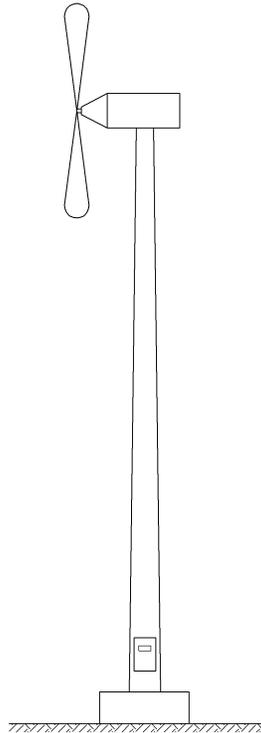




MEMBER GENERATION INTERCONNECTION GUIDE FOR NET METERING



MATANUSKA ELECTRIC ASSOCIATION, INC.
PALMER, ALASKA

Rev 2/6/19



Matanuska Electric Association, Inc.

MEMBER GENERATION INTERCONNECTION GUIDE FOR NET METERING

CONTENTS

- I. General Information / FAQ
- II. Net Metering Summary
- III. Application Form
- IV. Interconnection Agreement & Addendum
- V. Interconnection Cost Estimate Sample
- VI. Schedule QF-1, Purchase and Sale Rates
- VII. Interconnection Diagrams

SECTION I

General Information & Frequently Asked Questions

A. General Information

This guide summarizes the process members will need to follow to connect a qualifying generation system to MEA under the net metering program. This guide does not cover MEA's requirement for installing backup generators that are not intended to interconnect with MEA's system. Those requirements can be found in MEA's Service Assembly Guide & Commercial Handbook at <https://www.mea.coop/new-construction/guides-and-documents/>

The first step to interconnecting under the net metering program is to complete the Application Form found in Section III of this guide. This application provides MEA with the member's information, location of generation system and the technical information MEA needs to do a preliminary evaluation of the system. Once this application is submitted, MEA will determine if the generation system qualifies for the net metering program, as outlined in Section II. Additional information may be requested if MEA cannot determine whether or not the generation system meets the net metering requirements.

If the generation system meets the net metering requirements, the next step is to enter into an Interconnection Agreement as shown in Section IV. Typically, MEA facilities require minimal modification because of a net metering. However, in the event modifications are required, the cost estimate sheet found in Section V will be provided to the member.

Payment for MEA facility modifications (if applicable) must be received prior to inspection of the generation system. Upon completion of these steps, an execution of the Interconnection Agreement will complete the application process.

B. Frequently Asked Questions

The following Frequently Asked Questions will help familiarize you with the interconnection process and requirements.

Can I connect a generation facility to the MEA grid?

Yes, qualifying facilities may be connected to the grid and MEA will purchase energy delivered to the system.

What is a qualifying facility?

A qualifying facility is defined by the Public Utility Regulatory Policy Act (PURPA). In general, solar, wind, hydroelectric, or geothermal generators or co-generation units generating electricity from waste heat or steam that produce 100 kW of power or less will qualify under PURPA standards.

What about net metering?

MEA allows eligible interconnections of up to 25 kW to participate in net metering in accordance with the standards adopted by the RCA in 3 AAC 50.900. Systems with capacities above 25 kW are not eligible. Credits that may result from supplying excess energy to MEA are based on the current non-firm avoided cost rate.

What are the interconnection costs?

Systems that meet the net metering eligibility requirements as defined by 3 AAC 50.920 normally require only the installation of a special 2-way meter. This meter has two separate registers that measure energy flow in both directions independently. MEA will furnish and install the meter on eligible systems at no cost to the consumer. Any interconnection costs in addition to the meter that may be required will be paid by the customer. All interconnection costs (including metering) for systems that do not meet the net metering standards are paid by the customer.

What is the price paid for electricity supplied to MEA?

Credits or payments for energy supplied to the MEA system are paid at the non-firm avoided cost rate published in MEA's Tariff. This rate is used for all qualifying facilities, net metered or otherwise. The rate is adjusted quarterly.

Are there any specific safety requirements?

Yes, it is very important that customer-owned generation does not backfeed into MEA's system when a power outage occurs. Most small-scale generators are inverter-based and the inverter must disconnect the generator during an outage. To meet this requirement, all inverters must be UL-1741 listed. MEA also requires a generator disconnect switch be installed adjacent to the meter base to provide a ready means of disconnection in an emergency. Please read the other technical requirements contained in this packet.

How do I arrange interconnection with MEA?

The application form included in this packet must be filled out and submitted to the Engineering Department. Additional information such as location drawing and UL-1741 certification documents must also be included. In addition, your signature will also be necessary on the agreement forms.

Once my generator is interconnected with MEA's system, can MEA disconnect it?

Yes. MEA has the right to disconnect your generator from MEA's system in the event your equipment creates a hazardous condition for any person, MEA's property, the property of MEA customers, or during emergencies. Such disconnection can occur without prior notice to you.

Interconnection Guide
Matanuska Electric Association, Inc.

How does selling electricity affect my obligations to purchase electricity from MEA?

Selling electricity to MEA does not affect a member's purchase obligations. If a member has a minimum purchase obligation pursuant to an Extension of Service Agreement, for example, and the member is capable of meeting their own requirements for electricity with self-generation, the member will still have to make at least the minimum payments to MEA as specified in their Agreement. Additionally, members will still be required to pay their monthly facilities charge.

If you have additional questions, please contact MEA Engineering at (907) 761-9274.

SECTION II

MEA Net Metering Summary

In accordance with 3 AAC 50.900 – 3 AAC 50.949, MEA has a net metering program for eligible systems. To be eligible for net metering, a customer owned generation system must

- 1) be a facility that produces electric energy derived from one or more of the following sources:
 - a) solar photovoltaic and solar thermal energy;
 - b) wind energy;
 - c) biomass energy, including landfill gas or biogas produced from organic matter, wastewater, anaerobic digesters, or municipal solid waste;
 - d) hydroelectric energy;
 - e) geothermal energy;
 - f) hydrokinetic energy;
 - g) ocean thermal energy;
 - h) other sources as approved by the commission that generally have similar environmental impact;
- 2) be operated and either owned or leased by the customer, and
 - a) have a total nameplate capacity of no more than 25 kilowatts per customer premises;
 - b) be located on the customer premises;
 - c) be used primarily to offset part or all of the customer's requirements for electric energy; and
 - d) include an inverter;
- 3) include an electric generator and its accompanying equipment package; and
- 4) be physically interconnected to the customer's side of the meter from which MEA provides electric service to the customer.

How Net Metering Works

MEA installs a special two-register cogeneration meter that separately measures the energy supplied by the customer and the energy supplied by MEA. The output of the customer's generation system directly offsets energy delivered by MEA and supplies energy to MEA only when the customer system output is greater than the customer load at any given time. Bills are calculated on a monthly basis as follows:

- 1) If MEA supplied more electric energy to the customer than the customer supplied to MEA during the monthly billing period, MEA bills the customer for the number of kilowatt-hours of net electric energy supplied to the customer at the applicable rates contained in MEA's currently effective tariff.
- 2) If the customer supplied more electric energy to MEA than MEA supplied to the customer during the monthly billing period, MEA credits the customer's account with an amount derived by multiplying the kilowatt-hours of net electric energy supplied by the customer to MEA by the nonfirm power purchase rate contained in MEA's currently effective tariff (Schedule QF-1). This rate changes quarterly.

Amounts credited to the customer's account are used to reduce dollar amounts owed by the customer in subsequent monthly billing periods. Credit balances over \$15.00 are paid annually.

SECTION III
Interconnection Application

Matanuska Electric Association, Inc.

**Application for Installation of Customer-Owned Generation
in Parallel with Electric Service**

Customer or Company Name: _____
Contact Person (if different): _____
Address: _____
City: _____ State: _____ Zip Code: _____
Phone: _____ Fax: _____
Email: _____

Generator location (legal description)

MEA use only	
WO No:	_____
Pole No:	_____

Facility Information:

Estimated Installation Date: _____ Estimated In-service Date: _____

Prime Mover:

Manufacturer: _____ Model Number: _____
 Turbine Fuel Cell
 Photovoltaic Other _____

Energy Source:

Wind Natural gas
 Solar Other _____
 Hydro

Generator:

Machine Type: Synchronous Induction DC Inverter

Manufacturer: _____

Model Number: _____ Serial Number: _____

Rated Output: _____ 1-phase 3-phase Voltage: _____

Maximum Capacity (kW fed to the grid) _____

Inverter Manufacturer: _____ Model Number: _____

UL 1741 Listed: Yes No If yes, attach certification documentation

Attach electrical one-line, data sheets for equipment used and location drawings.

Signature

Date

SECTION IV
25 kW Net Meter Interconnect Agreement

**INTERCONNECTION AGREEMENT BETWEEN
MATANUSKA ELECTRIC ASSOCIATION, INC.
AND**

for

Eligible Consumer Generation Systems at or Under 25 kW

WHEREAS, Consumer has installed its own eligible generation, with a total nameplate rating at or under 25 kW, and wishes to interconnect with Matanuska Electric Association, Inc. (MEA) under MEA's net metering program, and

WHEREAS, MEA wishes to interconnect with Consumer in a manner not detrimental to its other members.

IT IS HEREBY AGREED:

1. Equipment. Consumer warrants that its equipment is as described on its interconnection application. Consumer will give MEA thirty (30) days notice of modifications in the equipment so that MEA may determine whether the modification meets Tariff requirements or requires modifications in MEA equipment.
2. Liability. Consumer agrees to hold MEA harmless for any claim or damage to person or property of others caused by operation of consumer's equipment, or consumer's failure to maintain the equipment. Consumer will compensate MEA for any such damage to MEA's equipment,
3. Rates. The rates paid by Consumer to MEA and by MEA to Consumer shall be as specified in MEA's Tariff on file with the Regulatory Commission of Alaska.
4. Payment. When Consumer's net metering for a month results in the Customer supplying MEA with power, MEA will credit the payment against Consumer's account with MEA at the nonfirm power purchase rate defined in MEA's Tariff. Credit balances of over \$15.00 will be paid to Consumer annually, and upon termination of this agreement.
5. Interconnection Equipment. Consumer agrees to pay the interconnection charges which includes, but are not limited to, all labor and equipment necessary to interconnect Consumer. Payment in full of the total estimated cost as detailed on the attached form, "Interconnection Cost Estimate for Eligible Consumer Generation Systems at or under 25 kW", must be made prior to MEA proceeding with interconnection. Upon completion of the interconnection, Consumer shall be responsible for the actual cost of the interconnection per MEA's Tariff.

6. Service. MEA will supply service to Consumer as required by its Tariff. Consumer is not under any obligation to supply power to MEA, but may do so if it chooses.

7. Termination. MEA may terminate this contract immediately, pursuant to the Tariff, where the interconnection presents a danger to MEA's system. Consumer may terminate this contract on thirty (30) days' notice, or on presenting to MEA a qualified Consumer to assume this contract. Either party may terminate the contract upon a material breach of this contract by the other, but only if notice of the breach has been given, and no cure of the breach has been made after expiration of thirty (30) days from date of notice.

8. Notice. Notice shall be given in writing to the parties at the following addresses:

MATANUSKA ELECTRIC ASSOCIATION, INC.
PO Box 2929
Palmer, AK 99645

CONSUMER

AGREED:

Name:

By: _____

_____ Title

Date: _____

AGREED:

MATANUSKA ELECTRIC ASSOCIATION,
INC.

By: _____

_____ Title

Date: _____

Matanuska Electric Association, Inc.
Addendum to
Interconnection Agreement for Eligible Consumer Generation Systems at
or Under 25 kW

Purpose and Scope

This document establishes the technical standards and rules under which an eligible customer-owned generating facility is interconnected with MEA's distribution system under MEA's net metering program. These standards are applicable only to eligible generation systems which include, but are not limited to wind or photovoltaic, inverter-based systems that are at or under a nameplate rating of 25 kW.

General

All generating facilities must comply with these guidelines to be eligible for interconnection and parallel operation with MEA's system regardless of whether the applicant intends to generate energy to serve all or part of the applicant's load or to sell the entire output to MEA.

As part of the application, applicant shall submit the following documentation:

1. Site plan showing the physical location of the generating equipment, inverter, disconnect switch, and meter location.
2. 1-line drawing showing the electrical arrangement including the generator, inverter, disconnect switch(es), panels, breakers, meter, conductor sizes, and voltages.
3. Equipment data sheets for the generator and inverter including documentation that demonstrates UL 1741 listing.

Prior to operation of the generation facility, the applicant must execute an Interconnection Agreement with MEA.

Applicant shall furnish and install labeling on meter bases and switches in accordance with the National Electric Code that informs working personnel that generation is located on the premises.

The applicant has sole responsibility to protect its personnel, facilities, loads, and equipment and to comply with all applicable standards, codes, and statutes.

MEA reserves the right to inspect the generating facility prior to initial operation and any time thereafter upon reasonable notice.

The applicant shall maintain the generating facility in good working order and assumes full responsibility for all maintenance of the generator and all associated equipment.

Applicant may not operate the generating facility as a backup generator to produce power during an outage on MEA's system. Backup power must be provided by a separate generator that is isolated from the cogeneration generator. In addition, the

applicant's entire electrical system must be isolated from MEA's system by a double-pole, double-throw transfer switch during backup operation.

All costs associated with installation of MEA facilities to interconnect with customer-owned generation facilities shall be as specified in MEA's Tariff.

If the generating facility is comprised of multiple individual generating units, the outputs must be combined and connected to the system at one location. The size of the facility will be considered as the aggregate of the individual units.

Technical Standards

Applicant's generating facility shall comply with the NEC Article 705, and Article 690 as applicable; IEEE Standard 1547, Standard for Interconnecting Distributed Resources with Electric Power Systems; and UL Standard 1741, Inverters, Converters, and Controllers for Use in Independent Power Systems. All equipment must be UL listed.

The nominal voltage and phase configuration shall be compatible with MEA's system at the point of interconnection.

The generating facility shall maintain adequate power quality such that voltage, current, or frequency distortions and harmonics do not affect other customers. If the facility is found to be negatively affecting other customers or the MEA system as a whole or exceeds IEEE recommended specifications, the applicant will be required to install additional equipment necessary to bring these effects to acceptable levels. If acceptable levels cannot be achieved, the facility will be disconnected. The applicant is responsible for all costs associated with voltage regulation on MEA's system in the event that such regulation is required as a result of the customer's generating facility.

The generating facility shall be designed to automatically disconnect and lockout when MEA's service is faulted or interrupted for any reason.

Applicant shall furnish and install a UL listed disconnect switch that allows the generator to be fully disconnected from the system. This switch shall provide a visible disconnect, shall be located adjacent to the service entrance in order to be accessible to MEA personnel at all times, and shall have the capability of being locked in the open position by MEA.

MEA reserves the right to disconnect the applicant's generator under the following circumstances:

1. If necessary to maintain safe operating conditions;
2. If necessary to facilitate maintenance, testing, or repair of MEA's system.
3. If the generating facility does not meet the required standards;
4. If the generating facility adversely affects or endangers persons, property, or the operation of MEA's system;
5. If the generating facility affects the quality of service to other customers.

In accordance with paragraph 7 of the Interconnection Agreement, the generating facility may be disconnected, and the agreement terminated if the interconnection presents a danger to MEA's system.

Interconnection Arrangements

There are two types of interconnections:

Type 1 - Customer uses the generator output for their own needs and sells the excess, if any, to MEA. The excess energy, if any, shall be calculated by taking the total energy provided to MEA's system minus the total energy consumed by the Customer in a one-month period. With this arrangement, the generator is connected to the distribution panel so that the output acts as a source for the customer's loads. If the output is greater than the current load, the excess feeds MEA's system. A special bi-directional meter with separate registers for recording both received and delivered energy is required. The rate received by customer for energy delivered to MEA is the nonfirm power purchase rate specified in MEA's Tariff.

Type 2 – Customer interconnects the generator directly to the MEA system so that its entire output is delivered to the MEA system. With this arrangement, a separate meter base is installed by the customer so that the delivered energy is metered separately. The energy rate is the nonfirm power purchase rate specified in MEA's Tariff.

These arrangements are depicted in the attached drawings.

AGREED:

Name:

By: _____

Title

Date: _____

AGREED:

MATANUSKA ELECTRIC ASSOCIATION,
INC.

By: _____

Title

Date: _____

SECTION V
25 kW Net Meter Interconnection Agreement Cost Estimate

Matanuska Electric Association, Inc.

**Interconnection Cost Estimate for Eligible Consumer Generation Systems
at or Under 25 kW**

Work Order No: _____ Date of Estimate: _____

Applicant Name: _____

Location: _____

Special Conditions: _____

Estimated Costs:

- a. Connection Costs \$ _____
- b. Switching \$ _____
- c. Metering \$ _____
- d. Transmission \$ _____
- e. Distribution \$ _____
- f. Safety Provisions \$ _____
- g. Administration \$ _____
- h. Other \$ _____

Total Estimated Cost: \$ _____

Note: These figures are estimates only. MEA will proceed only if the applicant pays half the amount of the estimate in advance of interconnection.

NOTICE TO PROCEED

Applicant, having read the foregoing estimates, having had a reasonable opportunity to discuss the same, having been furnished a copy of Schedule QF-1 of Matanuska Electric Association's Tariff, and being fully informed thereof, authorizes Matanuska Electric Association, Inc. to perform the engineering required to construct and install such facilities and to solicit and receive bids therefore. Applicant shall be responsible for actual cost of the interconnection per MEA's tariff.

Dated: _____

Applicant

SECTION VI
Schedule QF-1

[MEA Tariff](#)

Sheet No. 107

SCHEDULE NO. QF-1

**GENERAL RULES AND PURCHASE AND SALES RATES FOR QUALIFYING
FACILITIES WITH A DESIGN CAPACITY OF 100KW OR LESS**

Updated Quarterly

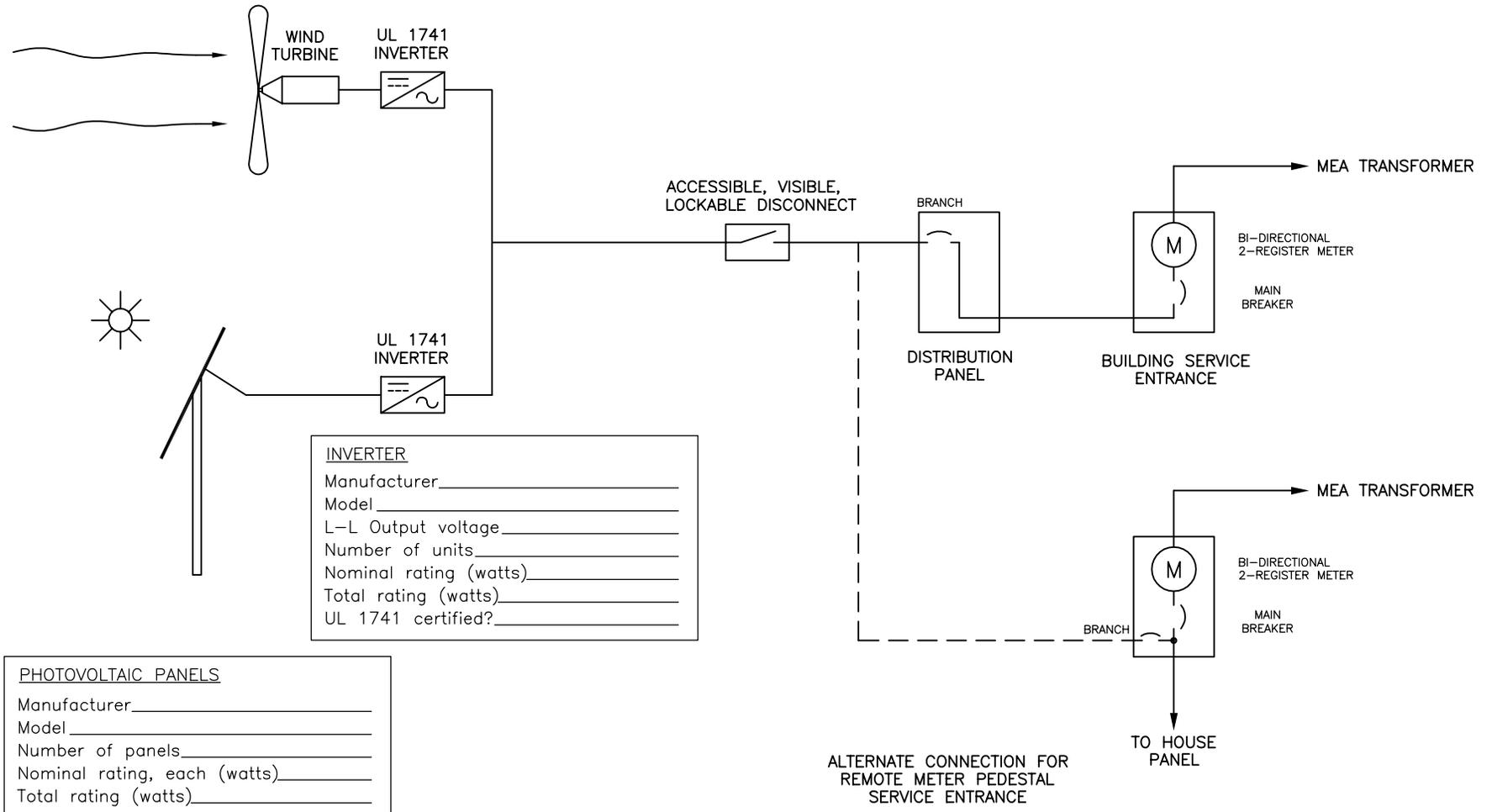
SECTION VII
25kW Net Metering Interconnection Agreement Addendum
Drawings

WIND TURBINE
 Manufacturer _____
 Model _____
 Number of units _____
 Nominal rating, each (watts) _____
 Total rating (watts) _____

INVERTER
 Manufacturer _____
 Model _____
 L-L Output voltage _____
 Number of units _____
 Nominal rating (watts) _____
 Total rating (watts) _____
 UL 1741 certified? _____

Customer Name _____
 Work Order No. _____
 Date _____

PLEASE PROVIDE ALL APPLICABLE INFORMATION



PHOTOVOLTAIC PANELS
 Manufacturer _____
 Model _____
 Number of panels _____
 Nominal rating, each (watts) _____
 Total rating (watts) _____

INVERTER
 Manufacturer _____
 Model _____
 L-L Output voltage _____
 Number of units _____
 Nominal rating (watts) _____
 Total rating (watts) _____
 UL 1741 certified? _____



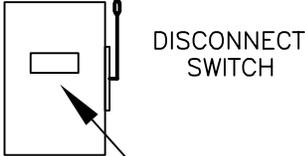
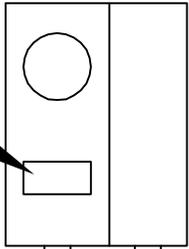
MATANUSKA ELECTRIC ASSOCIATION, INC.

CUSTOMER-OWNED GENERATION INTERCONNECTION DIAGRAMS

3/7/19

1 OF 4

GRID-CONNECTED
GENERATION EXISTS AT
THIS LOCATION



COGENERATION
DISCONNECT

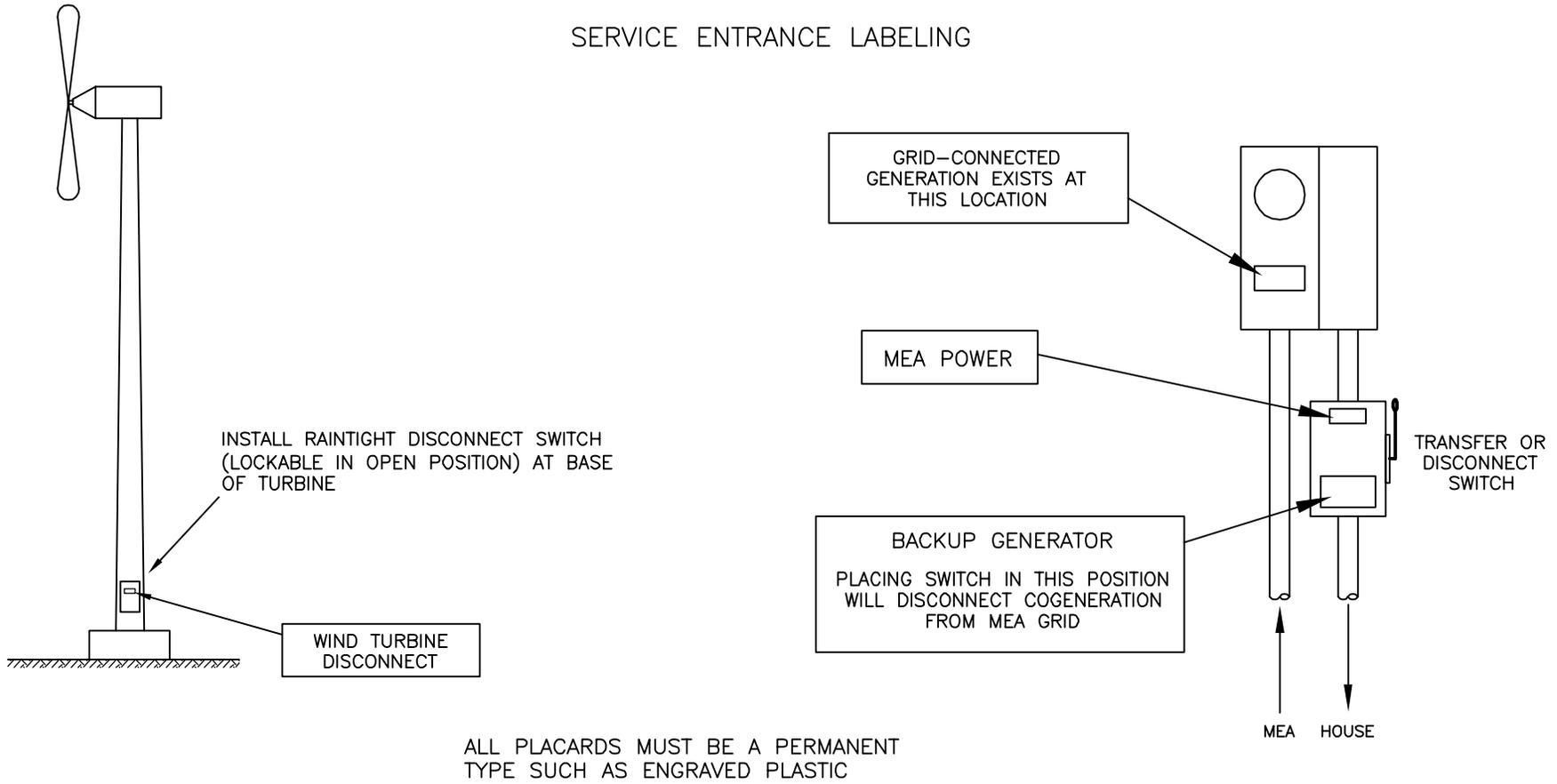
ALL PLACARDS MUST BE OF A
PERMANENT TYPE SUCH AS ENGRAVED
PLASTIC OR PRINTED STICKERS

MEA HOUSE

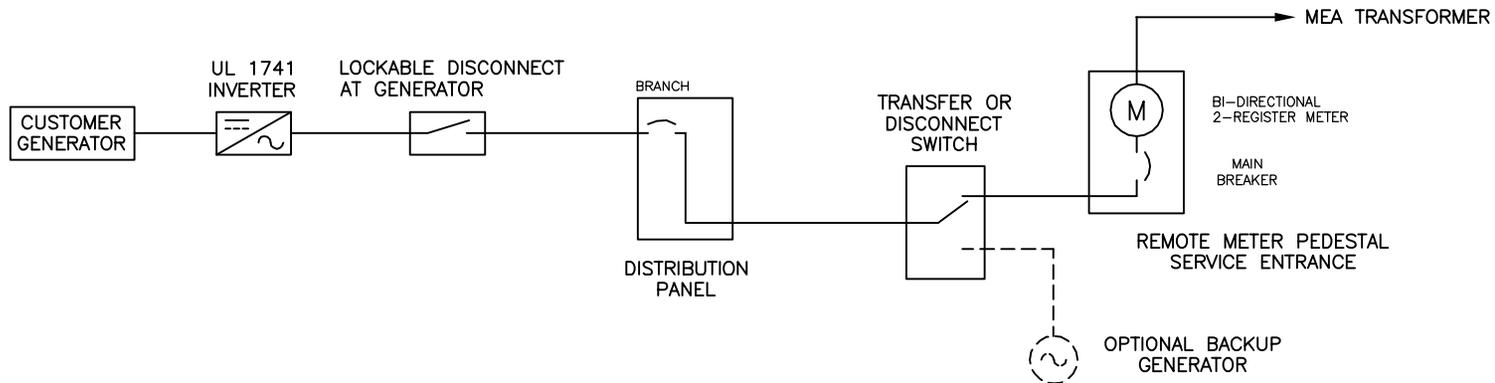
SERVICE ENTRANCE LABELING



SERVICE ENTRANCE LABELING



ALL PLACARDS MUST BE A PERMANENT TYPE SUCH AS ENGRAVED PLASTIC

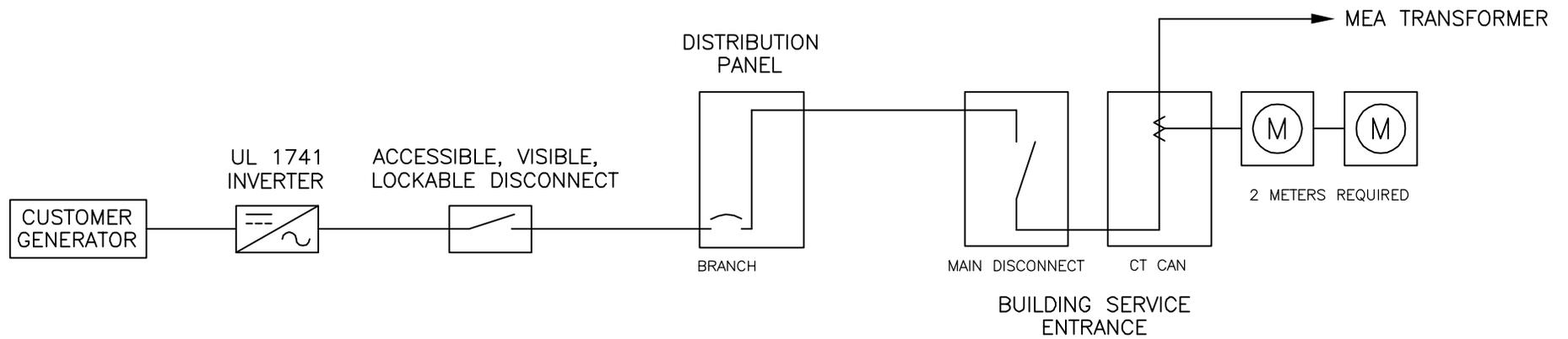


MATANUSKA ELECTRIC ASSOCIATION, INC.

ALTERNATE CONNECTION FOR REMOTE METER PEDESTALS

4/13/12

3 OF 4



CONNECTION TO CT SERVICE

