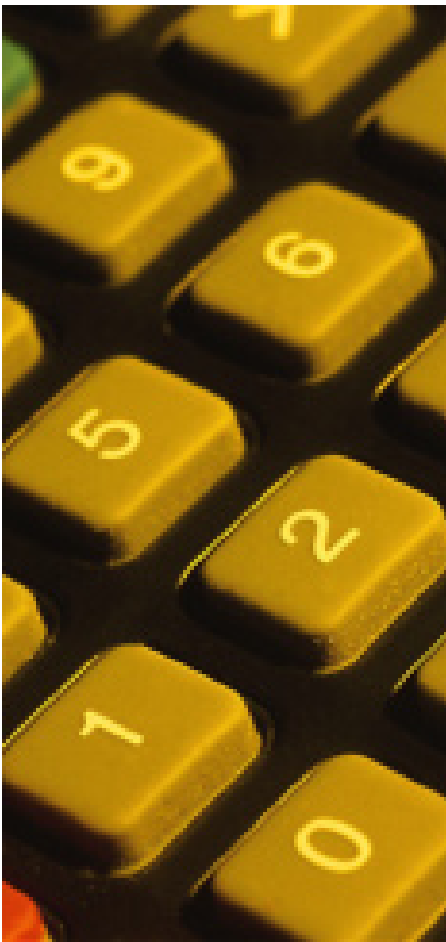


# RCM Factsheet

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## Resource Accounting Key to Savings

By Johnny Douglass, Energy Engineer, WSU Energy Program



Resource accounting is the central tool for effectively managing resource use and reducing resource costs. It is a process for recording and tracking both the amount and cost of the various resources used by facilities. The resources that are typically tracked include:

- Electricity
- Electrical Demand
- Fossil Fuels
- Water
- Sewer
- Solid Waste

Resource accounting is similar to financial accounting. It involves recording both the amount used and costs of resources billed on a monthly basis (or in some cases bi-monthly or quarterly). These data are analyzed to produce information that can be used for comparison and to show usage trends. Reports are produced that can be used by decision-makers and staff to take action to eliminate inefficiency and reduce costs. Typically, some type of software program is used for storing and analyzing the information and producing reports.

### Why Do Resource Accounting?

You can't manage something you can't measure. Resource accounting is designed to provide you with information based on measured data, allowing you to reduce your resource costs.

Resource costs are often ignored by most organizations. They are viewed as a small percentage of total costs. However, resource costs can be controlled and they likely represent a significant portion of controllable costs. For example, in many organizations, resource costs account for less than 5 percent of total costs. Fixed costs can approach 80 percent of total costs. Therefore in this example, resource costs represent about one quarter of the organization's controllable costs. Avoided resource costs will improve your organization's bottom line.



## How Does Resource Accounting Save Money?

Resource accounting can identify opportunities for cost savings, including:

- **Billing Errors:** Unusually high costs due to utility billing errors.
- **High Cost Facilities:** Comparisons between similar facilities can identify relatively inefficient facilities. These inefficient facilities may offer significant savings opportunities.
- **Abnormal Consumption:** Comparisons with historical trends may identify abnormal consumption that is due to equipment failure or poor operation and maintenance practices.
- **Lack of Awareness and Accountability:** Lack of knowledge and information is often a contributor to waste. Resource accounting information can provide feedback to staff and management and raise awareness of how they are doing. This promotes local accountability and can be an incentive for improving performance.
- **Operation and Maintenance Practices:** Operation and maintenance staff have a significant influence over the resource consumption in a facility (particularly energy). Resource accounting provides important benchmarks for the effec-

tiveness of an operation and maintenance program and can be a motivation for improved performance and recognition.

## How Do I Get Started?

The following steps are a brief guide to starting a resource accounting program.

**1. Collect and Organize the Data:** The first step in setting up a resource accounting program is to collect all the data you will be recording. Identify all the buildings and facilities that have resource costs. For each building, note the location and conditioned square footage. Collect several years of utility bills (more if possible) and sort them by facility. Verify that the meters on the utility bills correspond to the building meters and that there are no errors.

**2. Select a Software Tool:** Spreadsheet programs can be used for resource accounting. However, software specifically for resource accounting provides many advantages including a convenient structure for entering data, standard analysis routines, and a variety of reports and graphics. Energy analysis software can eliminate a lot of the repetitious work. Some programs will even interface with utility systems to register meter data and record rate changes. Examples of resource accounting software include:

- **Energen Inc. USA** (Utility Savings Analysis). Energen, Inc. offers comprehensive supply-side energy-cost-reduction services using their

sophisticated USA software, but they also sell versions of the software customized to users' requirements.

<http://www.energenusa.com/>

- **Energy CAP Enterprise.** This has evolved from the earlier FASER program. It is a high-end program that does nearly everything possible for energy accounting, energy use analysis, energy management, and bill paying.  
<http://www.goodstewardsoftware.com/index.asp>
- **MotorMaster+** is a modular software package provided free by the Industrial Technologies Program of the U.S. Department of Energy. Though provided primarily as an inventory and maintenance tracking and decision-making tool for motors, it has a resource accounting module called "Savings Tracker." With Savings Tracker you can track energy use and energy savings, observe trends, graph results, and print reports. MotorMaster+ also has a sophisticated life-cycle-costing module that accommodates analysis of all energy saving measures, not just motor systems measures.  
<http://www1.eere.energy.gov/industry/bestpractices/software.html#mm>
- **Utility Manager™ Pro** is another comprehensive software product. This Windows-based software does all the things an energy accounting program should

do and it is particularly noted for its good 3D graphics and variety of report formats. It also tracks and helps to manage recycling, solid waste, water use, and natural gas.

<http://www.abraxasenergy.com/umpro.php>

- **Abraxas Metrix 4™** is also a comprehensive utility accounting and management program. It is capable of tracking any sort of utility information, energy as well as other resources. It is marketed with a 30-day trial period and considerable tutorial material for an easy entry into resource management.

<http://www.abraxasenergy.com/metrixhere.php>

**3. Enter Data:** Most resource accounting software has a data hierarchy. Department level information is entered first, followed by building information. Buildings are then assigned to the appropriate department. Finally, meters are assigned to buildings. Consumption and cost information is entered for each meter. For each utility bill, the current read date for the meter is input along with the consumption and cost. Make sure the energy units established for a particular meter in the software correspond to the units on the utility bill. Entering data manually can be time consuming. Some utilities offer utility data in electronic form that can be directly imported to your resource accounting software. Check with your utility to see if this service is

available. It saves time and reduces errors.

**4. Analyze Data:** An advantage of resource accounting software is that it takes raw data and turns it into useful information. It does this by putting the data in a form that allows easy comparison. These comparisons take two basic forms.

### Historical Comparisons

At a specific facility, current consumption and cost are compared with historical consumption at that facility. To allow for this comparison, the resource accounting software allocates the billing data to specific months. Typical comparisons include:

- The current month compared to the same month in the previous year.
- The year ending on the current month with the year ending on the previous month.
- The year ending on the current month with the year ending on the same month in the previous year.
- The year ending on the current month with a baseline year.

These comparisons give an indication whether resource consumption is increasing or declining or whether there are any abnormal changes. Avoided costs can be identified relative to a baseline year or other similar period. Graphically portraying monthly or annual consumption and cost is one of the easiest ways to identify trends. Most software programs provide options for adjusting

consumption and cost to account for changes in weather.

### Benchmark Comparisons

Benchmark comparisons allow the consumption and cost at one facility to be compared to similar facilities or accepted benchmarks for efficient operation. To allow for valid comparisons between facilities that are not identical, performance indices are often created. Common indices include:

- **Energy Use Index:** All energy consumption is converted to common energy units and divided by building area. The typical energy unit is kBtu/ft<sup>2</sup>-year – thousand British Thermal Units divided by square footage, per year.
- **Cost Index:** Resource costs normalized by building square footage is typically measured in dollars divided by square footage, per year (\$/ft<sup>2</sup>-year).
- **Resource Unit Cost (\$/resource unit):** Cost divided by consumption for a particular resource. This is usually in the form of \$/kilowatt-hour (kWh), \$/therm, \$/gallon, etc.
- **Resource Cost Allocations (percent):** Cost of a particular resource relative to total resource cost. A common example is electricity demand cost as a percentage of total electricity cost.

Building area is a common divisor for these indices for buildings. Other appropriate divisors such as number

of employees, residents, or students could be used. Weather variables can also be used as the divisor, although most resource accounting software programs provide options for adjusting consumption and cost to account for changes in weather.

**5. Produce Reports:** The reports are the most important product of resource accounting. The first step is to identify who will receive the reports and what information they need. In a school district, for example, the principal of a school might want to know if energy use is increasing or declining at that school and how it compares with similar schools. The school district facility manager might want to know which schools had the highest use and which schools had the largest increase in use. The superintendent might want to know how much money is being saved and which schools are the star performers. Resource accounting software

programs have a variety of standard and custom reports that allow the user to develop a set of reports to meet a range of needs.

### What About a Resource Management Program?

A resource accounting program is most effective when it is part of an overall resource management program. A resource management program provides the framework for taking energy and cost saving actions. It establishes management support, assigns responsibility, promotes participation, identifies information to be collected, and provides a process for developing and implementing an action plan. The resource accounting program is the critical feedback mechanism for your overall resource management program. It provides information

for making decisions and prioritizing activities and it indicates whether the resource management program is meeting its energy and cost saving goals.

### Where can I get more information?

- Western Area Power Administration's Energy Services website:  
<http://www.wapa.gov/es/default.htm>
- EnergyIdeas Clearinghouse website:  
<http://www.energyideas.org>
- Contracting for a Resource Efficiency Manager, a guidebook (PDF format) by the Federal Energy Management Program (FEMP)  
[http://www1.eere.energy.gov/femp/pdfs/rem\\_guidebook.pdf](http://www1.eere.energy.gov/femp/pdfs/rem_guidebook.pdf)
- U.S. Department of Energy's Office of Building Technologies website:  
<http://www.eren.doe.gov/buildings>

### More information

For more information, see the WSU Resource Conservation Management web page at [www.energy.wsu.edu/projects/rem/rcm.cfm](http://www.energy.wsu.edu/projects/rem/rcm.cfm).

Or contact:

**Karen Messmer**

(360) 956-2090

E-mail: [messmerk@energy.wsu.edu](mailto:messmerk@energy.wsu.edu)

Washington State University  
Extension Energy Program  
P.O. Box 43165  
Olympia, WA 98504-3165



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