Bi-Directional Metering

Bi-directional 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.

The following is a basic explanation of how bi-directional metering works. For more in-depth information, including complete rules and requirements, visit www.firstenergycorp.com/feconnect and choose your electric company.

What is Bi-Directional Metering?

The term bi-directional 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 – "kWh delivered." It also measures the difference between the generators production and the customers load demand – "kWh received." Our meter does not measure the generators 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.

Requirements for Bi-Directional 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 bi-directional meter will be installed by your electric company. A performance test* may be completed to verify that the generator source is isolated from the utility's electrical system in the event the company's circuit is de-energized.

** To complete the performance test, the AC Disconnect will be switched to the 'ON' position to start up and operate the generation system. All other controls/switches associated with the inverter system need to be in the 'ON' or operating position.*

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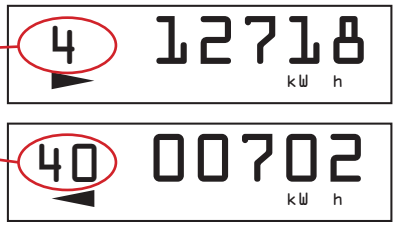
FirstEnergy®

Bi-Directional Meter **Residential Displays**

A residential meter has two kWh quantities displayed.

Display code 4 indicates kWh Delivered. (Energy **to** customer)

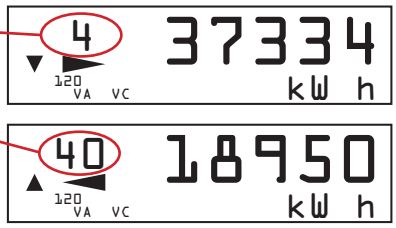
Display code 40 indicates kWh Received. (Energy **from** customer)



Bi-Directional Meter **Commercial Displays**

Display code 4 indicates kWh Delivered. (Energy **to** customer)

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



Bi-Directional Meter **Demand Display**

Display **code 5** indicates Delivered KW demand for the month.

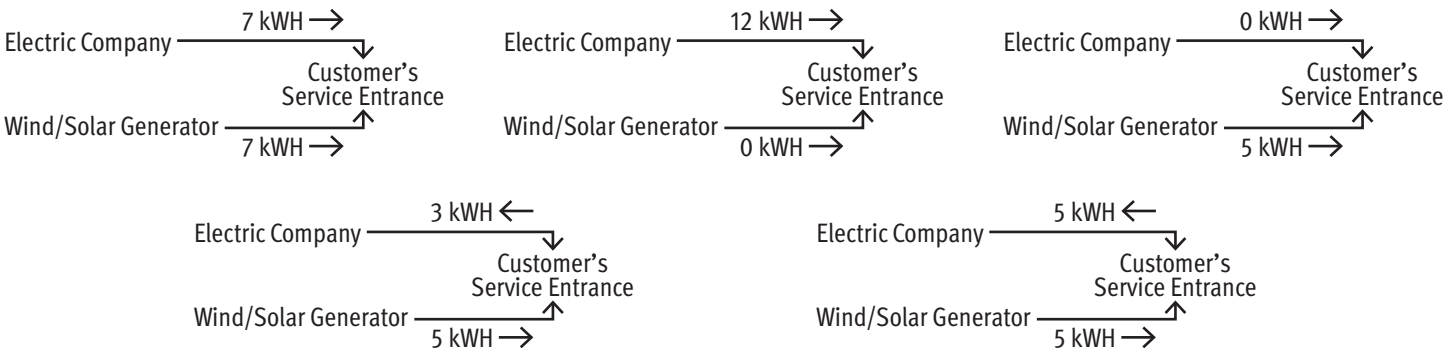
Residential & Commercial Power-Flow Indicator

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.

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.



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