ Solar ☐ Biomass ☐ Hydro ☐ Geothermal ☐ Other

☐ Non-Qualified Facility

Emergency Backup Generation Only: ☐ Yes ☒ No
Sustained Parallel Operation: ☒ Yes ☐ No
*(Parallel is described as simultaneous to NPPD electric service.)*

Isolated or Momentary Parallel Operation: ☐ Yes ☒ No
*(Interconnection Customer must demonstrate the Generator will isolate from the system within 100 milliseconds as per IEEE Standard 1547.1.3.)*

If **yes**, please review and acknowledge the following statement with signature. This completes this application. Please submit to NPPD office.

***I (we), the Interconnection Customer(s), acknowledge and confirm controls will not be modified without prior notification to and approval from NPPD. NPPD reserves the right to verify or request additional documentation regarding Momentary Parallel requirements.***

_____ Date
*Interconnection Customer*

_____ Date
*Distribution Superintendent* *Printed Name*

If **no**, please complete remainder of application before submitting to NPPD office.

## VII. Generator Information and Ratings (indicate per unit/combined)

Type: ☐ Synchronous ☒ Induction ☒ Inverter/Converter Technology

Construction: ☐ Single ☒ Three phase

Ratings: *The rated KW, KV, and % power factor nameplate values for the generator. The rated power factor is the power factor output of the machine at rated KW and KV.*

1,715 KW 0.69 KV -0.95 to +0.95 % Power Factor

Power Factor: ☐ Fixed ☒ Variable

Generator VARs: ☒ Supply to the system ☒ Absorb from the system

Exciter: [ ] *The ratio of the PT connected to the exciter, required for a synchronous generator only.*

*Impedance (% on generator ratings) for synchronous or induction units only: The winding impedances used in unbalanced load-flow calculations specified in percent, based on the machine's rating. Xd" and X" are the subtransient reactances of synchronous and induction machines respectively. These are the impedances seen looking into the machine at the instance of a fault.*

R1 0.00189ohm X1: 1.22 ohm Xd" [ ] (synchronous machine)

R0 53.0 ohm X0: 0.028 ohm X" 0.2pu (induction machine)

Generator Step Transformer Nameplate Ratings (*if required*):

Rated KVA: 2,000 KVA OA Rating

Impedance: 5.75 % Z

Resistance: 0.6 % R

No Load Losses: 2.8 KW

High Side KV: 34.5 kV (*Winding rating for single phase, KV line to line for 3 phase*)

High Side Connection (3 phase only): ☐ Wye-Gnd ☐ Wye ☒ Delta

Low Side KV: 0.69 kV (*Winding rating for single phase, KV line to line for 3 phase*)

Low Side Connection (3 phase only): ☒ Wye-Gnd ☐ Wye ☐ Delta

*(Information above is the minimum required. Based on the specific installation, additional information may be required.)*

# VIII. Submittals

Submit the following documents with this Application. Class II and III Customer Generation facilities, as determined by Note 4 and 5 of Table 1, will require documents submitted bear the stamp of a Professional Electrical Engineer registered in Nebraska showing compliance with standards under the National Electric Code, National Electric Safety Code, Institute of Electric and Electronic Engineers and the Underwriters Laboratory.

## Site Plan

A site plan of the proposed Customer Generation facility and/or installation indicating installed generation equipment locations. Include GPS coordinates of generator(s) and tower heights.

*(See sample drawing included in this document.)*

## Schematic Diagram

An electrical schematic diagram of the proposed generator installation on the Interconnection Customer's electrical system, noting all bus voltages, conductor properties, generating equipment, connection point(s), and connection disconnecting device(s).

*(See sample drawing included in this document.)*

Comments:

The electrical schmatic diagram is attached (Dwg:SEW-OL-01RA).

## IX. Authorization

FOR THE CONTRACTOR RESPONSIBLE FOR THE DESIGN:

Signature _____

Print Name _____

Title _____

Signed this _____ Day of _____ , _____

FOR THE GENERATION FACILITY INTERCONNECTION CUSTOMER:

Signature _____

Print Name _____

Title _____

Signed this _____ Day of _____ , _____

FOR THE HOST UTILITY
(if other than NPPD):

Signature _____

Print Name _____

Title _____

Signed this _____ Day of _____ , _____

FOR CLASS 0 FACILITIES, NPPD ACKNOWLEDGEMENT OF APPLICATION RECEIPT:

(DISTRIBUTION SUPERINTENDENT)

Signature _____

Print Name _____

Title _____

Signed this _____ Day of _____ , _____

FOR CLASS I-III FACILITIES, NPPD APPROVAL (if a Generation Interconnection Agreement is not required):

(T & D ASSET MANAGER)

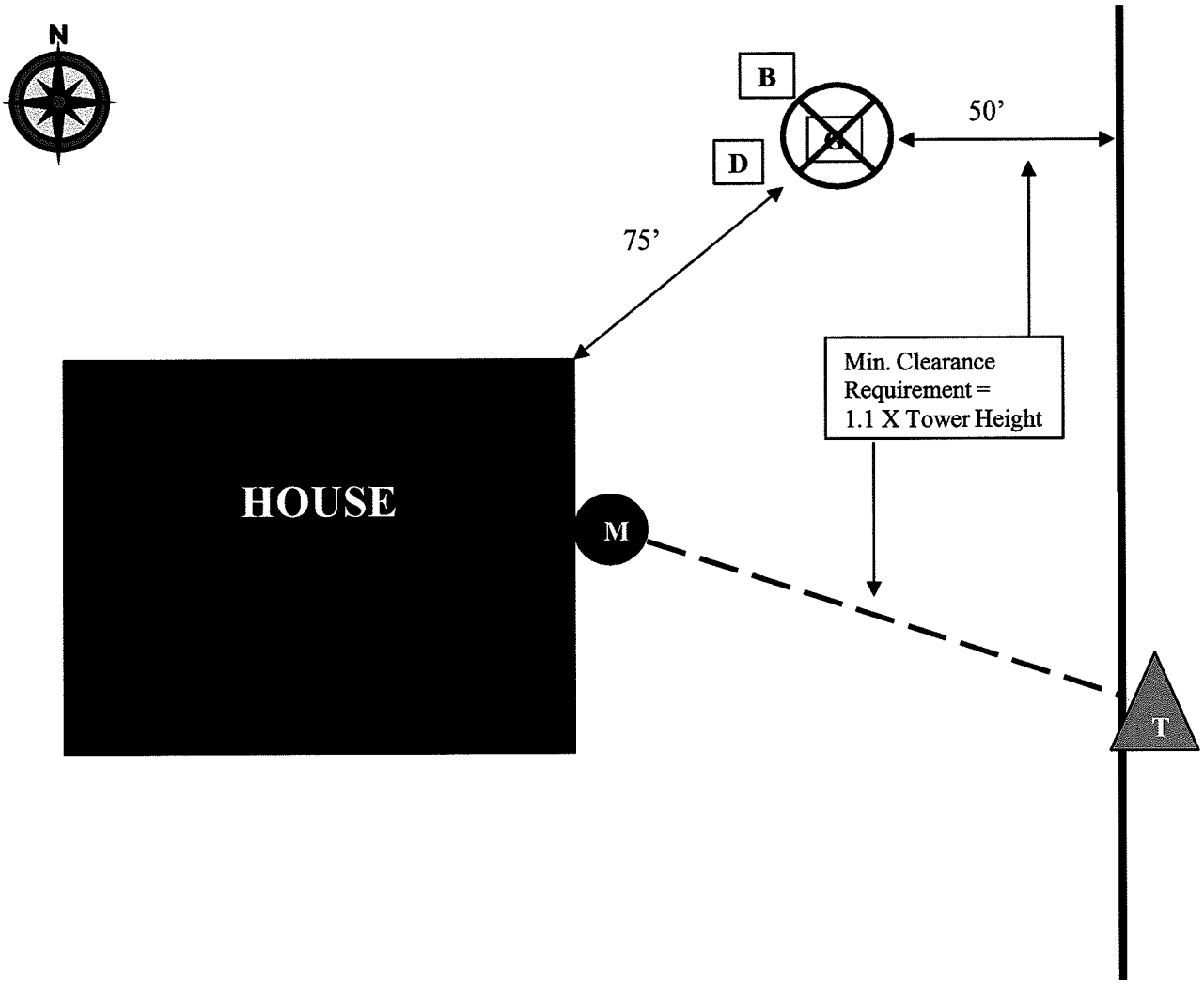
Signature _____

Print Name _____

Title _____

Signed this _____ Day of _____ , _____

# SITE PLAN SAMPLE




B = Connection Breaker

M = Meter

T = Transformer

D = Disconnect

G = Generator GPS Coordinates X:_____Y: _____

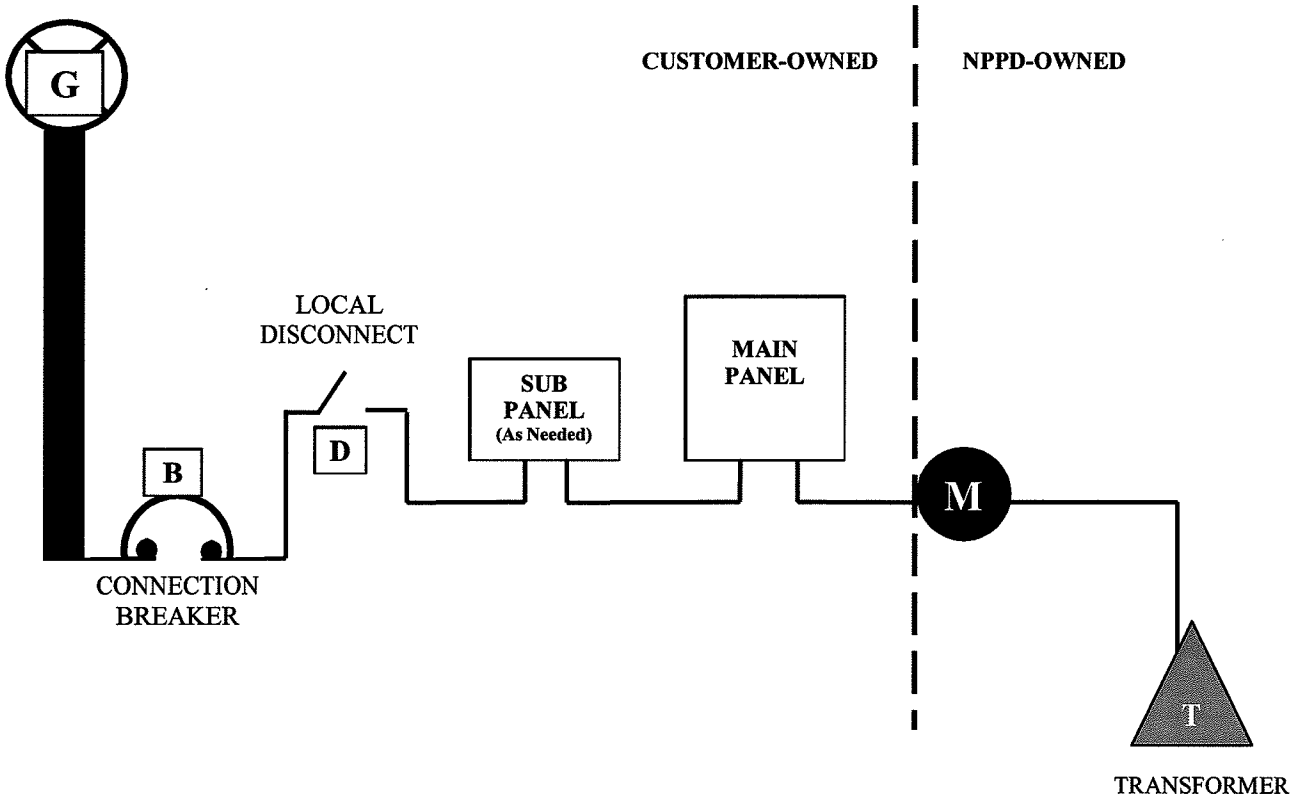
Medium Voltage Underground Power Line

Medium Voltage Overhead Power Line

Underground Service Line

Overhead Service Line

# ELECTRICAL SCHEMATIC SAMPLE



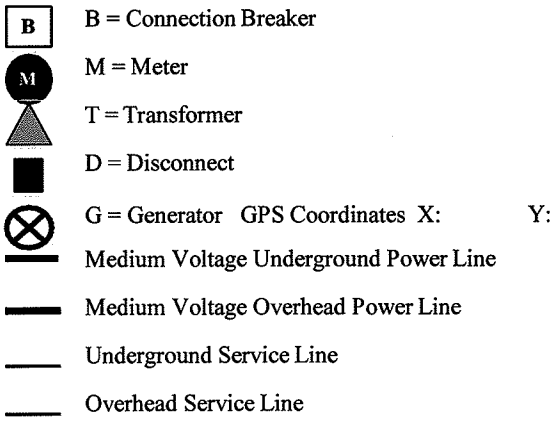

Panel Size_____(For installations greater than 25kW, a more detailed facility one-line may be required.)

**Check-Mark All Protective Devices at Connection "B"**

| | | | |
|---|---|---|---|
| ☐ 21: Distance function | ☒ 25: Synchronism check | ☒ 27: Undervoltage function. | ☐ 32: Reverse Power Function |
| ☐ 46: Reverse Phase | ☐ 47: Phase Sequence | ☐ 50: Instantaneous overcurrent | ☐ 50G/50N: Inst. Grnd overcurrent |
| ☒ 51: Inverse time overcurrent | ☒ 51G/51N: Inv. Grd overcurrent | ☐ 52: Circuit breaker | 59: Overvoltage function |
| ☐ 67: Directional overcurrent | ☐ 67G/67N: Directnl Grd overcurrent | ☐ 68: Out-of-step function | ☐ 81: Frequency function |
| 81O/U: Over/under frequency | ☐ 81R:Rate-of-change frequency | ☐ 86: Lockout relay | ☐ 94: Auxiliary tripping relay |

REQUIRED MINIMUM PROTECTIVE RELAYS FOR ALL CLASSES. SEE TABLE 1 FOR ADDITIONAL REQUIREMENTS FOR CLASS II AND III

# CUSTOMER SITE PLAN



# CUSTOMER ELECTRICAL SCHEMATIC

## Check-Mark All Protective Devices at Connection "B"

| | | | |
|---|---|---|---|
| ☐ 21: Distance function | 25: Synchronism check | ☒ 27: Undervoltage function. | ☐ 32: Reverse Power Function |
| ☐ 46: Reverse Phase | ☒ 47: Phase Sequence | ☐ 50: Instantaneous overcurrent | ☐ 50G/50N: Inst. Grnd overcurrent |
| ☒ 51: Inverse time overcurrent | ☒ 51G/51N: Inv. Grd overcurrent | ☒ 52: Circuit breaker | 59: Overvoltage function |
| ☐ 67: Directional overcurrent | ☐ 67G/67N: Directnl Grd overcurrent | ☐ 68: Out-of-step function | ☒ 81: Frequency function |
| 81O/U: Over/under frequency | ☐ 81R:Rate-of-change frequency | ☐ 86: Lockout relay | ☐ 94: Auxiliary tripping relay |

REQUIRED MINIMUM PROCTECTIVE RELAYS FOR ALL CLASSES. SEE TABLE 1 FOR ADDITIONAL REQUIR EMENTS FOR CLASS II AND III

## Glossary

**Customer Generation (or Customer Generator or CG)** – Any Distributed Generation or Local Generation.

**Distributed Generation (or Distributed Generator or DG)** – A generator (or group of generators) designed to produce electrical energy to serve local load, typically located on the end-use customer's side of the meter. If more than one generator is located in the same installation, the aggregate nameplate rating of all generators shall be used in determining the applicable requirements and provisions.

**Emergency Backup Generation (or Emergency Backup Generator)** – A generator(s) that is used by an end-use customer only when the utility's electric service is interrupted or when the generator is being tested.

**Host Utility** – The utility electric system to which the Customer Generator is physically connected.

**Interconnection Customer** – The customer with a distributed or local generation connection to NPPD's electric system, or connection to an NPPD Wholesale Customer's system that may impact NPPD's electric system.

**Isolated** – Type of connection and operation in which an Interconnection Customer's and the utility's electrical systems are never operating in Sustained Parallel or Momentary Parallel.

**Local Generation (or Local Generator or LG)** - A generator (or group of generators), designed to produce electrical energy for wholesale sales, that is not classified by NPPD as Distributed Generation. If more than one generator is located in the same installation, the aggregate nameplate rating of all generators shall be used in determining the applicable requirements and provisions.

**Momentary Parallel** – Type of connection and operation in which an Interconnection Customer's and the utility's electrical systems are tied together and operating in Parallel for no more than 100 milliseconds.

**Non-Qualifying (or Non-Qualified)** – Does not meet the definition of a Qualifying Customer Generation facility.

**Qualifying (or Qualified)** – Satisfies the criteria for qualifying status for small power production facilities and cogeneration facilities as set forth in the Federal Energy Regulatory Commission's (FERC) regulations (18 CFR Part 292, as amended), and that has either followed the FERC's self-certification process or has applied for and received FERC certification as a qualifying facility.

**Study Process** - Consists of the minimum engineering review, the system impact study, and the facilities study. At an initial meeting, the parties shall determine whether a minimum engineering review is needed, or the parties shall proceed directly to a system impact study, or a system upgrade study (referred to by FERC as a facilities study), or a connection agreement.

**Sustained Parallel (or Parallel)** – Type of connection and operation in which an Interconnection Customer's and the utility's electrical systems are tied together electrically, operating at matching phase rotation with matching voltage and frequency, and are electrically synchronized with each other.

# Appendix A

## NPPD Approved Customer Generation ≤ 25 kW Generator and Inverter List

(Not applicable to Non-NPPD customers)

| Description | Model | Renewable Source | UL Rating | KW | Date Approved |
|---|---|---|---|---|---|
| ABB / fka Power-One (Aurora) | PVI-4.2-OUTD-US | Photovoltaic | 1741 / CSA-2708412 | 4.200 | 03/26/2013 |
| ABB / fka Power-One (Aurora) | PVI-6000-OUTD-US-A | Photovoltaic | 1741 / CSA-2708412 | 6.000 | 03/24/2014 |
| ABB / fka Power-One (Aurora) | PVI-6000-OUTD-US-W | Wind | 1741 / CSA-2708412 | 6.000 | 06/15/2011 |
| ABB / fka Power-One (Aurora) | PVI-12.5 | Photovoltaic | 1741 / CSA-2708412 | 12.500 | 07/29/2013 |
| Bergey Windpower | AMFA-27 | Wind | UL1741 / QIKH.E317627 | 12.000 | 04/10/2013 |
| Bergey Windpower | AMFA-29 | Wind | UL1741 / QIKH.E317627 | 10.400 | 04/10/2013 |
| Enphase Energy | M175-24-240-S01 | Photovoltaic or Wind | 1741 / CSA-240080 | 0.175 | 03/24/2011 |
| Enphase Energy | M175-24-240-S02 | Photovoltaic or Wind | 1741 / CSA-240080 | 0.175 | 03/24/2011 |
| Enphase Energy | M175-24-208-S01 | Photovoltaic or Wind | 1741 / CSA-240080 | 0.175 | 03/24/2011 |
| Enphase Energy | M175-24-208-S02 | Photovoltaic or Wind | 1741 / CSA-240080 | 0.175 | 03/24/2011 |
| Enphase Energy | M215-60-2LL-S22/S23 | Photovoltaic or Wind | 1741 / CSA-240080 | 0.215 | 01/19/2012 |
| Ningbo Ginlong | GCI-2K | Photovoltaic or Wind | 1741 / Intertek 3186984 | 2.000 | 07/08/2010 |
| Outback | GTFX-2524 | Photovoltaic or Wind | 1741 / Intertek | 2.500 | 02/07/2011 |
| Schuco / SMA | SWR1800U | Pholtovoltaic | 1741 / E330683 | 1.800 | 06/24/2011 |
| Skystream | 3.7 | Wind | | 2.400 | 09/01/2009 |
| SMA America | SI-4248U | Photovoltaic or Wind | 1741 / Intertek | 4.200 | 10/04/2011 |
| SMA Solar Technology AG | SB-3000US | Photovoltaic or Wind | 1741 / QIKH.E210376 | 3.000 | 07/01/2010 |
| SMA Solar Technology AG | SB-5000US | Photovoltaic or Wind | 1741 / QIKH.E210376 | 5.000 | 09/09/2011 |
| SMA Solar Technology AG | SB-6000US | Photovoltaic or Wind | 1741 / QIKH.E210376 | 6.000 | 08/12/2010 |
| SMA Solar Technology AG | SB-7000US | Photovoltaic or Wind | 1741 / QIKH.E210376 | 7.000 | 08/12/2010 |
| SMA Solar Technology AG | SB-9000TL-US | Photovoltaic or Wind | 1741 / QIKH.E210376 | 9.000 | 10/11/2011 |
| SMA Solar Technology AG | SB-10000TL-US | Photovoltaic or Wind | 1741 / QIKH.E210376 | 10.000 | 03/21/2012 |
| SMA Solar Technology AG | WB-3000-US | Photovoltaic or Wind | 1741 / QIKH.E210376 | 3.000 | 10/11/2011 |
| SolarEdge Technologies | SE6000A-US | Photovoltaic or Wind | ETL/UL1741 | 6.000 | 10/16/2012 |
| Xantrex | XW4024 | Photovoltaic or Wind | 1741 / CSA-086581_0_000 | 4.000 | 01/10/2011 |
| | | | | | |

**Note: Installations with multiple inverter units will require isolation transformers.**

## Appendix B
## (Applicable only if NPPD is the Host Utility)

## Customer Generation Connection/Operation Agreement on Qualified & Non-Qualified Facilities ≤ 25 kW

1. All Distributed and Local Generation, Qualified, and Non-Qualified Facilities shall comply with local electrical inspection jurisdiction prior to energization. It is the responsibility of the Interconnection Customer to obtain any and all permits and jurisdictional approvals and to comply with all applicable codes such as National Electric Code (NEC), National Fire Protection Association (NFPA), etc. Prior to energization, the Interconnection Customer is responsible to provide verification to NPPD that all necessary or required inspections have occurred and permits received. NPPD reserves the right to refuse connection until the safety-related deficiencies are remedied.
2. The Interconnection Customer shall be responsible for all costs incurred by NPPD for equipment or services that are required for the connection of a Qualified or Non-Qualified Facility; but excluding the cost of bi-directional metering for Qualified Facilities.
3. Other services, deemed to be above and beyond the requirements for connection, but which may cause NPPD to perform extra ordinary review or work are services provided at NPPD's discretion and at NPPD's prevailing charge out rates, and the costs associated therewith may be charged and collected prior to energization of the Qualified or Non-Qualified Facility.
4. At no time will the new Interconnection Customer equipment be allowed to operate in parallel connected to the NPPD system until this "Customer Generation Connection/Operation Agreement" is executed between the Interconnection Customer and NPPD.
    - For Qualified & Non-Qualified Facilities ≤ 25kW Form K450 serves as the request for authorization and construction of a Customer Generation Facility Connection. Appendix B serves as the Connection and Operations Agreement. Both documents are to be signed prior to the Customer Generation Facility being connected to the NPPD System.
    - All Interconnection Customer(s) shall be liable for any and all damages and expenses incurred by NPPD and its other customers due to the unauthorized or improper closed transition operation of the Interconnection Customer's Customer Generation with NPPD's system. NPPD reserves the right to immediately disconnect the generation facility connection without advance notice or liability if the Customer Generation poses a risk to the Customer, NPPD employees, other customers or the general public. The Interconnection Customer is responsible for all costs associated with the removal of the physical connection to the NPPD electric system facility in the event the facility is deemed by NPPD to be non-compliant with applicable safetyrequirements.
    - Interconnection Customer agrees to allow NPPD access to the Customer Generation facility under both normal and emergency conditions.
5. Pricing shall be determined by the applicable NPPD retail rate schedules.

## Appendix B (continued)

FOR THE GENERATION FACILITY INTERCONNECTION CUSTOMER:

Signature _____

Print Name _____

Title _____

Signed this _____ Day of _____, _____

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NPPD FINAL APPROVAL:

(TRANSMISSION & DISTRIBUTION ASSET MANAGER)

Signature _____

Print Name _____

Title _____

Signed this _____ Day of _____, _____

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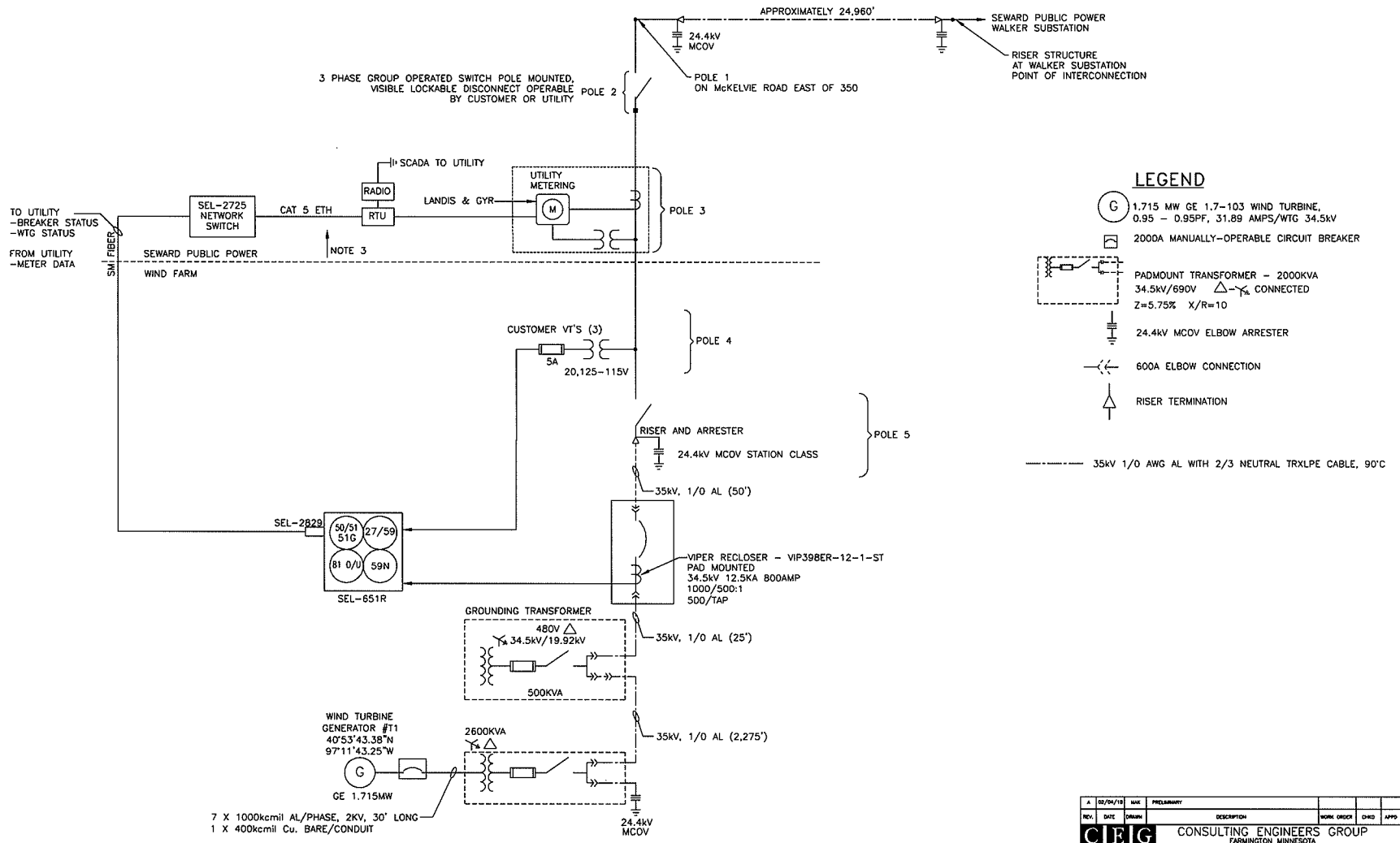


| REV. | DATE | DRAWN | DESCRIPTION | WORK ORDER | CHKD | APPD | DATE |
|---|---|---|---|---|---|---|---|
| A | 02/04/16 | MAK | PRELIMINARY | | | | |

CEG CONSULTING ENGINEERS GROUP
FARMINGTON MINNESOTA

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF NEBRASKA

NAME
DATE
REGISTRATION NO.

# SEWARD WIND COLLECTION SYSTEM ONE LINE DIAGRAM

CHECKED
DATE
DRAWN MAK
DATE 02/02/16
SCALE NONE
W.O. NO. CEGBOY12
DWG. NO. SEW-OL-01RA

City of Seward
Legend
34.5Kv Collection Line
Wind Generator
T1
McKelvie Rd
Walker Substation
280
N 6th St
34
280th
1 mi
N
Google earth
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