Net Metering

Net Metering is available to customers who install renewable fuel generators such as solar, wind, hydro or biomass sources and operate the generator in parallel with their electric company's electrical system.

What is Net Metering?

The term net metering refers to the fact that the meter can measure the flow of electricity in two directions. It measures how much energy comes from your electric company versus the renewable generator's electricity production. The generator can offset a customer's electric energy usage with any excess electricity produced. As the generator system produces electricity, the kilowatt-hours are first used to meet the customer's electric requirements such as lighting and appliances. If more electric energy is produced from the system than the customer needs, the additional kilowatt-hours are measured, fed into the utility's electric system and utilized by other customers.

When the monthly electric bill is calculated, if the customer uses more electrical energy than is generated, the customer pays only for the net kilowatt-hours (kWh). If the customer generates more electrical energy than is used from the utility electrical system, then the customer receives a kWh credit, which is applied to future bills. In addition, the customer is required to pay any customer charges and minimums applicable under their rate schedule.

FirstEnergy®

Requirements for Net Metering

1. An application for generation interconnection must be submitted to your electric company prior to generation connection.

2. Generation must meet the specifications of the Net Energy Meter Rider which specifies generator capacity and renewable generator source.

3. Generation equipment must meet utility, product safety and grid interconnection specifications. For example, an external disconnect is required within 10 feet of the meter location.

4. An electrical inspection is required prior to energizing a generation interconnection.

5. After the electrical inspection, a new net meter will be installed by your electric company. A performance test will be completed to verify that generator source is isolated from the utility's electrical system in the event the company's circuit is de-energized.

Net/Bi-Directional Meter Residential Displays

A residential meter has three kWh quantities displayed.

Display code 01 indicates kWh Net. (kWh delivered minus kWh received)

Display code 04 indicates kWh Delivered. (Energy to customer)

Display code 40 indicates kWh Received. (Energy from customer)

Net/Bi-Directional Meter Commercial Displays

Display code 01 indicates kWh Net. (kWh delivered minus kWh received)

Display code 04 indicates kWh Delivered. (Energy to customer)

Display code 40 indicates kWh Received. (Energy from customer)

Notes:

Due to system limitations, a commercial kWh Net register will be set with a beginning reading of 50,000 kWh. (Residential kWh Net register begins with a 00000 kWh reading) In addition to the displays shown above, commercial meters may also display a demand reading (kWd). Instrument transformer rated installations will have a meter multiplier applied to all readings.

Residential Power-Flow Indicator

The power-flow indicator below shows that power is flowing from the customer to the electric company.

The real-time direction of energy flow is displayed by three blinking indicators located in the lower left corner of the meter display. If the indicator bars light up in sequence (and turn off in sequence) from left to right, then energy is flowing from the electric system to the customer. A right-to-left sequence represents electric energy flowing from the customer to the electric system. The speed at which the indicator blinks in sequence is proportional to the amount of energy flowing. The faster the sequence, the more energy is flowing. The power-flow indicator is instantaneous and changes direction and/or speed exactly when the energy flow changes direction and/or speed.

Commercial Power-Flow Indicator

The power-flow indicator below shows that power is flowing from the electric company to the customer

The Commercial Net Energy Meter utilizes left/right arrow indicators and two indicating bars in the middle left section of the display to identify the direction of energy flow. The sequence of this meter matches the residential meter. A left-to-right sequence shows energy is being used by the customer from the electrical system and a right-to-left sequence indicates energy flowing back into the electrical system.

Examples of the meters operation of "Net Metering"

Example 1:

The meter displays 0349 kilowatt-hours moments prior to a renewable energy generator being activated. The generator then produces a combined energy output of 3 kilowatts in a one hour period, which equates to 3 kilowatt-hours. The meter then would effectively "Net" out the energy flow to the utility with the meter displaying 0346 kilowatt-hours (0349 – 3 = 0346 kilowatt-hours); thus recording the credit for the 3 kilowatt-hours generated.

Example 2:

The meter displays 0349 kilowatt-hours moments prior to a renewable energy generator being activated. In a one hour period the customer's energy usage was approximately 5 kilowatt-hours. During that same hour, the generator produces a combined energy output of 3 kilowatts, which equates to 3 kilowatt-hours. Subtracting the 3 kilowatt-hours the generator produced from the 5 kilowatt-hours the customer received from the utility, the "Net" value would be 2 kilowatt-hours delivered to the customer by the utility. The meter would then display a value of 0351 kilowatt-hours.

Start reading + energy used – energy generated = "Net" Reading

0349 kilowatt-hours + 5 kilowatt-hours – 3 kilowatt-hours = 0351 kilowatt-hours

In the examples above, either cycle may repeat itself indefinitely during the time the generator is outputting, and the customer is receiving electricity from the utility.

A customer's monthly bill will reflect any energy "credit" that is measured and will be adjusted accordingly on the bill. The bill will only reflect "zero" usage if at the time the meter is read the current reading is less than or equal to the previous month's reading. The previous and present readings printed on your bill will be equal, to reflect this zero usage, even when the actual reading is negative. Your electric company records the actual readings in their system, and uses them to track and calculate any credits on a month to month basis.

Examples of Energy Usage Flow

The following examples are generalized energy flow diagrams meant to provide a visual picture of how a customer's meter may "Net" out energy usage.