

Connecting to the Grid

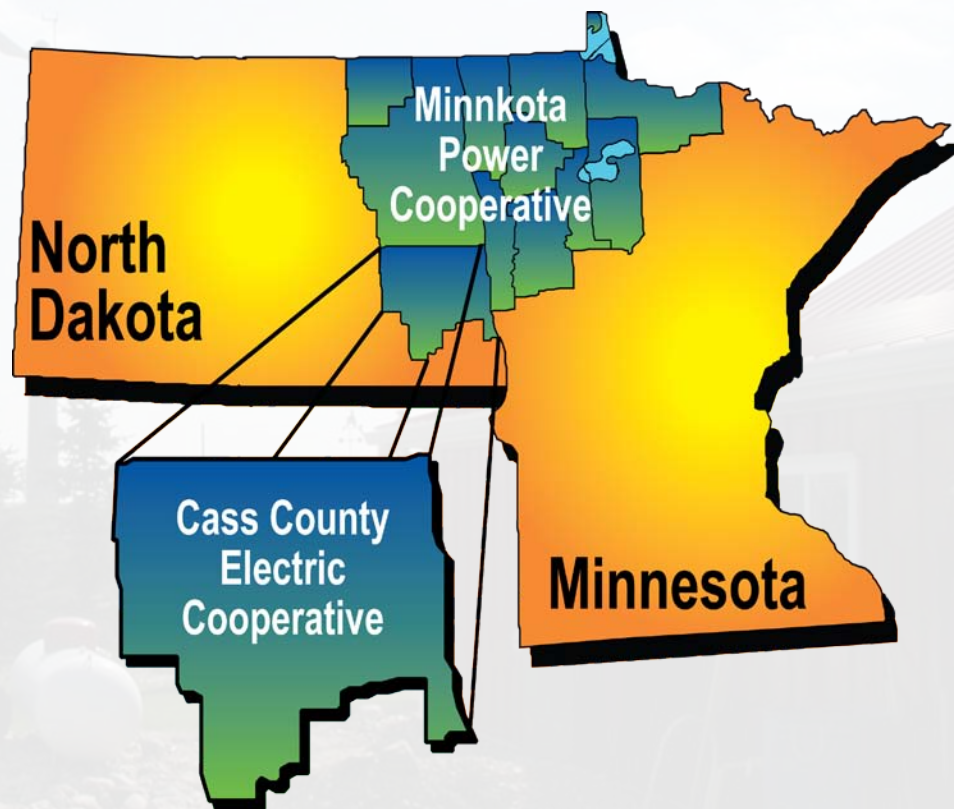
Renewable Energy Action Summit
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Troy Knutson, P.E.

DG Engineer, Cass County Electric Cooperative

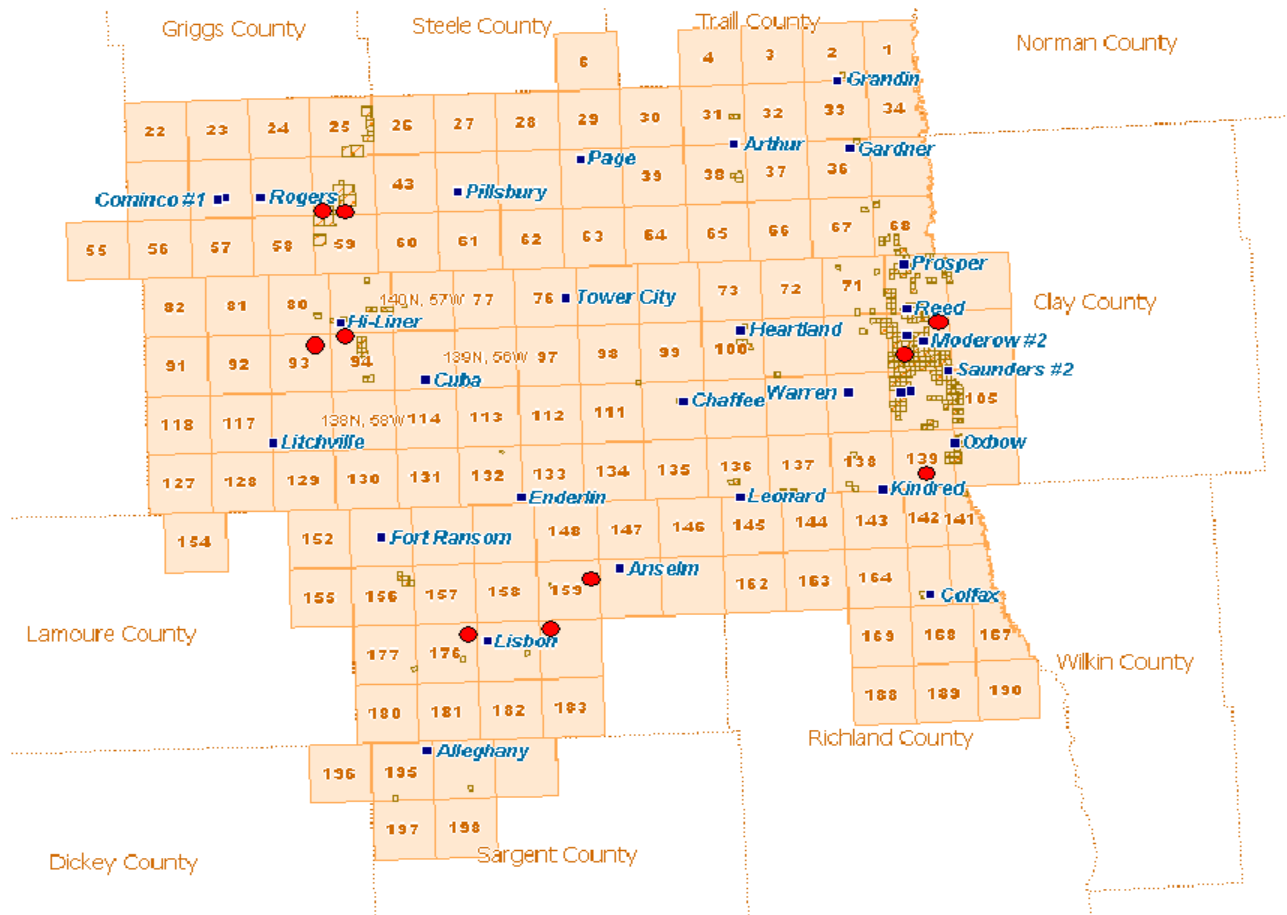
CCEC Overview

- 34,000 total accounts
- 32 Substations
- 4600 miles of line
- Service to all or parts of 10 counties



CCEC Net Metering Policy

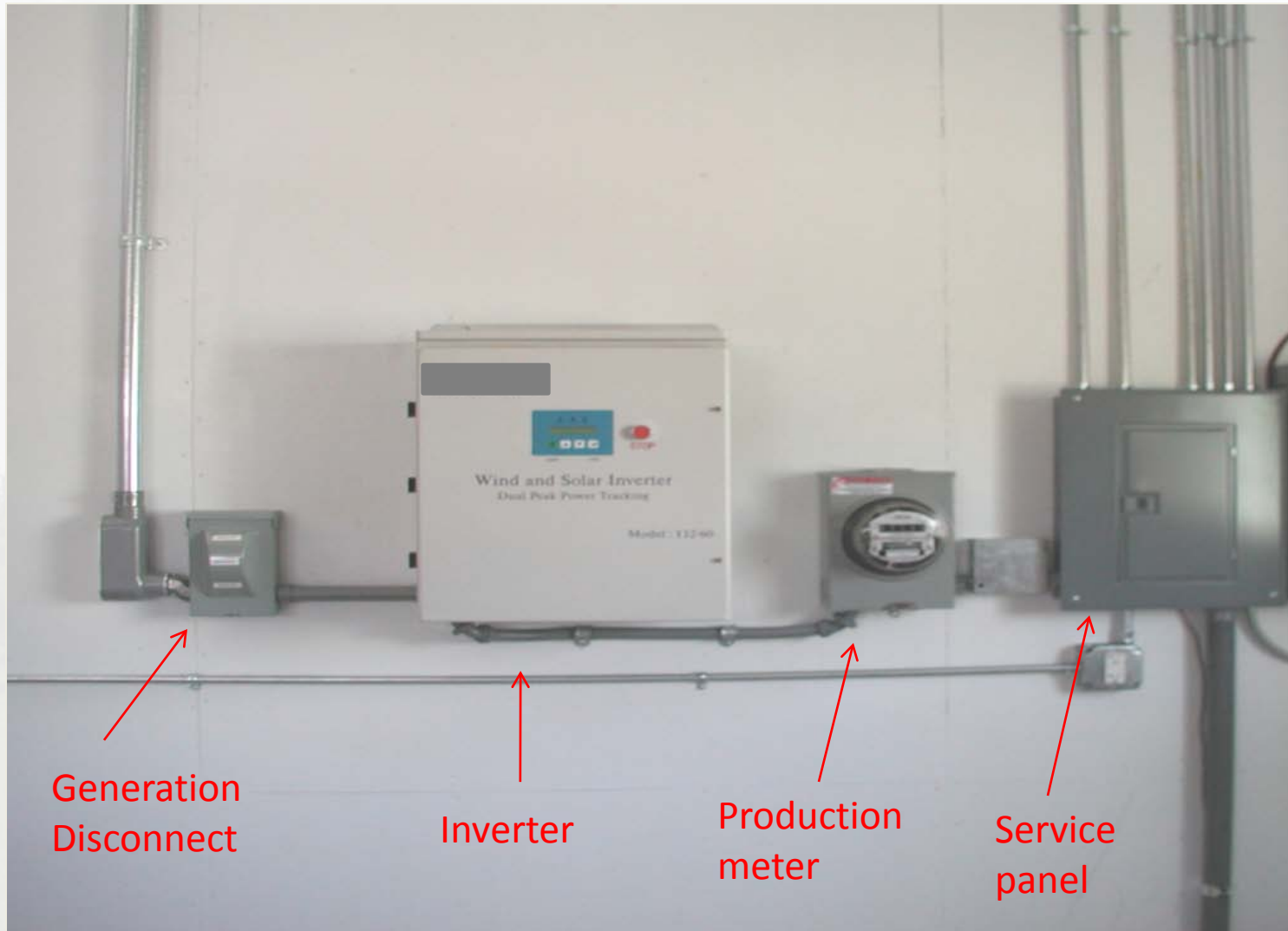
- Established in 2007
- CCEC current policy allows 0.1% of CCEC's system peak load from previous 3 year period
 - Currently about 230 kW
- After this 0.1% is met, applications will go into a queue
- CCEC currently has 140 kW of net metered generation
 - Wind: 135 kW (2.4 kW-33 kW)
 - Solar: 5 kW
 - Methane gas generator: 925 kW (not net metered)



Net Metering

- The ability to offset energy usage at a particular location
 - Allows user to bank retail priced energy on the utility meter for later use over the billing period
 - Excess generation from billing period is sold back to utility
- Renewable rate
 - Rate paid for net excess generation
 - Depends on power supplier but based on avoided cost
 - Not generally the same as retail rate

Typical DG Interconnection



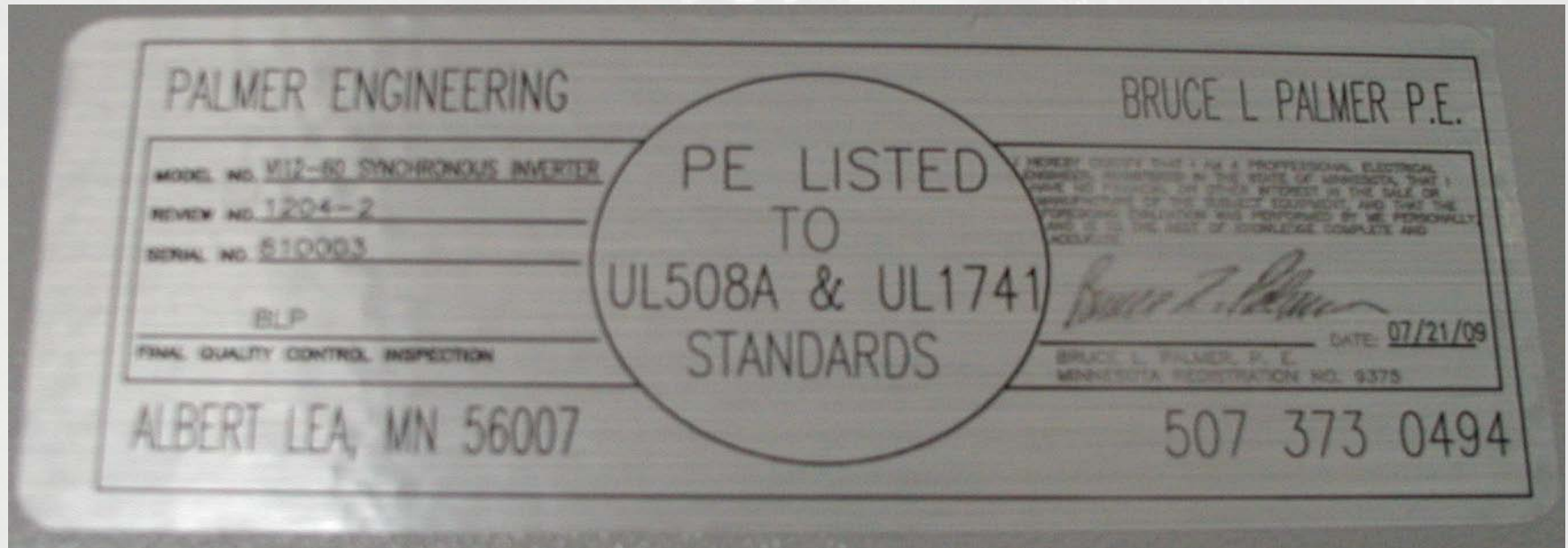
Typical Utility Requirements

- Size
 - CCEC allows 50 kW or less to be net metered
- A readily accessible, lockable, visible-break disconnect
 - IEEE 1547 – “DG shall not energize the Area EPS...”
- Disconnection and Reconnection to the utility
 - If there is a utility disturbance DG **must** disconnect from utility for an adjustable time delay (up to 5 minutes)
 - Once utility has been restored to normal the time delay begins



Typical Utility Requirements

- A grid connected inverter **must** be UL 1741 Listed
 - UL 1741 describes procedures used to test to IEEE 1547 Standards
 - Identifies that the inverter complies with IEEE 1547 standards
 - **NOT** necessarily the case vice versa



Typical Utility Requirements

– Insurance

- Utility may need to see a certain level (\$)
- May need DG explicitly mentioned in policy
- Utility may request additional insured/indemnification status

– Paperwork

- Application and/or Engineering Data Submittal
- Spec sheets
- Interconnection agreement
- Net metering agreement
- Application fees

Typical Utility Requirements

– Installation

- Must comply with all NEC, NESC and city/county/state electrical codes

– Metering

- Utility may require a new bi-directional meter installed
- Subtractive meters (off-peak) may need to be separated

Summary

- Most utilities should have a net metering policy
- File all paperwork and fees
- Meet utilities insurance requirements
- Must have an easily accessible disconnect
- Inverter must be UL 1741 listed/IEEE 1547 compliant

Questions

tknutson@kwh.com

701-356-4542 office

701-356-4502 fax



More Information

[www.kwh.com/Renewable
Generation.html](http://www.kwh.com/RenewableGeneration.html)

www.AWEA.org

<http://www.eere.energy.gov/>