

## Metering System Assessment Guidelines

## **General Automated Metering Assessment Procedure**

- 1. Conduct a site assessment to determine the current number of standard electric, natural gas, fuel oil, steam, and water meters.
- 2. If the facility has standard (mechanical meters with no automated meter reading capabilities) electric, natural gas, fuel oil, steam, or water meters, calculate the cost effectiveness of installing an advanced meter using the following steps:
  - As a first order of approximation, assume that the meter will reduce the electric, natural gas, or water utility costs by 2% (see Table 1).

Table 1. Metering Savings Ranges<sup>1</sup>

Action	Observed Savings		
Installation of	0% to 2% (the Hawthorne		
meters	effect)*		
Bill allocation only	2.5% to 5% (improved		
	awareness)		
Building tune-up	5% to 15% (improved		
	awareness, and		
	identification of simple		
	O&M improvements)		
Continuous	15% to 45% (improved		
commissioning	awareness, identification of		
	simple O&M		
	improvements, project		
	accomplishment, and		
	continuing management		
	attention)		

Source: FEMP

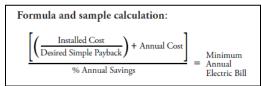
➤ Use Table 2 to approximate the installed cost of the metering system.

Table 2. Approximate Installed Costs of a Metering System<sup>2</sup>

Advanced Electric System Costs per Meter			
Installation Cost	Low (\$)	High (\$)	
Meter	1,000	1,500	
Ancillary device	300	600	
Communications (modem)	100	200	
Software	0	100	
Installation	500	1,000	
Install phone line or LAN	0	2,000	
Total	1,900	5,400	
Metering System Ongoing Costs per Meter			
Recurring Costs per Month	Low (\$)	High (\$)	
Phone/LAN	05.00	40.00	
Data collection	00.00	01.70	
Data analysis/billing	04.50	04.50	
Total	09.50	46.20	

Source: Pacific Northwest National Laboratory

Use the following calculation to determine the cost effectiveness of installing an advanced meter:



Source: FEMP

Figure 1. Advanced meter calculation<sup>3</sup>

<sup>\*</sup>Improvements in productivity or process resulting from the awareness of extra attention or observation of that process.

<sup>&</sup>lt;sup>1,3</sup> *Guidance for Electric Metering in Federal Buildings*. DOE/EE-0312. U.S. Dept. of Energy, Federal Energy Management Program. <a href="https://www.femp.energy.gov/pdfs/adv\_metering.pdf">www.femp.energy.gov/pdfs/adv\_metering.pdf</a>. February 3, 2006.

<sup>&</sup>lt;sup>2</sup> Sullivan, G.; Pugh, R.; Hunt, W. *Metering Best Practices: A Guide to Achieving Utility Resource Efficiency*. Prepared by Pacific Northwest National Laboratory for U.S. Dept. of Energy, Federal Energy Management Program. <a href="https://www.femp.energy.gov/pdfs/mbpg.pdf">www.femp.energy.gov/pdfs/mbpg.pdf</a>. October 2007.