

What is a Submeter?



Alberta
Government

Introduction

A submeter is an electricity meter (or gas meter) that is installed downstream of the main utility meter. They can be used to zero-in on energy usage that is of particular interest. As shown in the Figure 1, a submeter could be installed on a farm to measure electricity that is directly related to production. Electricity loads for residences and anything unrelated to the dairy could be excluded.

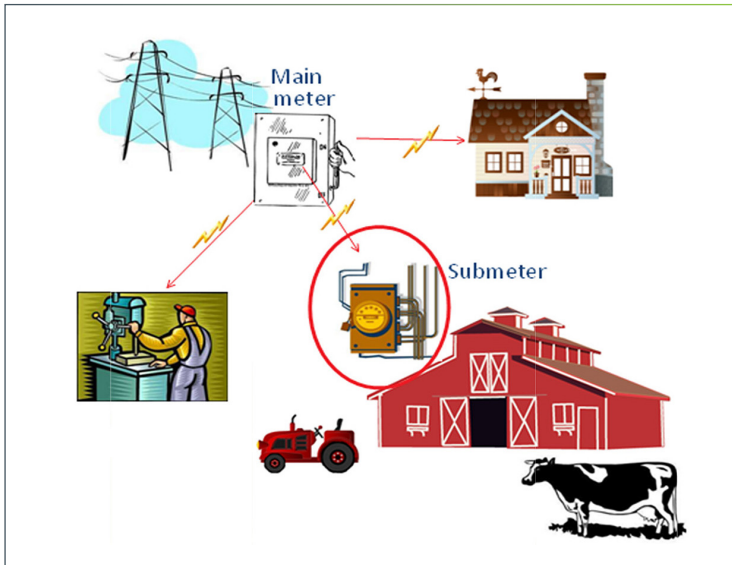


Figure 1. Natural Gas Usage and Distribution

Submeter data

Since submeters measure only energy loads of particular interest, the information that they collect is more detailed and more accurate.

This allows a manager to see how equipment is performing and analyze trends in efficiency over time.

Submeter meter types

There are several types of submeter styles on the market. The most commonly available are:

Basic hard wired low cost meters - these meters range in price from \$20 to \$1,000. Most will have a display showing total energy (kilowatt-hours) or current consumption. Some come with all required attachments while others will need additional current and voltage transformers which range in price from \$40 to \$900. Many have additional attachment options such as logging capabilities, output ports, battery options, and weather proof enclosures.

- Non-Logging meters - simplest and cheapest of the basic meters, these will not log the data and have no output port. They display the current power used or they accumulate the total kilowatts until they are reset. These may come with attachment capabilities for additions such as backup battery options and weather proof enclosures.
- Logging meters - these have logging capabilities where the data can be collected and analyzed. They may or may not have a display. These typically require a PC and additional software in order to view the logged data collected. Some are compatible with programs like Microsoft Excel. They have an output port where the data can be viewed live or collected after being logged. These may require some programming (Figure 2).

Portable low to medium cost meters - these range in price from \$600 to \$3,000. They will have temporary voltage and current clamps which allow you to move the meter to different locations. They are not recommended for monitoring a line over a long period of time since they are not permanently wired into the lines. These may log or just display the power used.

- Non-Logging meters - these can be non-logging meters and have no output ports. They will simply display the accumulated power used or the current consumption.
- Logging - these have logging options and an output port. These usually require additional software and a PC as well as some programming of the meter.

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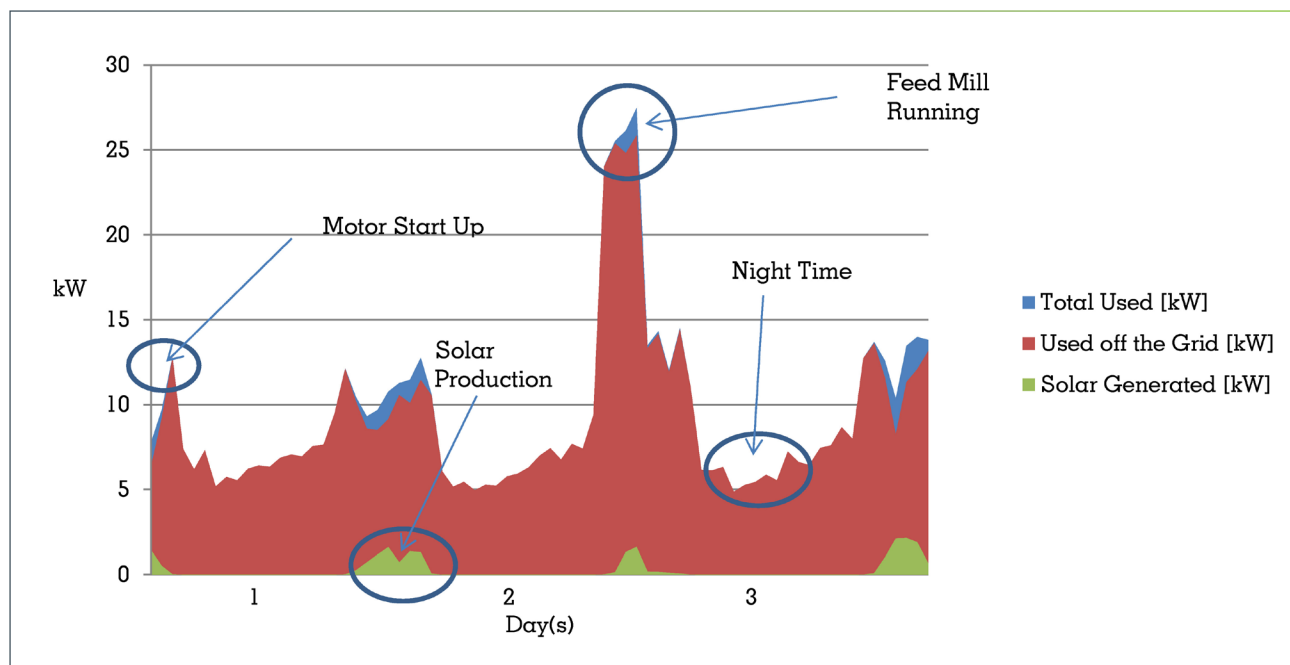


Figure 2. Submeter Readout for a three day period at Hog Barn

Power analyzing - high cost meter, may be portable or hard wired. These range in price from \$1,000 to \$6,000+. They are the most sophisticated of all the meters with power analyzing capabilities. They will log the power (watts) used as well as the power factor, energy (watt-hr), rate (watt/hr), volts, amps, and some may analyze wave forms. They will require additional software, a PC, and programming of the meter.

Note: Most meters are not tamper proof, therefore, they cannot be used for billing purposes. Billing meters, or tamper proof meters, can also be purchased but they are more costly and cannot be easily reset or zeroed.