



Cloverland
ELECTRIC COOPERATIVE

Renewable Generation (Category 2 – 20 kW to 150 kW)

Net Metering Program | Generator Interconnection Application
Interconnection & Parallel Operating Agreement

Net Metering Program

What is net metering? Net metering is a tool for valuing and measuring the electricity generated from renewable resources and used by a utility consumer for all or part of their electricity needs. Under net metering, when a member uses electricity supplied by the cooperative, the electricity meter moves forward. When the member's wind, solar, or other renewable generator produces more electricity than the member needs at any particular time, the excess is fed back into the grid, and the meter "rolls backwards." The following website provides a table on state rules, regulations and policies—including net metering and interconnection: http://www.michigan.gov/mpsc/0,4639,7-159-16393_48212_58223---,00.html

Availability

The net metering program is open to all residential and commercial members who operate renewable electric generators (Category 1 – 20 kW or less and *Category 2 – up to 150 kW) that are interconnected with the cooperative's system and generate all or a portion of their own retail electricity.

Generator

The electric generator must be fueled by a qualified renewable energy resource as outlined in the generator interconnection procedures approved by the Michigan Public Service Commission. The generator must be installed on the member's premises, serve only those premises and sized to meet the member's electric needs. The nameplate capacity of the generator must not exceed 20 kW for Category 1 installations and 150 kW for Category 2 installations. The electric generator shall not exceed the member's annual energy needs in kilowatt-hours (kWh).

Interconnection Process

- Reference respective Generator Interconnection Procedures available on the State website listed above
- Complete and Submit Generator Interconnection Application (Non-refundable Application Fee)
- Complete Interconnection and Parallel Operating Agreement including Site Plan and One-Line Electrical Diagram
- Cloverland Electric Cooperative Electrical Site Evaluation

Generator Interconnection Requirements

All application fees, procedures and requirements are contained in the Michigan Public Service Commission's Interconnection Standards Rules (R 460.481-460.489) and the Commission-approved Generator Interconnection Requirements or Generator Interconnection Procedures. The State of Michigan inspector or the local governing electrical authority will require an inspection before final electrical connections are made.

Member is required to submit electrical diagrams and schematics documenting the interconnection and technical specifications of the interconnection equipment as part of the Interconnection Agreement and Application. The cooperative reserves the right to refuse any system design it deems unsafe and/or improperly engineered. Interconnection equipment must be UL-1471 approved for grid tie applications and meet IEEE 519 and 1547 standards.

Facilities must be designed and operated in parallel with Cloverland's system without adversely affecting the operation of Cloverland's equipment, other members' services or presenting any safety hazards.

* Category 2 available to members in legacy Edison Sault Electric tariff only

Generator Interconnection Requirements-Continued

The interconnection rules and requirements will determine whether any additional equipment is required for the interconnection and to calculate and determine the assignment of costs. The member is responsible for all the costs incurred by the cooperative to install and/or upgrade facilities to handle the member's interconnected generation.

The cooperative will replace your current electronic meter with a bi-directional billing meter. This meter ensures proper billing credit for any excess generation. All metering equipment will be installed, maintained, read and owned by the cooperative.

Fees

Members are responsible for all installation costs and any required upgrades to the utility service. Other fees include a \$100 interconnection application fee.

Billing Process

Members will be billed for the total amount of electricity (kWh) used at the premises. The bill will include a credit for the amount of electricity generated on-site up to the amount of the monthly billed consumption.

Net Excess Generation (NEG)

For any energy generated beyond the current month's consumption (billing period) you will receive Net Excess Generation credits (NEG). These NEG credits, if any, carry over to the next billing period and are used to offset the energy charges in the next billing period.

Monthly Rate

Members continue to pay the retail price for all purchased power based on MPSC-approved rate schedules. The NEG credit is currently the applicable retail rate (excluding any monthly facility charge).

Generator Interconnection Application – Category 2

For all projects with aggregate generator output up to 150 kW. Also, serves as Category 2 Net Metering application.

Electric Utility Contact Information

Cloverland Electric Cooperative
Engineering Department
2916 W. M-28, Dafter, MI 49724
Phone Number: 1-800-562-4953
Email: smeilstrup@cloverland.com

Member / Account Information (As shown on utility bill)

Member Name (Last, First, Middle): _____

Member Mailing Address: _____

Member Phone #: _____

Member E-Mail Address (optional): _____

Electric Service Account #: _____

Electric Service Meter #: _____

Are you applying for the Net Metering Program? Yes No

Are you interested in selling Renewable Energy Credits (REC's)? Yes No

Will you have an Alternative Electric Supplier? Yes No Name of Supplier: _____

Notes: Enter name ONLY if your energy is supplied by a third party, not the utility.

You must apply to both the distribution utility and your alternate energy provider (if applicable) for net metering.

Generation System Site Information

Physical Site Service Address (if not billing address): _____

Annual Site Requirements without Generation in Kilowatt-hours: _____ kWh/year

Peak Annual Site Demand in Kilowatts (only for members billed on demand rates): _____ kW

Attached Site Plan Provided (See Appendix C for samples): Yes

Attached One-Line Electrical Drawing Provided (See Appendix C for samples): Yes

(Continued on following pages)

Synchronous/Induction Generators: Must fill out Appendix A or B and provide a Detail One-Line Diagram (Per MPSC Order in Case No. U-15787 – The one-line diagram must be signed and sealed by a licensed professional engineer, licensed in the State of Michigan or by an electrical contractor licensed by the State of Michigan with the license number noted on the diagram) The following information on these system components shall appear on the preliminary Detail One-Line Diagram

- Breakers – Rating, location and normal operating status (open or closed)
- Buses – Operating voltage
- Capacitors – Size of bank in Kvar
- Circuit Switchers – Rating, location and normal operating status (open or closed)
- Current Transformers – Overall ratio, connected ratio
- Fuses – normal operating status, rating (Amps), type, and speed (TCC)
- Generators – Capacity rating (kVA), location, type, method of grounding
- Grounding Resistors – Size (ohms), current (Amps)
- Isolating Transformers – Capacity rating (kVA), location, impedance, voltage ratings, primary and secondary connections and method of grounding
- Potential Transformers – Ratio, connection
- Reactors – Ohms/phase
- Relays – types, quantity, IEEE device number, operating lines indicating the device initiated by the relays
- Switches – Location and normal operating status (open or closed), type, rating
- Tagging Point – Location, identification

Generation System & Manufacturer Information

System Type (Solar, Wind, Biomass, Fuel Cell, Geothermal, etc): _____

Generator Type (Inverter, Induction, Synchronous): _____

Generator Nameplate DC Rating (Solar Only) _____ (DC) kW

Generator Nameplate AC Rating _____ (AC) kW

Expected Annual Output in Kilowatt-hours: _____ kWh/year

A.C. Output Operating Voltage: _____ Volts

Wiring Configuration (Single Phase, Three Phase): _____

Certified Test Record # (Testing to standard UL1741 scope 1.1a): _____

Inverter Based Systems

Number of inverters: _____

Is the inverter(s) tested to IEEE 1547.1? Yes No

Manufacturer: _____

Model (Name /Number): _____

Inverter Power Rating (kw): _____ kW

Induction & Synchronous Based Systems

Manufacturer: _____

Model (Name /Number): _____

Installation Information / Project Single Point of Contact (Electric Utility Customer/Member, Developer, or other)

Name: _____

Company (If applicable): _____

Phone #: _____

E-mail Address: _____

Requested In-Service Date: _____

Licensed Professional Engineer Name (if applicable): _____

License Number: _____

Licensed Contractor (Name of Firm or Self): _____

License Number: _____

Contractor Name (Last, First, MI): _____

Contractor Phone #: _____

Contractor E-mail: _____

For non-inverter based systems, complete the respective Appendix for generator system on following pages:

Appendix A – Technical Information for Synchronous-Type Generators

Appendix B – Technical Information for Induction-Type Generators

Member and Contractor Signature and Fees

- Attached \$75 Interconnection Application Fee or
- Attached \$100 combined Interconnection & Net Metering Program application fees
(\$75 interconnection application fee plus \$25 fee required if selecting net metering)

Check # or Money Order #: _____

(Sign and return completed application with application fee to electric utility contact.)

To the best of my knowledge, all the information provided in this application form is complete and correct.

Member Signature: _____ Date: _____

Contractor Signature (if applicable): _____ Date: _____

Note: Refer to the applicable "Michigan Electric Utility Generator Interconnection Procedures" for a detailed explanation of the interconnection process and technical requirements.

Interconnection and Parallel Operating Agreement

For **Category 2** projects (up to 150 kW).

This Interconnection and Parallel Operating Agreement (“Agreement”) is entered into on _____

(insert date of last signature from page 6) by **Cloverland Electric Cooperative** (the “Utility”),

_____ (the “Customer”),

And (if applicable under Paragraph 5) _____ (the “Property Owner”).

Utility and Customer are sometimes also referred to in this Agreement collectively as “Parties” or individually as “Party.” Customer shall be the “Project Developer” as used in and for purposes of the applicable Michigan Electric Utility Generator Interconnection Requirements (“Interconnection Requirements”) or Generator Interconnection Procedures (“Interconnection Procedures”) approved by the Michigan Public Service Commission (“Commission”).

I. RECITALS

A. Customer is an electric service customer (member) of Utility in good standing and has submitted a Generator Interconnection Application (“Application”) and/or an Interconnection and Net Metering Application to Utility.

B. Customer desires to interconnect an electric generating facility with maximum capacity of 150 kilowatts (“kW”) or less (the “Customer Facility”) with Utility’s electric distribution system and operate the Customer Facility in parallel with Utility’s distribution system, under the Utility’s Interconnection Requirements for Category 2 (up to 150 kW) projects, as defined in the Electric Interconnection and Net Metering Standards approved by the Commission (the “Standards”).

C. For purposes of this Agreement, “interconnect” means establishing a connection between a non-utility generating resource (in this case, the Customer Facility) and Utility’s distribution system. “Operate in parallel” means generating electricity from a non-utility resource (in this case, the Customer Facility) that is connected to Utility’s system. In all cases, terms shall have the meaning as defined in the Standards.

D. Interconnection of the Customer Facility with Utility’s distribution system is subject to this Agreement, the Application, the Interconnection Requirements, the Interconnection Procedures, the Standards and applicable utility tariffs approved by the MPSC.

E. This Agreement does not address any purchase or sale of electricity between Utility and Customer nor does it create any agency, partnership, joint venture or other business arrangement between or among Utility, Customer and/or Property Owner.

(Continued on following pages)

II. AGREEMENT

NOW THEREFORE, in consideration of the above recitals, the mutual covenants contained herein and for good and valuable consideration, the Parties agree as follows:

1. Description of Customer Facility

1.4 The Customer Facility must be built with the following ratings, which shall not be changed without thirty (30) days advance written notice to Utility according to the notice requirements herein and as depicted in the required Customer provided interconnection diagrams:

Photovoltaic/Solar ("PV") Array Rating: _____ (AC) kw

Photovoltaic/Solar ("PV") Array Rating: _____ (DC) kw

Wind Turbine (WT) Rating: _____ kw

Hydroelectric Turbine (HT) Rating: _____ kw

Fuel Cell (FC) Rating: _____ kw

Other on site generation (specify type and rating): _____ kw

Service Type (circle one): Single Phase / Three Phase

Voltage Level: _____

Equipment Specification 1: Make: _____ Model: _____

Equipment Specification 2: Make: _____ Model: _____

Equipment Specification other: Make: _____ Model: _____

1.2 Customer Facility Location (Property):

County County Tax ID or Parcel ID (if available)

Street Address

City/State/Zip Code

If Customer is not the owner of the property identified above, the Property Owner must sign this Agreement for the purposes indicated in Paragraph 5.

1.3 Customer's Utility service account number: _____

Property Owner's Utility service account number (if applicable): _____

1.4 The Customer Facility is planned to be ready for parallel operation on or about: _____ (date)

2. Interconnection Facilities

If it is necessary for Utility to install certain interconnection facilities (“Interconnection Facilities”) and make certain system modifications in order to establish an interconnection between the Customer Facility and Utility’s distribution system, the Interconnection facilities and modifications shall be described to the Customer.

3. Design Requirements, Testing and Maintenance of Customer Facility

- 3.1 Customer shall be responsible for the design and installation of the Customer Facility and obtaining and maintaining any required governmental authorizations and/or permits, which may include, but shall not be limited to, easements to clear trees, environmental, water quality, and necessary rights-of-way for installation and maintenance of the Utility Interconnection Facilities. Customer shall reimburse Utility for its costs and expenses to acquire such easements / permits.
- 3.2 Customer shall, at its sole expense, install and properly maintain protective relay equipment and devices to protect its equipment and service, and the equipment and system of Utility, from damage, injury or Interruption(s), and will assume any loss, liability or damage to the Customer Facility caused by lack of or failure of such protection. Such protective equipment specifications and design shall be consistent with the applicable Interconnection Requirements or Interconnection Procedure. Prior to the Customer Facility operating in parallel with Utility distribution system, Customer shall provide satisfactory evidence to Utility that it has met the Interconnection Requirements or Interconnection Procedure, including but not limited to the receipt of approval from the local building/electrical code inspecting authority. The Utility’s approval or failure to approve, under this section in no way serves as a waiver or otherwise relieve the Customer of its obligation under this section.
- 3.3 At its own expense, Customer shall perform operational testing at least five (5) days prior to the installation of any Interconnection Facilities by Utility. Customer shall contact Utility and arrange for a mutually agreeable time for performing these tests. Utility may, but is not required to, send qualified personnel to the Customer Facility to inspect the facility and observe the testing. Upon completion of such testing and inspection and prior to interconnection Customer shall provide Utility with a written report explaining all test results, including a copy of the generator commissioning test report.

Customer shall test protective relay equipment in accordance with manufacturer’s specifications, unless no testing interval is provided, in which case testing shall occur every two (2) years (unless an extension is agreed to by Utility) to verify the calibration indicated on the latest relay setting document issued by Utility. Tests may be conducted or witnessed by Utility at Customer's sole expense. The results of such tests shall be provided within formal written report to Utility upon request. Utility may, at any time and at its sole expense, inspect and test the Customer Facility to verify that the required protective equipment is in service, properly maintained, and calibrated to provide the intended protection. This inspection may also include a review of Customer's pertinent records. Inspection, testing and/or approval by Utility or the omission of any inspection, testing and/or approval by Utility pursuant to this Agreement shall not relieve the Customer of any obligations or responsibility assumed under this Agreement.

- 3.4 Customer shall operate and maintain the Customer Facility in a safe and prudent manner and in conformance with all applicable laws and regulations. Customer shall obtain or maintain any governmental authorizations and permits required for construction and operation of the Customer Facility.

4. Disconnection

Utility shall be entitled to disconnect the Customer Facility from Utility's distribution system, or otherwise refuse to connect the Customer Facility, if: (a) Customer has not complied with any one of the technical requirements contained in the applicable Interconnection Requirements or Interconnection Procedures, (b) the electrical characteristics of the Customer Facility are not compatible with the electrical characteristics of Utility's distribution system, (c) an emergency condition exists on Utility's distribution system, (d) Customer's protective relay equipment fails, (e) Utility determines that the Customer Facility is disrupting service to any Utility customer or other Utility Customer, (f) disconnection is required to allow for construction, installation, maintenance, repair, replacement, removal, investigation, inspection or testing of any part of Utility's facilities, (g) if a required installation (e.g., telephone line) fails or becomes incapacitated and is not repaired in a timely manner, as determined by Utility, or (h) Customer commits a material breach of this Agreement.

5. Access to Property

- 5.1 At its own expense, Customer shall make the Customer Facility site available to Utility. The site shall be free from hazards and shall be adequate for the operation and construction of the Interconnection Facilities. Utility, its agents and employees, shall have full right and authority of ingress and egress at all reasonable times on and across the property at which the Customer's Facility is located, for the purpose of installing, operating, maintaining, inspecting, replacing, repairing, and removing the Interconnection Facilities. The right of ingress and egress shall not unreasonably interfere with Customer's or (if different) Property Owner's use of the property.
- 5.2 Utility may enter the property on which the Customer Facility is located to inspect, at reasonable hours, Customer's protective devices and read or test meters. Utility will use reasonable efforts to provide Customer or Property Owner, if applicable, at least 24 hours' notice prior to entering said property, in order to afford Customer or Property Owner the opportunity to remove any locks or other encumbrances to entry; provided, however, that Utility may enter the property without notice (removing, at Customer's expense, any lock or other encumbrance to entry) and disconnect the Interconnection Facilities if Utility believes that disconnection is necessary to address a hazardous condition and/or to protect persons, Utility's facilities, or the property of others from damage or interference caused by Customer's Facility.
- 5.3 By executing this Agreement, Property Owner consents to and agrees to provide access to its property, including all rights of ingress and egress, on which the Customer Facility is located to Utility as described in this section, but does not assume or guarantee other performance obligations of the Customer under this Agreement.

6. Indemnity and Liability

- 6.1 Unless caused by the sole negligence or intentional wrongdoing of the other Party, each Party to this Agreement shall at all times assume all liability for, and shall defend, hold harmless, and indemnify the other Party and its directors, officers, employees, and agents from, any and all damages, losses, claims, demands, suits, recoveries, costs, legal fees, and expenses: (a) for injury to or death of any person or persons whomsoever occurring on its own system, or (b) for any loss, destruction of or damage to any property of third persons, firms, corporations or other entities occurring on its own system, including environmental harm or damage, or (c) arising out of or resulting from, either directly or indirectly, its own Interconnection Facilities, or (d) arising out of or resulting from, either directly or indirectly, any electric energy furnished to it hereunder after such energy has been delivered to it by such other Party. The provisions of this Section shall survive termination or expiration of this Agreement.

- 6.2 The provisions of this Section 6 shall not be construed to relieve any insurer of its obligations to pay any insurance claims in accordance with the provisions of any valid insurance policy.
- 6.3 Notwithstanding anything in this Section, or any other provision of this Agreement to the contrary, any liability of a Party to the other Party shall be limited to direct actual damages, and all other damages at law or in equity are hereby waived. Under no circumstances shall a Party be liable to the other Party, whether in tort, contract or other basis in law or equity for any special, indirect, punitive, exemplary or consequential damages, including lost profits. The indemnification obligations and limits on liability in this Section shall continue in full force and effect notwithstanding the expiration or termination of this Agreement, with respect to any event or condition giving rise to an indemnification obligation that occurred prior to such expiration or termination.
- 6.4 Either Party may contract with a subcontractor to perform its obligations under this Agreement and shall incorporate the obligations of this Agreement into its respective subcontracts, agreements, and purchase orders. Each Party shall remain liable to the other Party for the performance of such subcontractor under this Agreement subject to the provisions of this Section 6.

7. Force Majeure

Neither Party shall be liable for failure to perform any of its obligations hereunder, to the extent due to fire, flood, storm, other natural disaster, national emergency or war (referred collectively as "Force Majeure"), and not due to labor problems, inability to obtain financing, negligence or other similar condition of such Party, provided that either party has given the other prompt notice of such occurrence. The Party affected shall exercise due diligence to remove such Force Majeure with reasonable dispatch, but shall not be required to accede or agree to any provision not satisfactory to it in order to settle and terminate a strike or other labor disturbance.

8. Breach and Default

A breach of this Agreement ("Breach") shall occur upon the failure of a Party to perform or observe any material term or condition of this Agreement, the Standards, the Interconnection Requirement, or Interconnection Procedures. Upon a Breach by one Party, the non-breaching Party shall give written notice of such Breach to the breaching Party. The Party in Breach shall have 30 days from the date of the written notice to cure the Breach. If a Breach is not cured within the 30-day period provided for herein, the Party in Breach shall be deemed in default ("Default"). The non-defaulting Party shall then have the right to terminate this Agreement by written notice, shall be relieved of any further obligations hereunder, and may pursue any and all remedies available to it at law or in equity.

9. Governing Law

This Agreement shall be interpreted, governed, and construed under the laws of Michigan.

10. Amendment, Modification or Waiver

Any amendments or modifications to this Agreement shall be in writing and agreed to by both Parties. The failure of any Party at any time to require performance of any provision hereof shall in no manner affect its right at a later time to enforce the same. No waiver by any Party of the breach of any term or covenant contained in this Agreement, whether by conduct or otherwise, shall be deemed to be construed as a further or continuing waiver of any such breach or a waiver of the breach of any other term or covenant unless such waiver is in writing.

11. Notices

Any notice required under this Agreement shall be in writing and mailed or personally delivered to the Party at the address below. Written notice is effective within 3 days of depositing the notice in the United States mail, first class postage prepaid. Personal notice is effective upon delivery. Written notice of any address changes shall be provided. All written notices shall refer to the Customer's Utility account number, as provided in Section 1 of this Agreement. All written notices shall be directed as follows:

Notice to Utility (from Customer):

Notice to Customer (from Utility):

Notice to Property Owner (if different than Customer)(from Utility):

12. Term of Agreement and Termination

This Agreement shall become effective upon execution by all Parties and, if applicable, the Property Owner, and shall continue in full force and effect until terminated upon thirty (30) days' prior notice by either Party, upon Default of either Party as set forth in Section 8, upon mutual agreement of the Parties, or upon a change in ownership of either the Customer Facility or the property at which the Customer Facility is located absent a valid assignment under Section 15. At point in time for which this Agreement is to be terminated by Utility, absent valid assignment under Section 15, Utility retains the right to enter the property without notice (removing, at property owner's and/or Customer's and/or other party expense, any lock or other encumbrance to entry) and disconnect the Interconnection Facilities to protect Utility facilities, hazard, or interference caused by generation facilities.

13. Entire Agreement

This Agreement supersedes all prior discussions and agreements between the Parties with respect to the subject matter hereof and constitutes the entire agreement between the Parties hereto.

14. No Third Party Beneficiary

The terms and provisions of this Agreement are intended solely for the benefit of each Party, and it is not the intention of the Parties to confer third-party beneficiary rights upon any other person or entity.

15. Assignment and Binding Effect

This Agreement shall not be assigned by a Party without the prior written consent of the other Party. Any attempt to do so will be void. Subject to the preceding, this Agreement is binding upon, inures to the benefit of, and is enforceable by the Parties and their respective successors and assigns. Customer agrees to notify Utility in writing upon the sale or transfer of the Customer Facility. This Agreement shall terminate and subject interconnected generation to disconnect upon such notice unless Utility consents to an assignment.

16. Severability

If any provision of this Agreement is determined to be partially or wholly invalid, illegal, or unenforceable, then such provision shall be deemed to be modified or restricted to the extent necessary to make such provision valid, binding, and enforceable; or, if such provision cannot be modified or restricted in a manner so as to make such provision valid, binding or enforceable, then such provision shall be deemed to be excised from this Agreement and the validity, binding effect, and enforceability of the remaining provisions of this Agreement shall not be affected or impaired in any manner.

17. Signatures

The Parties to this Agreement hereby agree to have two originals of this Agreement executed by their duly authorized representatives. This Agreement is effective as of the later (or latest) of the dates set forth below.

Utility

Signature: _____

Name: _____

Title: _____

Date: _____

Customer

Signature: _____

Name: _____

Title: _____

Date: _____

Property Owner (if applicable)

Signature: _____

Name: _____

Title: _____

Date: _____

Appendix A

Synchronous Generators

Generator Information

- a. Generator Nameplate Voltage: _____ Volts
- b. Generator Nameplate Watts or Volt-Amperes: _____
- c. Generator Nameplate Power Factor (pf): _____
- d. RPM: _____

Technical Information

- e. Minimum and Maximum Acceptable Terminal Voltage: _____
- f. Direct axis reactance (saturated): _____
- g. Direct axis reactance (unsaturated): _____
- h. Quadrature axis reactance (unsaturated): _____
- i. Direct axis transient reactance (saturated): _____
- j. Direct axis transient reactance (unsaturated): _____
- k. Quadrature axis transient reactance (unsaturated): _____
- l. Direct axis sub-transient reactance (saturated): _____
- m. Direct axis sub-transient reactance (unsaturated): _____
- n. Leakage Reactance: _____
- o. Direct axis transient open circuit time constant: _____
- p. Quadrature axis transient open circuit time constant: _____
- q. Direct axis sub-transient open circuit time constant: _____
- r. Quadrature axis sub-transient open circuit time constant: _____
- s. Open circuit saturation curve: _____
- t. Reactive Capability Curve showing over-excited and under-excited limits (Reactive information if non-synchronous): _____
- u. Excitation System Block Diagram with values for gains and time constants (Laplace transforms):

- v. Short Circuit Current contribution from generator at the Point of Common Coupling: _____
- w. Rotating inertia of overall combination generator, prime mover, couplers and gear drives: _____
- x. Station Power load when generator is off-line, Watts, pf: _____
- y. Station Power load during start-up, Watts, pf: _____
- z. Station Power load during operation, Watts, pf: _____

Appendix B

Induction Generators

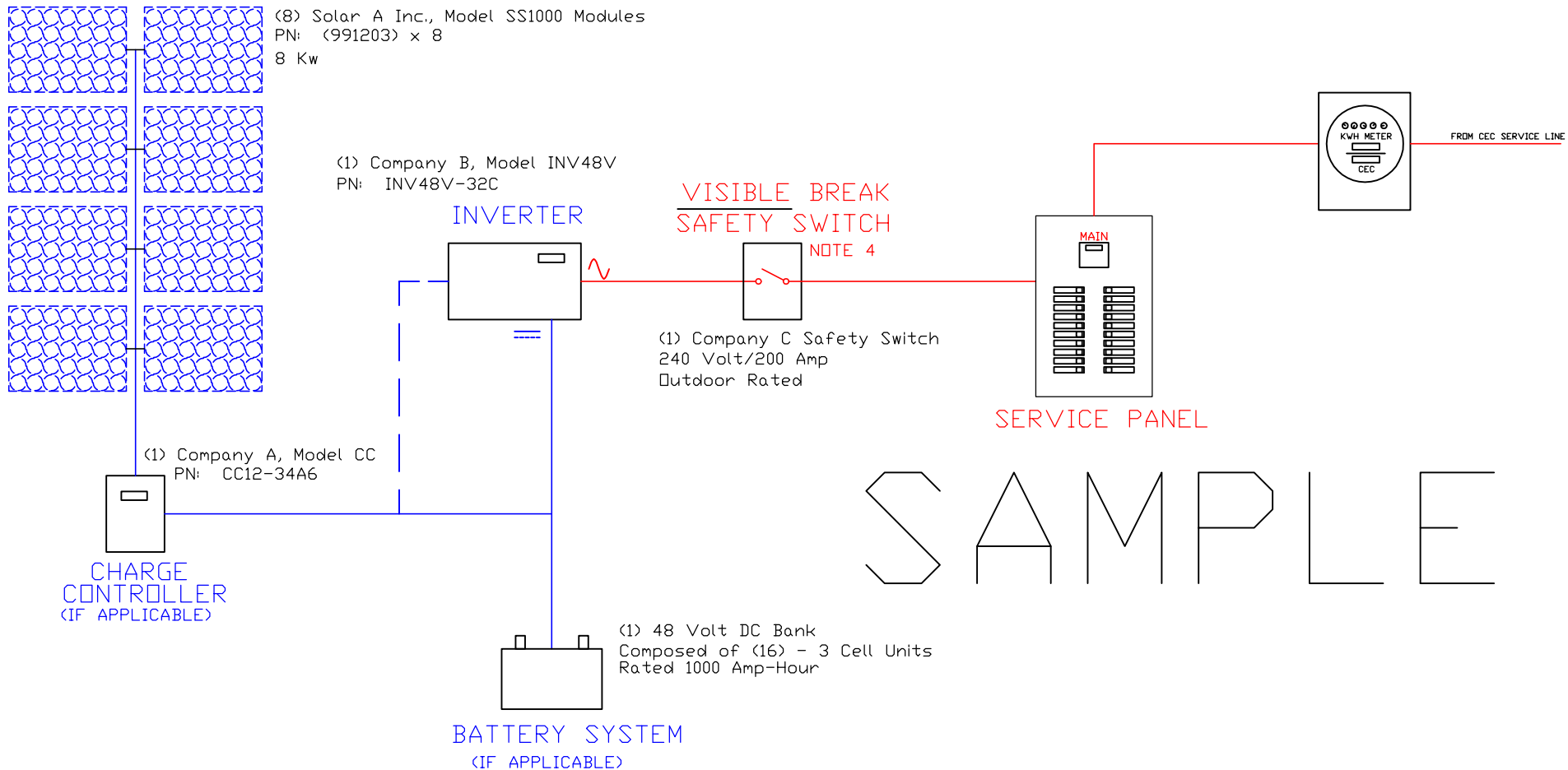
Generator Information

- a. Generator Nameplate Voltage _____ Volts
- b. Generator Nameplate Watts or Volt-Amperes: _____
- c. Generator Nameplate Power Factor (pf): _____
- d. RPM: _____

Technical Information

- e. Synchronous Rotational Speed: _____
- f. Rotation Speed at Rated Power: _____
- g. Slip at Rated Power: _____
- h. Minimum and Maximum Acceptable Terminal Voltage: _____
- i. Motoring Power (kW): _____
- j. Neutral Grounding Resistor (if Applicable): _____
- k. I_2^2t or K (Heating Time Constant): _____
- l. Rotor Resistance: _____
- m. Stator Resistance: _____
- n. Stator Reactance: _____
- o. Rotor Reactance: _____
- p. Magnetizing Reactance: _____
- q. Short Circuit Reactance: _____
- r. Exciting Current: _____
- s. Temperature Rise: _____
- t. Frame Size: _____
- u. Design Letter: _____
- v. Reactive Power Required in Vars (No Load): _____
- w. Reactive Power Required in Vars (Full Load): _____
- x. Short Circuit Current contribution from generator at the Point of Common Coupling: _____
- y. Rotating inertia, H in Per Unit on kVA Base, of overall combination generator, prime mover, couplers and gear drives: _____
- z. Station Power load when generator is off-line, Watts, pf: _____
- aa. Station Power load during start-up, Watts, pf: _____
- bb. Station Power load during operation, Watts, pf: _____

Appendix C
Sample Site Plan and One Line Drawings



NOTES:

1. ALL EQUIPMENT FURNISHED BY CUSTOMER EXCLUDING CEC BILLING METER
2. PANEL(S), INVERTER, CHARGE CONTROLLER, & BATTERY SYSTEM CONFIGURATION VARIES DEPENDANT UPON INSTALLATION TYPE - CUSTOMER FURNISHED EQUIPMENT
3. CUSTOMER SYSTEM AND EQUIPMENT MUST COMPLY WITH IEEE 1547 PER IEEE 1547.1 TESTING DOCUMENT NUMBER 123.4 UL
4. VISABLE BREAKER MUST BE MOUNTED EXTERIOR TO ANY BUILDING/ENCLOSURE, , ACCESSIBLE AND LOCKABLE BY CEC EMPLOYEES. LOCATED WITHIN 10' OF CEC METER
5. ALL NEC AND NESC APPLY
6. INSTALLATION MUST BE APPROVED BY STATE OR LOCAL ELECTRICAL AUTHORITY

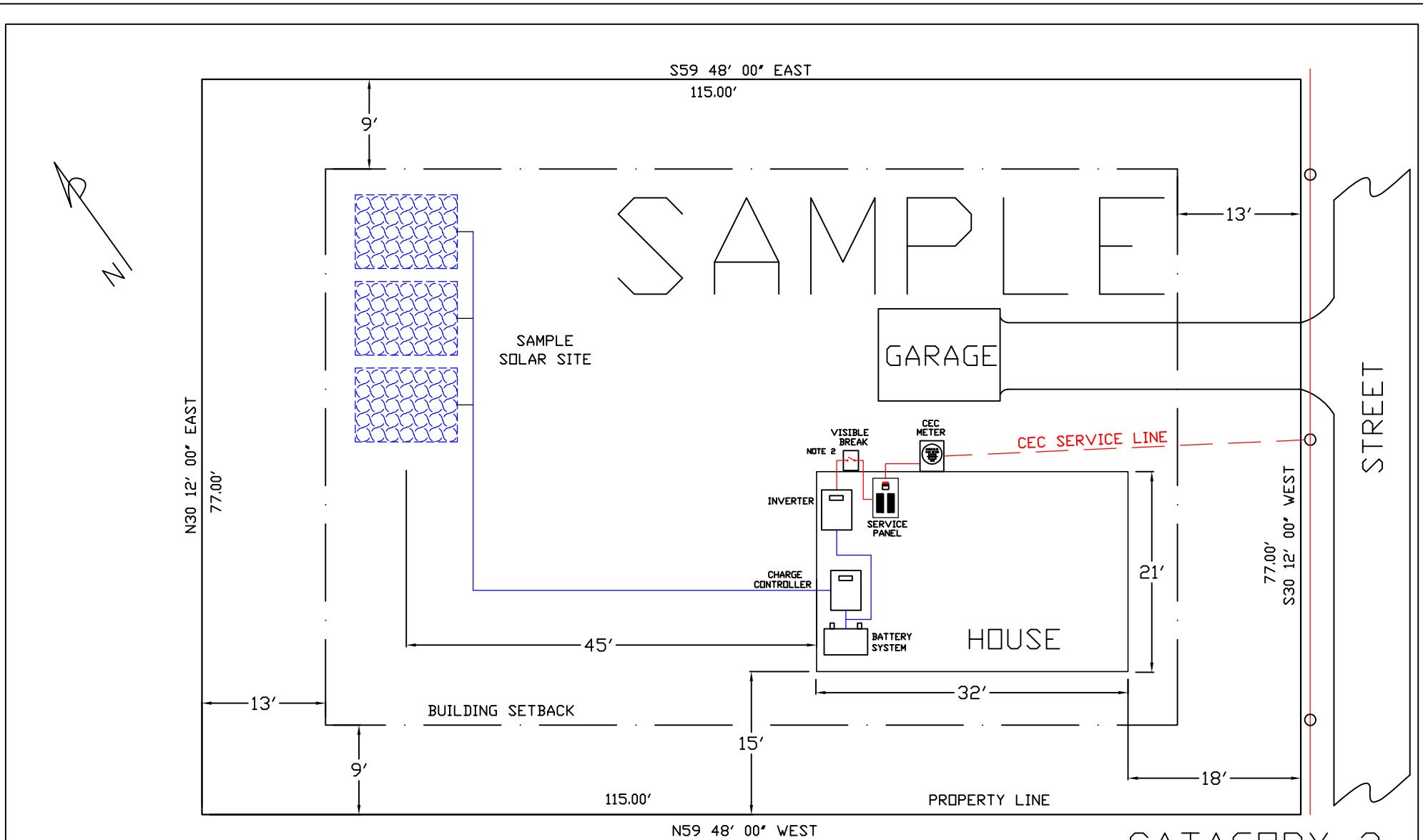
CATAGORY 2

REV.	DATE	DESCRIPTION	BY	APP.
B	5/30/15	CEC REVISIONS	BL	CFL
A	1/12/11	CEC REVISIONS	BL	CFL
	05/01/09	FOR RELEASE	BL	CFL

DRAWING TITLE		BLOCK DIAGRAM			
		SOLAR GENERATION & INTERCONNECT			
		LESS THAN 120 KW SYSTEM			
DRAWN BY	BL	DATE	07/28/08	SCALE	NTS
CHECKED	BL	DATE	07/28/08	DRAWING NO.	
APPROVED	CFL	DATE	05/01/09		AE-111




Cloverland
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NOTES:

1. INVERTER/CONTROLLER LOCATION - DEPENDANT UPON CUSTOMER/INSTALLER
2. VISIBLE BREAK MUST BE LOCATED WITHIN 10' OF CEC METER
3. NEC AND NESC APPLY
4. INSTALLATION MUST BE APPROVED BY STATE OR LOCAL ELECTRICAL AUTHORITY

CATAGORY 2

REV. DATE		DESCRIPTION		BY APP.		 Cloverland ELECTRIC COOPERATIVE	DRAWING TITLE SAMPLE SITE PLAN SOLAR GENERATION & INTERCONNECT LESS THAN 120 KW SYSTEM	
A	1/12/11	CEC REVISIONS	BL	CFL			DRAWN BY BL DATE 01/28/08 SCALE NTS	
	05/01/08	FOR RELEASE	BL	CFL			DESIGN BY BL DATE 07/28/08 DRAWING NO.	
							APPROVED CFL DATE 05/01/09 AE-211	

TURBINE 1

(7) Wind A Inc., Model WT1200 Turbines
PN: (WT12700) x 7

TURBINE n

(1) Company B, Model INV48V
PN: INV48V-32C
INVERTER
(IF APPLICABLE)

VISIBLE BREAK
SAFETY SWITCH
NOTE 4

(1) Company C Safety Switch
240 Volt/200 Amp
Outdoor Rated

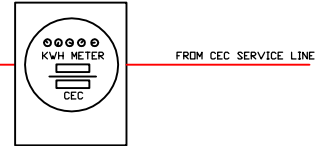
SERVICE PANEL

CHARGE CONTROLLER
(IF APPLICABLE)

(1) Company A, Model CC1234
PN: CC12-34A6

(1) 48 Volt DC Bank
Composed of (16) - 3 Cell Units
Rated 1000 Amp-Hour

BATTERY SYSTEM
(IF APPLICABLE)



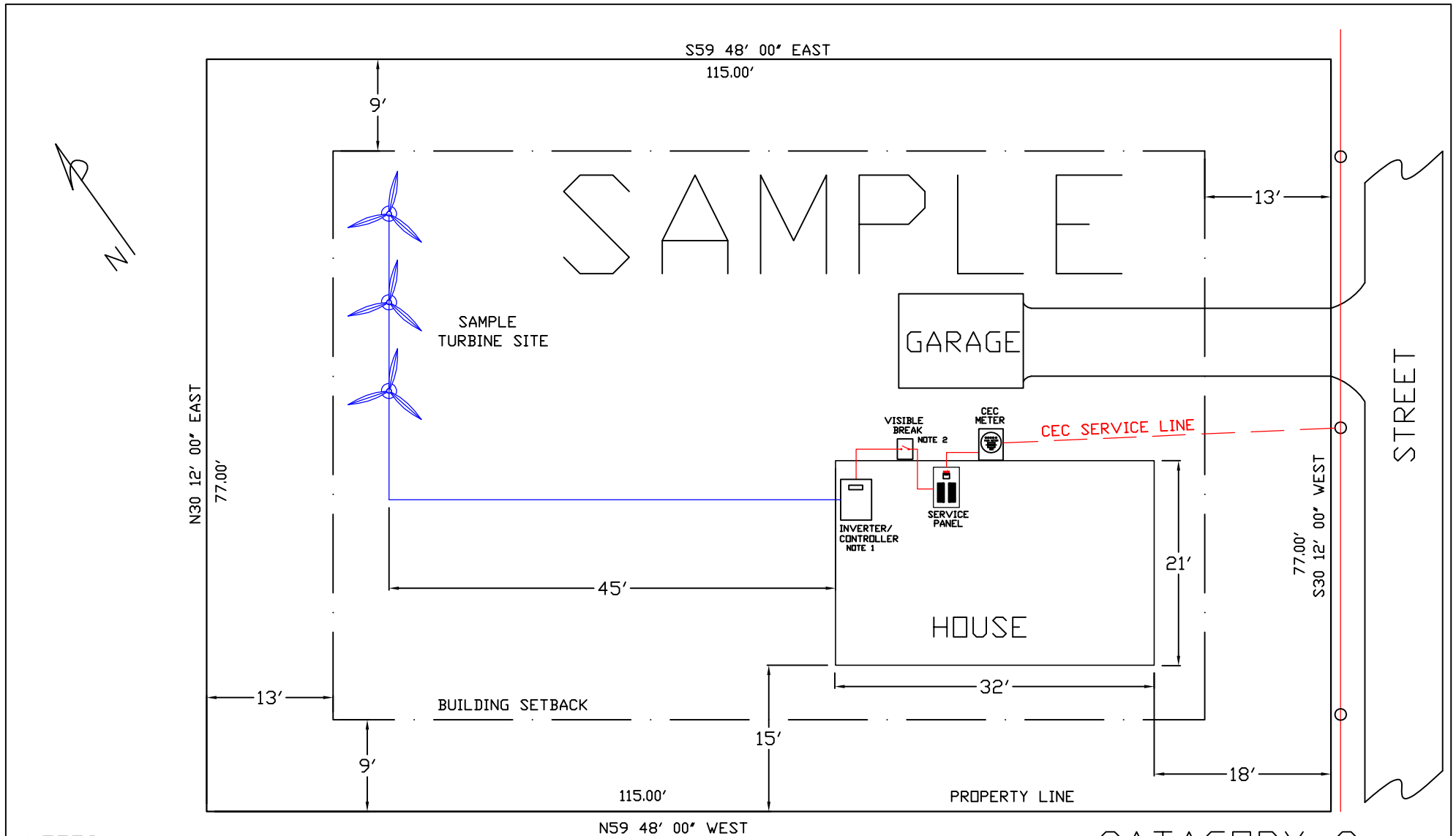
SAMPLE

NOTES:

1. ALL EQUIPMENT FURNISHED BY CUSTOMER EXCLUDING CEC BILLING METER
2. TURBINE(S), INVERTER, CHARGE CONTROLLER, & BATTERY SYSTEM CONFIGURATION VARIES DEPENDANT UPON INSTALLATION TYPE - CUSTOMER FURNISHED EQUIPMENT
3. CUSTOMER SYSTEM AND EQUIPMENT MUST COMPLY WITH IEEE 1547 PER IEEE 1547.1 TESTING DOCUMENT NUMBER 123.4 UL
4. VISABLE BREAK MUST BE MOUNTED EXTERIOR TO ANY BUILDING/ENCLOSURE, ACCESSIBLE, AND LOCKABLE BY CEC EMPLOYEES. LOCATED WITHIN 10' OF CEC METER
5. ALL NEC AND NESC APPLY
6. INSTALLATION MUST BE APPROVED BY STATE OR LOCAL ELECTRICAL AUTHORITY

CATAGORY 2


REV.		DATE	DESCRIPTION	BY	APP.	DRAWING TITLE		BLOCK DIAGRAM WIND GENERATION & INTERCONNECT LESS THAN 150 KW SYSTEM				
B	5/30/15	CEC REVISIONS		CEM	---		DRAWN BY	BL	DATE	07/28/08	SCALE	NTS
A	1/12/11	CEC REVISIONS		BL	CFL		CHECKED	BL	DATE	07/28/08	DRAWING NO.	
	05/01/09	FOR RELEASE		BL	CFL	APPROVED	CFL	DATE	05/01/09			AE-110



NOTES:

1. INVERTER/CONTROLLER LOCATION - DEPENDANT UPON CUSTOMER/INSTALLER
2. VISIBLE BREAK MUST BE LOCATED WITHIN 10' OF CEC METER
3. NEC AND NESC APPLY
4. INSTALLATION MUST BE APPROVED BY STATE OR LOCAL ELECTRICAL AUTHORITY

CATAGORY 2

REV. DATE		DESCRIPTION		BY APP.	
B	5/30/15	CEC REVISIONS		CEM	--
A	1/12/11	CEC REVISIONS		BL CFL	
	05/01/09	FOR RELEASE		BL CFL	
 Cloverland ELECTRIC COOPERATIVE					
DRAWING TITLE		SAMPLE SITE PLAN WIND GENERATION & INTERCONNECT LESS THAN 150 KW SYSTEM			
DRAWN BY	BL	DATE	01/28/08	SCALE	NTS
CHECKED	BL	DATE	07/28/08	DRAWING NO.	
APPROVED	CFL	DATE	05/01/09		
					AE-210