



Center for Energy and Environment

Rental and Multi-Tenant Program

Multifamily Facility Management Program

Work Plan – Version 4

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MULTIFAMILY FACILITY MANAGEMENT PROGRAM WORK PLAN

INTRODUCTION

The Center for Energy and Environment (CEE) proposes the Multifamily Facility Management Program, which is a new concept for the delivery of energy efficiency to the multifamily housing sector. The goals are to develop a self-sustaining energy efficiency program and to transform the way in which energy efficiency is marketed and delivered. The strategy is to bundle a comprehensive set of services—including energy efficiency—that building owners and building management companies are interested in and willing to purchase. The Wisconsin Focus on Energy Pilot Program will develop the methodology, procedures and supporting tools for the Multifamily Facility Management Program, and deliver the services to a limited target audience to demonstrate the concept's energy savings potential and long-term private-sector marketability.

Previous incentive programs targeting multifamily buildings have found that energy efficiency is hard to sell—even for projects that are cost-effective without incentives. Energy costs have a low profile relative to other building operating issues. However, the people responsible for the physical assets of the buildings (asset managers) do respond to services that deal directly with installed capital investments, maintenance staff, and tenant complaints. By influencing the long-term capital investments and operations and maintenance (O&M) of a building, the Multifamily Facility Management Program will have a persistent influence on energy efficiency. The Multifamily Facility Management Program is attractive to asset managers because it addresses high priority issues with integrated solutions. Energy efficiency is one of the tools used to develop solutions.

This work plan outlines the Multifamily Facility Management Program proposed by CEE for the Wisconsin Focus on Energy, Rental and Multi-Tenant Program. CEE will develop the methodology, procedures and related automation tools, transfer the procedures and tools to Honeywell DMC (HDMC), and provide support during program delivery. HDMC will provide program delivery. Wisconsin Energy Conservation Corporation (WECC) will provide overall program management, interface with the Wisconsin Energy Bureau and other Focus programs.

This pilot program will focus on a subset of the multifamily housing stock that includes; rental, medium to large buildings, individual or building complexes, central heating, and central metering. These multifamily buildings provide efficiency of scale for program delivery and built-in incentives for the owners to control the building's energy use. There are 1,236 buildings with greater than 10 units per building, representing approximately 26,000 units, in the target area. Program development will be completed in June 1999, with program delivery scheduled for July 1999 through June 2000.

This work plan describes the Multifamily Facility Management Program, identifies program goals, and presents a budget and schedule for development and delivery.

PROGRAM GOALS

There are four significant innovations in the Multifamily Facility Management Program that focus on transforming the delivery of energy efficiency from a subsidized to self-sustaining services.

- 1) Energy efficiency services are integrated with asset evaluation and training services in an effort to develop a financially viable, self-sustaining service.
- 2) Asset evaluation and recommendations will promote a new paradigm for replace-on-failure procedures that will result in selection of more energy efficient replacement equipment for years to come.
- 3) Services for energy and equipment tracking will evaluate the actual energy savings from the Facility Assessment service and identify subsequent performance problems.
- 4) Water Savings Kits, which include several low-cost water efficiency items, will provide immediate water and hot water energy savings to program participants and increase initial customer interest in the program.

Immediate energy savings is not the primary objective of the Facility Management Program. The Facility Assessment will identify some low-cost projects that can be implemented by local O&M staff without delay. Many other projects will be relatively simple, medium-cost, and will require the services of a local heating/cooling/controls contractor. Implementation of these projects will produce immediate energy savings. More complicated and expensive recommendations will probably not be implemented by June 2000.

The full impact of the asset evaluation, replace-on-failure paradigm transformation, and energy and equipment tracking components of the Facility Management Program will not be realized by June 2000. Benefits will accrue several years after the term of this program. For example, replace-on-failure recommendations will result in the selection of a down-sized, high efficiency boiler in 2003 when the old boiler finally fails.

The goals of the Multifamily Facility Management Program are:

- 1) Demonstrate that asset managers find the Facility Assessment services valuable and that they are willing to pay full cost for such a service.
- 2) Demonstrate that the traditional replace-on-failure paradigm can be transformed by providing pre-approved recommendations for cost-effective, high quality, properly sized, energy efficient equipment.
- 3) Demonstrate that asset managers find the services for energy and equipment tracking valuable and worth purchasing at full cost.
- 4) Demonstrate that asset managers find the training services for management/operations staff valuable and worth purchasing at full cost.
- 5) Demonstrate that energy tracking, using monthly analysis of monthly utility bills, identifies energy savings opportunities and extends persistence of energy efficient building operation.
- 6) Demonstrate that equipment tracking identifies opportunities for cost savings in equipment maintenance and purchase costs, and leads to future purchase of energy efficient equipment.

- 7) Deliver Facility Management services to 185 multifamily buildings, representing 3,700 rental units. Note that the Energy/Equipment Tracking service is delivered to 90 of the 185 buildings with Facility Assessments, and the Water Savings Kits is delivered to 62 buildings.

Facility Management Program	Buildings	Rental Units
Facility Assessment	185	3,700
Energy/Equipment Tracking	90	1,800
Water Savings Kits	62	1,250
TOTAL	185	3,700

- 8) Reduce annual gas and electric energy consumption of multifamily rental units by the amounts listed below. Note that as listed above, not all buildings will receive all services. The Total Program quantities are the per rental unit savings times the number of rental units for each delivered service. In addition to energy savings, the water savings kits will provide annual water savings of 7,150 gallons per unit for a total annual water savings of 8.9 million gallons.

Facility Management Program	Per Rental Unit		Total Program	
	Therm	kWh	Therm	kWh
Facility Assessment	35	90	129,500	333,000
Energy/Equipment Tracking	20	0	36,000	0
Water Savings Kits	34	0	42,500	0
TOTAL	89	90	208,000	333,000

FOCUS GROUP RESEARCH

Because the Facility Management Program is a new concept for delivering energy efficiency, there is no direct field experience on which to base the program design. Market research on the concept was conducted using two focus groups that were conducted in the FOCUS Pilot program target area (see the section on Market Penetration). A full report on the focus group design and results was presented in *Multifamily Facility Management Program, Focus Group Market Research*, May 6, 1999.

The purpose of the focus groups was to solicit input on the design of the Multifamily Facility Management Program from multifamily building owners and management companies and to explore the perceived value of proposed program services. The feedback was used to refine the design and marketing efforts for the Multifamily Facility Management Program.

The first focus group was held in Green Bay, WI on Monday April 12, 1999. Of the fifty-three contacts that were invited to the focus group, eleven agreed to participate and all eleven attended. The second focus group was held in Appleton, WI on Thursday April 30, 1999. Of the twenty-three contacts invited from the Appleton-Oshkosh area, seven agreed to participate and five attended.

Contractor/Vendor Workshops

The original work plan had scheduled the contractor/vendor workshops throughout the year and in parallel with delivery of the Facility Assessments. However, the success of the pilot is dependent upon customers viewing the service as credible. Contractors that service the multifamily sector need to understand that the Multifamily Facility Management Program is not a threat to their established business arrangements with the multifamily building owners/management companies. A trusted contractor discrediting the program's findings and recommendations simply because the contractor is unaware of the program and therefore views it as a threat would pose serious problems for both program delivery and implementation of recommendations. Therefore the contractor/distributor workshops have been scheduled for completion before customers start receiving Facility Assessments.

Tenant-Owner Partnership

The original Facility Management Program included a service that would directly address the fact that while occupant behavior has a large impact on building energy and water use, occupants of centrally heated multifamily buildings have no direct incentive to make efficient use of these utilities. The lack of a tenant incentive naturally leads to inefficient practices such as partially opening windows in winter to offset overheating problems and allowing dripping faucets to go without repair for extended periods of time.

Tenant-Owner Partnerships were proposed to provide direct motivation for multifamily building residents to use energy and water more efficiently. Tenant training would give residents the know-how to use energy more efficiently by taking steps such as: lowering their normal thermostat setting, setting back the thermostat at night and quickly reporting maintenance needs like hot water leaks. Tenants would be given incentives to attend the workshops and a monetary reward after the end of the 1999-2000 heating season based on actual energy cost savings. Even after passing along a percentage of the realized utility cost savings to the tenants, the multifamily building owners can receive a net economic benefit, in addition to fostering a feeling of goodwill and community with the building residents.

The tenant owner partnership generated the strongest negative reaction during the focus group discussions about the program design. The reactions to the tenant-owner partnership component were met with universal negativism during the first group. Due to the initial response and the two-hour time limit it was not addressed in the second group. The participants strongly felt this

was not an effective method to reduce energy use. Rather they viewed it as a potential source for tenant conflict, with one respondent stating that she could see “energy enforcers” harassing other tenants about the energy they were using. Participants felt that tenant conflict issues would be worst in senior housing, which was one housing type that was originally thought to hold high potential for tenant owner partnerships.

There was also general consensus that renters do not want to hassle with the energy bill. One respondent gave an example of one building in which tenants were offered the option of rent payment that included utilities or separate payments for rent and their portion of utility costs. Even though the total amount of rent plus utilities was lower than the inclusive rent, the overwhelming number of tenants chose the option of one all-inclusive rent payment.

The focus group’s overwhelmingly negative response to the Tenant-Owner Partnership suggests that this service could actually undermine the credibility and delivery of the Multifamily Facility Management Program. In response to the focus group market research findings, the Tenant-Owner Partnership has been replaced with direct installation of Water Savings Kits that includes several water and hot water energy savings devices.

Marketing Contacts

One free Facility Assessment and \$100 cash were offered as incentives to recruit participants for the focus groups. A total of 14 of the 16 focus group participants signed up for a free Facility Assessment. Approximately half the participants that signed up seemed to really understand the comprehensive nature and value of the Facility Assessment, and the other half had much more of a wait-and-see attitude. Although the contact data is incomplete, one complex from each of these participants represents approximately 2,000 units.

Additionally, positive contact was made with officers of the Green Bay Chapter of the Wisconsin Apartment Association. The officers suggested that a presentation be made to the association when the program rolls out.

FACILITY MANAGEMENT PROGRAM DESCRIPTION

The goals of building owners, building management companies and asset managers is to reduce both short and long-term costs of providing occupant comfort services and reduce comfort related complaints. However, asset managers are faced with a daunting task of sifting through a sea of technical claims (and hype) to find solutions with the best tradeoff of capital investment, staff requirements, maintenance requirements and operating costs. There are lots of risks.

Reducing energy costs through energy efficiency projects may be cost-effective, but not if occupant comfort or equipment reliability and maintainability is sacrificed in the process. Capital investments in new assets that claim lower operating costs and long useful lives should

lower life cycle costs. Unfortunately, equipment with a useful life of 25 years often fails after only 5 or 10 years, is repeatedly replaced with identical equipment, and operates at below expected energy efficiency. The reasons for these problems include: defective equipment, improper installation, poor maintenance, and incorrect operating procedures.

The Facility Management Program supports the asset managers through an innovative combination of one-time services, and ongoing services that support persistence of energy efficiency and asset management. The Facility Management Program package of services works with buildings, equipment and staff as an integrated system of assets rather than just focusing on equipment-specific, one-time, energy efficiency retrofits. This **systems** approach optimizes the long-term energy efficiency of the buildings and provides significant external benefits in terms of rental housing affordability, comfort and indoor air quality.

The Facility Management Program provides the following services. A description of each of the services is presented in the following sections. A summary of the services and the order in which they are delivered is shown in Figure 1.

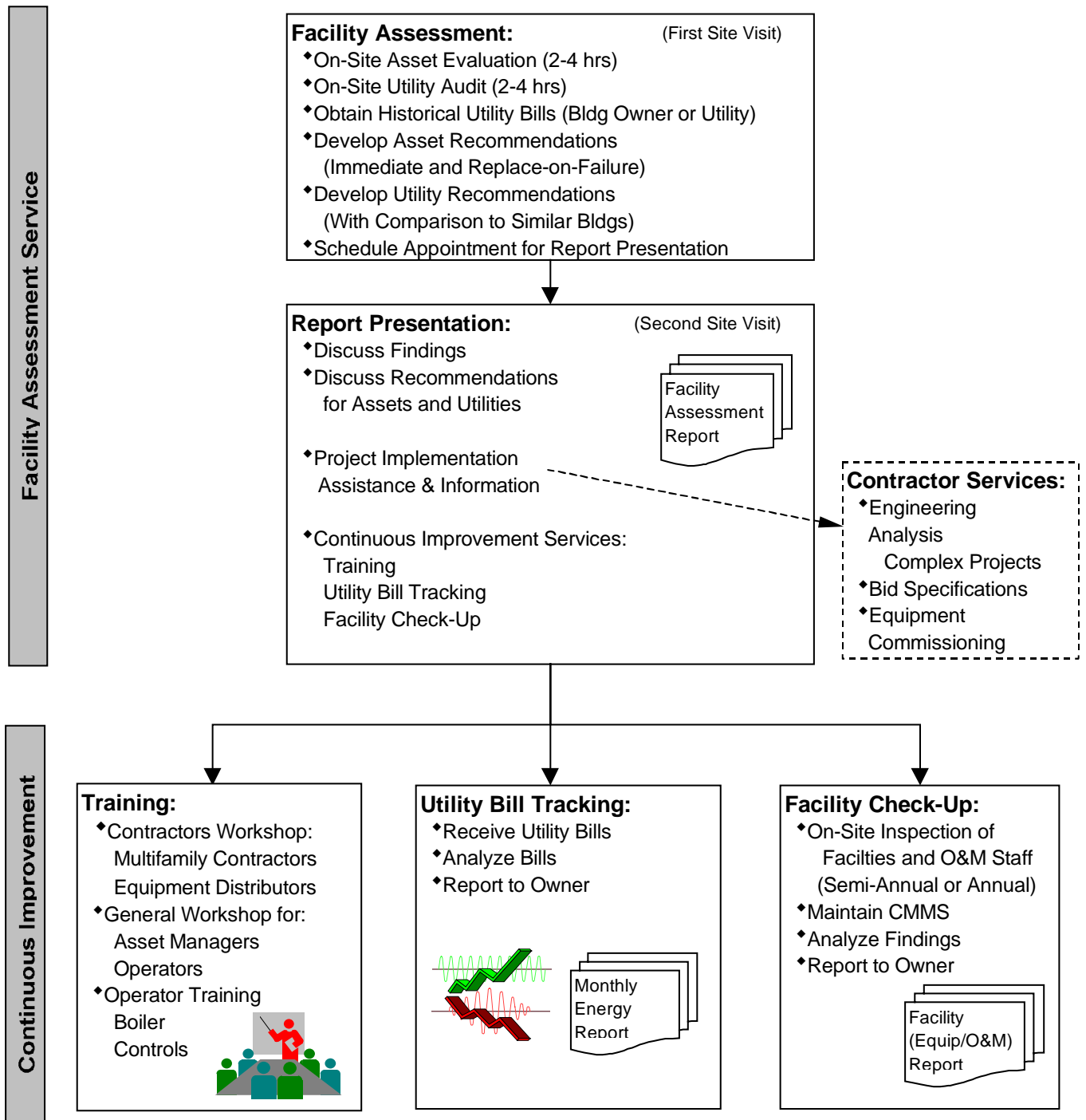
<u>Facility Management Program</u>	<u>WI Focus on Energy</u>
Facility Assessment	✓
Engineering Analysis	*
Bid Specification	*
Commissioning	*
Training	✓
Energy Tracking	✓
Equipment Tracking	✓
Water Savings Kits	✓

*Information and recommendations of fee-for-service suppliers only.

Facility Assessment

The *Facility Assessment* provides a quantitative evaluation of the current condition of all assets, recommendations for cost effective energy efficiency projects and recommendations for replace-on-failure. Building assets, maintenance staff, operations and maintenance (O&M) practices, and utility bills are documented during a 4-to-8 hour site visit. A computer program will automate

Figure 1. Facility Management Program services and delivery flowchart.



and systematize the data collection process and subsequent evaluations. Utilities to be evaluated include all fuels (gas, electric, oil) and water.

The findings and recommendations for both immediate and long-term cost reduction projects are documented in a report and presented during a second site visit. The asset manager receives a thorough list of the type, quantity, and condition of all assets (which most asset managers do not have) and recommendations for both immediate changes and replace-on-failure. The value of this comprehensive systems evaluation is the ability to identify and correct weak links in the complicated interactions of people, equipment and utilities in building's operation.

For example, neglecting poor O&M practices when purchasing a new high energy efficiency boiler will result in low energy savings and shortened equipment service life. An integrated solution which is more cost effective would have improved O&M through training, resulting in increased energy efficiency and useful life of existing equipment, and planned for future replace-on-failure with high energy efficiency equipment. Both existing equipment and the future new equipment would benefit from the improved O&M, resulting in persistent economically justifiable energy cost reductions.

To be successful, this program must convince decision makers to implement recommended projects, thereby realizing the energy savings potential. In many cases the project implementation can be completed by the local maintenance staff or their regular contractors. More complicated recommendations will require follow-on engineering services that will be provided on a for-fee service basis by private contractors.

Another valuable product of the *Facility Assessment* is an evaluation of each building's compliance with the State of Wisconsin's Multifamily Energy Code which must be met at the time a rental property is sold. By identifying improvements that must be made before a sale and/or documenting exemptions for non cost-effective measures, the code compliance evaluation will help owners plan property transactions without any surprises. While these code compliance evaluations will require very little additional work at the time of the *Facility Assessments*, it will add significant value to the Facility Management Program's services.

The *Facility Assessment* is designed as a stand-alone service that may be the only service provided for a building by the Facility Management Program. However, many buildings will benefit from some additional assistance through the other services provided by the Facility Management Program, including information and support for implementation of projects, *Training, Energy Tracking and Equipment Tracking*. These Facility Management Program services, and other applicable services available through the Wisconsin Focus on Energy Program, will be discussed with the asset manager during the report presentation site visit.

Engineering Services

While the *Facility Assessment* and *Training* will provide sufficiently detailed analysis and recommendations to allow asset managers to implement common low- to mid-cost energy efficiency projects, these services will only identify the potential for larger cost-effective retrofits--such as replacing a single boiler with a modular boiler system. The cost-effective opportunities for such large-scale retrofits are expected to be limited and heavily dependent on unique characteristics of the existing building and equipment. Therefore, actual implementation of these larger projects will often require the following engineering services:

- 1) *Engineering Analysis* of site-specific energy savings to provide economic justification for expensive and complicated retrofits;
- 2) *Bid Specifications* to ensure that the improvements are optimally designed and to facilitate competitive selection of competent installation contractors; and
- 3) *Commissioning* to verify that the equipment and installation are completed correctly.

Although these three services will not be offered as part of the basic services under Wisconsin Focus on Energy, providing information on companies that provide such for-fee services is important. Limited incentives will be also used to co-fund these services as necessary to keep energy efficiency projects from getting stalled by questions like: "What do I do next?" and "Who do I call?"

Training and Workshops

Training targets two distinctly different groups that affect the operation of a multifamily building; building owner/manager/asset manager/operator and heating/cooling equipment distributors and service contractors. The *Facility Assessment* provides an evaluation of and recommendations for training of the building management and operators.

1) Heating/Cooling Service Contractors. Service contractors are a critical link in supporting the building management's decisions to purchase quality, energy efficient equipment. Historically, rental property has relied on the recommendations of service contractors to select replacement equipment, and typically purchased the lowest-first cost equipment. Responding to that demand, equipment distributors have stocked low-end equipment. High quality and high energy efficiency equipment typically has to be special ordered. The result is that emergency replacement of failed equipment almost always uses low energy efficiency equipment. The *Facility Assessment* strategy of providing pre-approved replace-on-failure recommendations for high energy efficiency equipment will work only if energy efficient equipment is regularly stocked by distributors.

Informational workshops for the heating/cooling equipment distributors and service contractors will make them aware of the Multifamily Facility Management Program and the potential impact

on their business. They will be told about the kind of recommendations that the *Facility Assessment* will typically provide for immediate, low-cost retrofits and for the replacement of equipment when it fails. Most contractors dread the typical low-bid method of selecting new equipment, and welcome the opportunity to fairly compete for high quality systems.

2) Owners/Asset Managers/Operators. Optimizing the operation and maintenance (O&M) of equipment provides a significant cost-effective energy savings opportunities in multifamily buildings. For example, ensuring that outdoor temperature reset controls on boilers are properly installed and operated will provide improved tenant comfort—without opening windows to compensate for common overheating problems. The result is improved energy efficiency of the boiler because of a lower operating temperature and lower heating load because windows aren't opened.

These are the movers and shakers that control selection and operation of the capital equipment. Training will provide the information necessary to make better choices for lower life cycle cost through improved useful life and operating efficiency. The initial overview training includes both management and operators to develop a common dialogue that is normally missing. The operators will also receive detailed training about their specific building systems.

Energy Tracking

The largest annual operating costs related to the assets are the utility costs. For Wisconsin Focus on Energy, utilities include all fuels (natural gas, LP gas, electric, oil) and water. Evaluating one to five years of historical energy use can identify problems and opportunities for energy efficiency projects. This evaluation is completed in the *Facility Assessment*.

Initial energy savings often degrade over time because of equipment or O&M problems that are not easily identifiable through the maintenance staff or occupant comfort complaints. After energy efficiency projects are implemented, ongoing *Energy Tracking* is used to insure long-term persistence of savings. Continuous tracking of weather normalized energy use will quickly identify changes in energy use and provide feedback to the operators regarding the need for subsequent corrective actions. The Metrix (SRC Inc.) utility accounting program will be the automation tool used for energy tracking. The analysis is based on monthly utility bills and local weather data.

Once the pilot program has demonstrated the benefits of on-going energy tracking to asset managers, it is anticipated that many of them will continue to have a private contractor continue the service on a for-fee basis. Funding for the Wisconsin Focus on Energy Pilot will cover the cost of *Energy Tracking* through June of 2000, as well as the transfer of each building's energy use data base to a private contractor of the asset manager's choosing.

Equipment Tracking

Catastrophic asset failures represent large unplanned costs. If a boiler fails in the middle of winter, there's no question about whether or not to purchase a new boiler. Funds will be found to purchase a new boiler. The opportunity in this disaster is to help the asset manager select a more cost effective and energy efficient boiler as the replacement. The *Facility Assessment* provides recommendations for replace-in-failure so that the asset managers have pre-selected equipment information at their fingertips. The recommendations will be attached directly to the asset to insure that the information is immediately available when it is needed.

Long-term *Equipment Tracking* augments the *Facility Assessment* by providing identification of maintenance and failure trends, as well as information for strategic planning. Analysis of a database of asset information can identify repetitive failures or a wide variety of manufactures and models of boilers or water heaters. Repetitive failures typically indicate inappropriate O&M and low energy efficiency. Strategic planning can reduce the wide variety of different manufactures and models, thereby reducing parts inventories and training requirements. The MS2000 (MicroMain Corp.) computerized maintenance management system (CMMS) will be the automation tool used for equipment tracking.

Although *Equipment Tracking* will develop the initial database and recommendations for replace-on-failure as part of the *Facility Assessment*, the benefits of this activity will only be realized if the asset managers follow-through on the recommendations and on-going tracking after the end of the pilot project. Therefore, the Focus on Energy Pilot will focus on initiating a transformation of asset managers' decision-making practices by working to have property management companies internalize the *Equipment Tracking* practices or continue the service through a private contractor beyond June of 2000. The initial establishment of a complete asset database has traditionally been a major hurdle preventing asset managers from making significant use of the potential for CMMS's as planning and decision-making tools. The pilot program will establish that database and work cooperatively with asset managers to develop *Equipment Tracking* and review procedures that can be maintained after the pilot project ends. This will include the transfer of the equipment database to the property management company and/or a private contractor.

Water Savings Kits

Direct installation of free Water Savings Kits in tenant apartments will be used both as a marketing tool to recruit new participants for the Facility Management Program and to save water and hot water heating energy for the building owner/manager. Each Water Savings Kit will include one low-flow massaging showerhead, one swivel kitchen faucet aerator and one bathroom faucet aerator. Free installation will be offered as part of the kit.

The installed cost of the products in the Water Savings Kits is approximately \$20 each. With an available budget of only \$25,000 for this task, only 1,250 units can be served. Therefore, these Water Savings Kits will be reserved for recruitment of participants that might not have otherwise participated in the Facility Management Program.

The Water Savings Kits will not be offered to the participants in the two market research focus groups who have already agreed to a free Facility Assessment for one of their complexes, which was offered as an incentive to participate in the focus group.

Co-Payments and Incentives

The *Facility Assessment* will require a nominal co-payment by the building owner/manager. The level of co-payment will be set after the completion of market research, and may change depending on the marketing success of the program in the first geographic areas that are targeted, but an initial estimate is \$300 per building. Such co-payments will both allow the pilot program to provide more complete services to more buildings and it will provide a clearer indication of the private-sector marketability of the Facility Management Program. Focus group participants will receive free facility assessments for one building complex each, but will be required to provide a co-payment for facility assessments of additional complexes.

Once the *Facility Assessment* has been completed, building owners will be offered limited-time incentives for the follow-on engineering services and/or the installation of cost-effective energy saving measures. The goal of the incentives is to lower barriers of perceived risk regarding new equipment, procedures, or contractors, promote immediate implementation of recommended energy efficiency projects and provide a means of verifying completed projects. The incentives will not be used to encourage the installation of marginally cost-effective and non cost-effective measures.

A free Facility Assessment for one complex was offered as an incentive to participants in the two market research focus groups. Fourteen of the fifteen focus group participants agreed to the free Facility Assessment. Preliminary program design consists of rebates for a fixed percentage of the cost for improvements or follow-on engineering services recommended as part of the *Facility Assessment*. The budget includes an average incentive level of \$200 per participating building.

Marketing

CEE will provide developmental assistance to HDMC to implement targeted marketing efforts to a relatively small niche of customers, since standard wide scale marketing efforts are not suited to the unique niche of owners and managers of multifamily buildings. The majority of CEE's efforts will be conducted in the first six months, including conducting two focus groups. HDMC will implement ongoing marketing activity as the program progresses. The systematic execution of marketing activities will ensure the program's participation goals are achieved efficiently and cost-effectively.

1. **Building Information and Contact Tracking:** Obtain contact and building characteristics information to properly reach niche audience of apartment building owners and asset managers for focus groups, direct mailings, telemarketing, sales calls, etc. The contact list will be compiled based on inquiry phone calls to buildings listed in renter's guides, yellow

pages, chamber of commerce info and real-estate publications. Appropriate coordination with the Wisconsin Apartment Association will be developed. HDMC will compile and track contact information.

2. Focus Groups: Initial discussions and feedback from multifamily building owners and/or managers will be used to help guide the program development and marketing efforts. This feedback will be important to gauge the perceived value of various services that are part of the Facility Management Program. The discussions and feedback will take the form of two focus group meetings with interested owners and/or managers and will be managed by CEE.
3. Direct Mailer: Mailer or post card with business reply card providing general program information to target audience to generate requests for additional information, leading to participation. This will be used in close conjunction with telephone contact marketing efforts. Estimate 2,500 total number of pieces, sent out in several mailings to selected areas. CEE will develop content and HDMC will coordinate printing, mailing and follow-up actions.
4. Presentation Packet: The presentation packet will consist of a folder with approximately six single sheets that provide more detailed program specifics and outline benefits and features and sign up procedure. These packets will be sent out to those who request more information as a result of direct mailer or telemarketing. In addition, the packets will be made available at sales calls, association meetings, and the annual multifamily owners' convention. Approximately 400 copies will be needed. CEE will develop content and HDMC will produce and disburse.
5. Telemarketing: Telemarket program to target audience to sign up participants, generate leads and requests for additional information (presentation packets). Because of the limited number of buildings to be served, the novelty of the Facility Management Program approach, and the expectation that one manager will often control several buildings, this first personal contact will be the most critical aspect of the marketing efforts. Therefore, the telemarketer will be thoroughly trained in the Facility Management Program benefits and multifamily building issues. HDMC will conduct these follow-up phone calls as well as initiate calls to identified non-responsive contacts as appropriate.
6. On-Site and Association Meeting Presentations: It is expected that face-to-face meetings will often be needed for building owner/managers to fully understand the benefits of the Facility Management Program and to get a commitment to participate. This will be especially important during the initial marketing before owners will have heard about the program through word-of-mouth contact. CEE will assist HDMC in the development of the presentations, which HDMC will coordinate and present. The field staff will make the on-site personal contacts during the implementation phase of the program. Presentations may also be made to local meetings of apartment owners/managers associations.

7. Print Advertising: Promote program in general nature through advertising in select publications that reach the target audience. HDMC will be responsible for the coordination of ads with content assistance from CEE.
8. Apartment Owners Convention: Exhibit at Wisconsin Apartment Association convention to be held in Green Bay in the fall of 1999. HDMC will be primarily responsible for coordinating and staffing the event.

MARKET PENETRATION

The multifamily building sector includes a wide variety of building configurations; rental and individual ownership; large and small buildings; individual buildings and building complexes; owner/operators and building management companies; individual and central heating; individual and central metering. There are 7,500 multifamily buildings with greater than 2 units per building representing 55,265 units in the 23 county target area listed in Table 1.

Table 1. Target area of twenty-three counties in Wisconsin Public Service territory.
(Eight counties identified for marketing focus are checked.)

✓ Brown	Iron	Marinette	✓ Sheboygan
Calumet	Kewaunee	Oconto	Vilas
Door	Lanlade	Oneida	Waupaca
Florence	Lincoln	✓ Outagamie	Waushara
✓ Fond du lac	✓ Manitowoc	✓ Portage	✓ Winnebago
Forest	✓ Marathon	Shawano	

This pilot program will focus on a subset of the multifamily buildings that have the following characteristics: rental, medium to large buildings, individual or building complexes, central heating, and central metering. These multifamily buildings provide efficiency of scale for program delivery and built-in incentives for the owners to control the building's energy use. There are 1,236 buildings with greater than 10 units per building, representing 26,000 units, in the 23 county area.

It should be noted that while specific groups of multifamily buildings within the rental multifamily sector--low-income housing, public housing authority complexes, private ownership, senior high rises and mixed use buildings (i.e. commercial storefronts with multifamily units above)--may not be specifically targeted, they will not be excluded from program participation.

Program marketing will focus on 8 of the 23 counties (see Table 1) that contain 84% of the multifamily housing buildings. Of the remaining 15 counties, all contain less than half of the multifamily buildings as the lowest building count in the top 8 counties. Note that buildings in all 23 counties remain eligible throughout the program.

The limited geographic focus will allow the pilot program’s initial marketing and program delivery efforts to be conducted more efficiently. This will not severely limit the range of the long-term program impacts that are realized after the completion of the pilot. It is expected that many of the medium to large multifamily buildings in the less densely populated areas will be operated by the same management companies that operate properties in the 8 primary target counties. The number of buildings that meet the central heating and metering requirements is unknown at this time, but these are expected to make up the vast majority of the buildings with 10 or more units. Market research will further determine the multifamily building stock characteristics and ownership information.

Owners or building management companies that control many buildings will be targeted by the Facility Management Program for two reasons. First, working with one organization to gain access to many building provides significant efficiency of delivery. Second, these organizations typically use asset managers for day-to-day operation, who will recognize the immediate and long-term benefits for this program.

The planned number of program participants in Table 2 were selected to provide a balance between immediate program impact and meaningful feedback regarding the on-going

Table 2. Delivery goals for each Facility Management Program service.

Program Component	Buildings	Multifamily Housing Units	Annual Energy Cost Savings
Facility Assessment	185	3,700	\$85,000
Energy/Equipment Tracking	90	1,800	\$18,000
Water Savings Kits	62	1,250	\$21,250
			\$124,250

marketability, actual implementation cost and actual energy cost savings of the Facility Management Program concept. Specific goals for the contractor/vendor market transformation efforts will be developed after more information about the local market conditions are available.

Further detail regarding the per unit energy savings assumed are presented in Table 3. The gas use savings are based on an assumed pre-program energy consumption of 500 therms per year per unit. Additional assumptions used in estimating savings related to the Facility Assessment are itemized below:

- ◆ ¼ of the buildings will install boiler reset/cutout controls with savings of 16%;

- ◆ ½ of the buildings will reduce water heater temperature substantially with savings of 6%;
- ◆ 1/3 of the buildings will install 10 compact fluorescent lights in continuously lit common areas that are currently lit by 60 watt incandescent lights; and
- ◆ 1/3 of the buildings will retrofit 6 existing exit lights.

Table 3. Projected Energy Savings for each Facility Management Program service.

Program Component	Annual Savings per Unit			Housing Units	Annual Energy Savings	
	Gas (Therms)		Electric (kWh)		Gas (therms)	Electric (kWh)
Facility Assessment	35	(7%)	90	3,700	129,500	333,000
Energy/Equipment Tracking	20	(4%)	-	1,800	36,000	0
Water Savings Kits	34	(7%)	0	1,250	42,500	333,000
TOTAL**	89	(18%)	90kWh	3,700	208,000	333,000

*The Facility Assessment savings only include energy efficiency projects that are immediately implemented.

**Total per unit savings are only for those units that are served by all aspects of the Facility Management Program.

In addition to energy savings, the Water Savings Kits provide annual water savings of 7,150 gallons per unit for a total project impact of 8.9 million gallons of water savings. The estimate of service hot water energy savings and total (hot and cold) water savings are based on the following assumptions:

- ◆ 135 therm/yr consumption for service hot water (based on actual bills)
- ◆ 60°F supply cold water, 120°F supply hot water (60°F temperature increase)
- ◆ 2/3 of total water is hot water (mixed water temperature of 100°F)
- ◆ 1/3 of hot water saved for both showers and aerators (field research results)
- ◆ 25% standby energy loss in tanks and circulation systems
- ◆ 70% annual efficiency for service hot water heating system

Therm/yr Savings: 34 therm/yr = .75 * 135 * 1/3

Gallon/yr Savings: 7,150 gallons/yr = 34*100,000*0.7/((120-60)*8.33)*3/2

AUTOMATION TOOLS

Computer programs will be used to automate much of the Multifamily Facility Management Program. The value of computer programs is standardization of the process, reduction in the time and errors associated with data entry from paper forms, and development of a database that is extremely useful for comparison of individual buildings to industry averages. Report development will be an integral part of the automation, providing standardization and delivery efficiency.

The following list shows the automation tools that will be used for each service.

<u>Facility Management Program</u>	<u>Automation Tool</u>
Facility Assessment	FACET
Engineering Analysis	
Bid Specification	
Commissioning	DesLog
Training	
Energy Tracking	Metrix
Equipment Tracking	MS2000

CEE will develop a computer program, called the Facility Evaluation Tool (FACET), to automate implementation of the *Facility Assessment*. The core capability and a historical database of thousands of energy audits exists in the Multifamily Energy Audit program CEE previously developed for a gas utility sponsored multifamily energy efficiency program CEE delivered in Minnesota. Additional capabilities exist in EBA (a program by CEE that analyzes monthly utility bills), PRISM (a program by Princeton University that analyzes monthly utility bills), and MS2000 (a program by MicroMain Corp. that provides computerized maintenance management services). CEE will merge relevant capabilities from these computer programs into a single computer program and extend analysis capabilities to include all fuels and water.

Development of FACET will be a significant effort because the proposed Multifamily Facility Management Program is an innovative and new concept that has not been previously delivered. Most of the development effort is not complex computer programming, but rather organization of the new concepts into workable procedures that can be transferred to Honeywell DMC for efficient implementation. On-going support of Honeywell DMC will be simplified by allowing CEE to have electronic access via email and internet to the FACET database.

An energy savings evaluation tool that could be used to improve and standardize commissioning of energy efficiency projects is DesLog. DesLog, developed by CEE for the State of Minnesota, is designed to provide timely feedback for single-family residential weatherization projects by estimating energy savings from three weeks of before and after measured heating system run-time data. The energy savings and data collection could be adapted to multifamily buildings. Use of DesLog could document energy efficiency projects with lower than expected energy savings due to improper design, installation or operation, and facilitate corrective actions.

The Metrix (SRC Inc.) and MS2000 (MicroMain Corp) computer programs have sufficient capabilities to be used unaltered for the Energy Tracking and Equipment Tracking services.

BUDGET AND SCHEDULE

The overall budget available for the Wisconsin Focus on Energy, Rental and Multi-Tenant Program (Multifamily Program) is \$550,000. Wisconsin Energy Conservation Corporation (WECC), retains \$65,000 for administrative management and coordination. The total direct budget available for development and delivery of the Multifamily Program is \$485,000.

The following budget includes details for two time periods. The first time period represents program development and transfer to HDMC (1/99 – 6/99) and the second represents program delivery (7/99 – 6/00). The organizations include CEE (Center for Energy and Environment) and HDMC (Honeywell DMC).

- 1) Marketing: This includes contact list development, two focus groups, targeted direct mailings and phone calls to property managers, association meetings, trade show appearances, an exhibit at the annual convention, and printed ads in targeted publications to reach and motivate asset managers and building owners.

	CEE	HDMC	Total
1/99 - 6/99	\$23,000	\$6,000	\$29,000
7/99 - 6/00	\$7,000	\$14,000	\$21,000
Task Total	\$30,000	\$20,000	\$50,000

The Multifamily Program requests additional service support from the Wisconsin's Focus on Energy Marketing Administer. A total budget of \$5,000 is requested for development and printing of printed material and trade show displays.

- 2) Facility Assessments: This includes an energy audit, asset inventory and evaluation, and recommendations for both immediate projects and future replace-on-failure occurrences.

	CEE	HDMC	Total
1/99 - 6/99	\$80,000	\$9,010	\$89,010
7/99 - 6/00	\$15,780	\$125,550*	\$141,330*
Task Total	\$95,780	\$134,560*	\$230,340*

*Includes \$37,000 of incentives for engineering services or equipment.

- 3) Training and Workshops: Includes general asset manager/operator training and site-specific operator training.

	CEE	HDMC	Total
1/99 - 6/99	\$6,940	\$0	\$6,940
7/99 - 6/00	\$2,800	\$11,340	\$14,140
Task Total	\$9,740	\$11,340	\$21,080

The Multifamily Program requests additional training support from the Wisconsin's Focus on Energy Training Administrator, the Energy Center of Wisconsin, in the form of direct services and/or financial support. A total budget of \$40,000 is requested for operator training workshops and the production of an educational software CD.

- 4) Water Savings Kits: A free package of low cost water savings products, including a low-flow showerhead and kitchen and bathroom aerators, will be used as incentives when recruiting new participants in the Facility Management Program. The free kit includes both products and installation in the tenants apartments.

	CEE	HDMC	Total
1/99 - 6/99	\$0	\$1,200	\$1,200
7/99 - 6/00	\$0	\$23,800	\$23,800
Task Total	\$0	\$25,000	\$25,000

- 5) Energy and Equipment Tracking: This includes monthly tracking of utility bills, equipment maintenance and purchases, scheduled reporting, and exception reporting to alert managers to problems and opportunities as they arise.

	CEE	HDMC	Total
1/99 - 6/99	\$6,280	\$3,600	\$9,880
7/99 - 6/00	\$6,760	\$122,200	\$128,960
Task Total	\$13,040	\$125,800	\$138,840

- 6) Contractor/Vendor Workshops: Includes contractor education, awareness of the Facility Assessment service, and replace-on-failure equipment selection recommendations to local building owners.

	CEE	HDMC	Total
1/99 - 6/99	\$3,920	\$2,400	\$6,320
7/99 - 6/00	\$3,820	\$9,600	\$13,420
Task Total	\$7,740	\$12,000	\$19,740

The Multifamily Program requests additional training support from the Wisconsin's Focus on Energy Training Administrator, the Energy Center of Wisconsin. A total budget of \$10,000 is requested for logistical support to be provided directly by the Energy Center of Wisconsin.

Additional funding or services may be available from separate Focus contractors that will provide coordinated marketing and training services to all Focus programs. The requested funding or services are not included in the budget because availability is not known. Although the proposed co-payment of \$300 per Facility Assessment will potentially generate \$55,500, it is not included in the budget because the final co-payment amount will not be determined until the market research and initial delivery have been completed.

Total Budget for Focus Rental and Multi-Tenant Program

	CEE	HDMC	Total
1/99 - 6/99	\$120,140	\$28,210	\$148,350
7/99 - 6/00	\$36,160	\$300,490	\$336,650
Project Total	\$156,300	\$328,700	\$485,000

Requests to Training and Marketing Administrators

Additional support in the form of services or funding is requested from the Focus Training and Marketing Administrators. The table below outlines the estimated cost of the requested support from each administrator.

Support from the Marketing administrator is requested in the form of development, graphic design, and printing of marketing literature pieces and print advertisements, as well as design and production of a trade show display. Funds are requested from the Training administrator to provide logistical support and funding for training and workshops for building operators and contractors, as well as the production of an educational software CD.

Requests for Support from Other Focus Administrators

Marketing (assistance)	\$5,000
Training (funding)	\$50,000
Total Support	\$55,000

Co-Payments and Incentives

Project incentives consist of \$37,000 for building owners/managers. The owner/manager incentives will provide an average of \$200 per building for follow-up engineering analysis, bid specification, installation, and/or commissioning of cost-effective energy savings retrofits. These are listed in Tasks 2 and 4 in the Budget.

Building owner/manager co-funding of up to half the cost of the *Facility Assessment* and *Energy and Equipment Tracking* services will be considered in the program design. Such co-funding would both allow the pilot program to provide more complete services to more units and it would provide a clearer indication of the private-sector marketability of the Multifamily Facility Management Program.

Schedule

The schedule shown in Figure 2 outlines task activities through the term of this program in June 2000. The responsible organizations include CEE, HDMC, WECC and ECW (the Energy Center of Wisconsin).

Figure 2. Facility Management Program development and delivery schedule.

Organization and Task		1st Quarter 1999	2nd Quarter 1999	3rd Quarter 1999	4th Quarter 1999	1st Quarter 2000	2nd Quarter 2000
All	Finalize program design & meet with marketing and evaluation administrators	■					
CEE	Development of facility assessment & energy/equipment tracking procedures and software	■	■	■			
	Market Research and Development of marketing plan, materials, etc.	■	■	■	■	■	■
	Provide training & Ongoing support for facility assessments and energy/equipment tracking			■	■	■	■
HDMC	Market research & Program delivery marketing	■	■	■	■	■	
	Training & Facility assessments, energy/equipment tracking and shared savings		■	■	■	■	■
	Installation of water savings kits					■	■
	Contractor/vendor market transformation efforts		■	■	■	■	■
ECW	Logistical support for contractor workshops			■	■		
	Logistical support for building operator & manager workshops					■	■

Note: The gray areas indicate limited activities.