

# **Wisconsin Focus on Energy's Apartment and Condo Efficiency Services Program**

*Carter Dedolph, Wisconsin Energy Conservation Corporation*

## **ABSTRACT**

Wisconsin Focus on Energy's Apartment and Condo Efficiency Services Program specializes in the implementation of energy efficiency measures for new and existing multi-family buildings. Apartment and Condo Efficiency Services is one of the major programs of the Focus on Energy's Residential portfolio and interacts with both the Business and Renewable Energy Programs. The multi-family program provides a full compliment of both prescriptive and custom measures.

The Existing Buildings component provides technical information, energy assessments, and facilitation of energy efficiency improvements for owners and managers of existing buildings directly or through contractors. Energy assessments result in grant proposals that include energy savings estimates and available rewards to owners/managers based on our calculations/models. Among the program's objectives are to work with various markets in recruiting and supporting contractors who propose the installation of energy-efficient equipment as an option. Also, the program provides In-Unit Direct Installation of CFLs and low flow showerheads and aerators to qualified existing buildings.

The New Construction component of the program facilitates the inclusion of energy efficient measures and designs for new multi-family buildings. Program projects range from four to four hundred unit buildings. This program focuses on the owners/ developers, design and construction community including architects, engineers, contractors and suppliers.

The natural gas savings portion of the program is considerably more challenging than the electric component. Through a combination of targeted marketing, creative incentive offerings, and education of market providers on the Program's offerings, we were able to achieve our savings goals.

## **Introduction**

Wisconsin Focus on Energy's Apartment and Condo Efficiency Services Program specializes in the implementation of energy efficiency measures for new and existing multi-family buildings. Apartment and Condo Efficiency Services is one of the major programs of the Focus on Energy's Residential portfolio and interacts with both the Business and Renewable Energy Programs. The multi-family program provides a full compliment of both prescriptive and custom measures.

Multi-family energy efficiency programs face barriers that other sectors do not encounter. Split incentives (owners lack incentives to implement energy efficiency measures when tenants pay the bills) are always a consideration in the decision making process. The natural gas savings portion of the program is considerably more challenging than the electric component. Through a combination of targeted marketing, creative incentive offerings, and education of market providers on the Program's offerings, we were able to achieve our savings goals.

## **Focus on Energy Background**

Focus on Energy is Wisconsin's statewide energy efficiency and renewable energy program, which was created in 1999 and expanded in 2005. The program is ratepayer funded, with investor-

owned utilities being required to participate and municipal utilities and electric cooperatives having the option to participate or offer their own programs. The aim of the program is to increase Wisconsin's energy independence by helping residents and businesses implement efficiency and renewable energy projects that would not otherwise occur.

The Focus on Energy program serves:

- Residential customers, including single and multi-family buildings and homeowners as well as renters
- Businesses, including farms, industrial, commercial, school, and government facilities
- Cities and community groups that want to improve their sustainability

Focus on Energy is a public benefits program with a Program Administrator and several subcontractors utilized for implementation. The Wisconsin Public Service Commission provides oversight of the Program Administrator. More than 54,000 businesses and 834,000 residents have participated in the program from 2001 to 2007.

Focus on Energy provides both technical and financial assistance. Technical assistance includes industry specific experience and access to unbiased experts that identify opportunities and help quantify the benefits. Incentives include cash-back rewards on specific purchases, custom incentives, and cost-sharing on assessments and feasibility studies.

## **Apartment and Condo Efficiency Services Background**

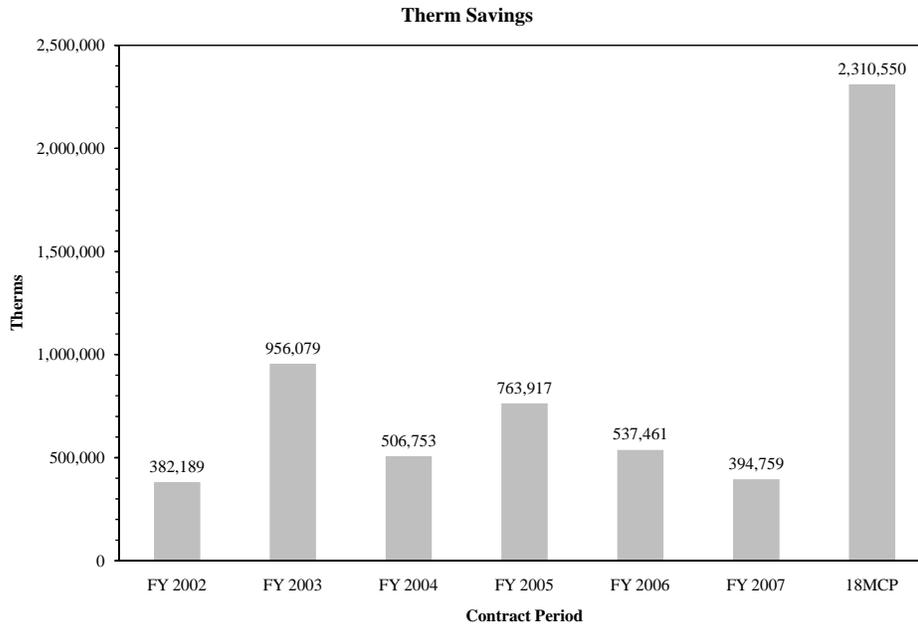
Focus on Energy's program portfolio has always included multi-family buildings, first as a pilot program then as a statewide initiative. The Apartment and Condo Efficiency Services Program is offered through the Residential Programs along with the market based ENERGY STAR Program for lighting, water heating and Heating Ventilation Air Conditioning (HVAC) products, the Targeted Home Performance Program for income qualified customers, the Home Performance with ENERGY STAR Program for existing 1 to 3 unit residences, and the Wisconsin ENERGY STAR Homes Program for new 1 to 3 unit residences.

The Apartment and Condo Efficiency Services Program works with multi-family buildings 4 units and greater. Started in 2001, the program initially worked with existing multi-family buildings, expanding in 2003 to include multi-family new construction.

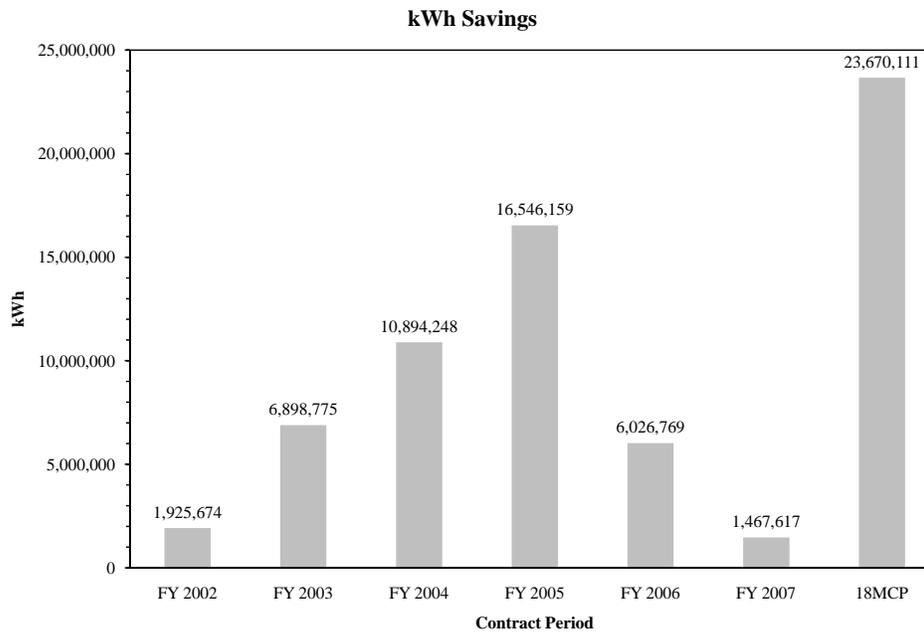
From its inception in 2001 through the end of December 2007, the Apartment and Condo Efficiency Services program produced cumulative savings of over 50.8 GWh of electricity and 4.2 million therms of natural gas. The program's New Construction component contributed over 6.9 GWh and 600,000 therms to those savings amounts. In addition, the New Construction Program has provided assistance to over 150 buildings representing over 3,000 residential units.

The Program's historical therms and kwh savings are shown in Figures 1 and 2 respectively. During Fiscal Years 2006 and 2007, the budget for Program was cut with the corresponding reduction in savings. The current contract period 18MCP (18 Month Contract Period) has seen a considerable increase in the savings goals to historical levels for the Apartment and Condo Efficiency Service Program.

Within Focus on Energy's Residential Portfolio, the Apartment and Condo Efficiency Service Program contributes 54% of the therms savings compared to 13% for the next largest program. Additionally, the Program contributes 17% of the kwh savings second behind the ENERGY STAR Lighting Program's 68%. The multi-family sector is a major contributor to the Residential Portfolio of Wisconsin's Focus on Energy.



**Figure 1.** Historical Therms Savings for the Apartment and Condo Efficiency Services Program



**Figure 2.** Historical Kilowatt Hour Savings for the Apartment and Condo Efficiency Services Program

## **Multi-family Rental Housing in Wisconsin**

Multi-family housing in Wisconsin is concentrated in the southern and eastern parts of the state with the large population centers. A quarter of Wisconsin's residents live in rental housing. Wisconsin's 658,000 rental housing units represent 24% of the total housing units in the state. Buildings with 1-4 rental units make up over 50% of the rental buildings. While large rental buildings, 5 units and greater, make up only 8% of the rental buildings, the number of rental units those buildings contain is close to 50% of the total rental units. This summary is for rental housing only and does not include condos. There is not an accurate characterization study for condos in Wisconsin.

Natural gas dominates as the fuel of choice with 85% for small buildings, but declines to 60% for large (20 plus) buildings. Electricity is the other major heating fuel. In smaller rental buildings forced air furnace is the major type of heating system. As the number of units increase in the building, forced air furnace is replaced with hydronic boiler and electric resistance heating systems. 25% of the natural gas buildings are master metered compared with 6% electricity master metered buildings.

Most rental units in Wisconsin use individual cooling systems. In single unit rental buildings, 63% of them have air conditioning compared to 90% in 20 unit plus buildings.

Water heating is done with mostly natural gas. As the number of units increase, central systems become the predominate type of water heating system as individual systems decrease in frequency.

Lighting in unit and common area is still dominated by incandescent bulbs. In common areas, CFLs account for 25% of the bulb types. In-unit counts show only 3% of the tenants use CFLs. (ECW 2005)

In Wisconsin, a survey of owners and tenants found that the primary barriers to owners implementing energy efficient measures are:

- Financial constraint (43%)
- Lack of interest because the building is already energy efficient (35%)
- Lack of time (18%)

Overall, tenants are more interested in energy efficiency (77%) than owners (40%). The owner's top concerns are maintaining high occupancy rates, keeping up with building maintenance, and maintaining administrative paperwork. The most telling result of the survey is that owners and tenants believe that most of the responsibility of saving energy falls on the other (ECW 2002).

## **Program Delivery**

The Apartment and Condo Efficiency Services has three components to the program: Existing Buildings, New Construction, and Direct Install.

### **Existing Buildings**

The existing buildings component of the program offers a full range of energy efficiency measures to owners and property managers, from lighting to large central HVAC systems. A team of contracted consultants (Energy Advisors) are located throughout Wisconsin. The Energy Advisors provide no cost building assessments to determine a building's energy usage, potential savings, and potential program cash incentives for implementation. The steps involved with custom measures for an existing building are as follows:

- Owner/Manager contacts Focus on Energy
- Owner/Manager is put in contact with an Energy Advisor in their area

- A no cost building site assessment is schedule
- The site assessment is performed
- Recommended energy efficient measures provided in Grant Proposal with approximate savings and incentives
- Owner/Manager signs Grant Proposal committing the Program funds for the project
- Owner/Manager has specific work performed
- Owner/Manger provides invoices
- Focus on Energy may verify that measures are in place
- Focus on Energy issues the incentive check

## **New Construction**

Interest in pursuing energy efficiency for a new construction project by an owner/developer, architect, or contractor is the starting point for the New Construction Program. A project's initial contact with the program occurs by: recruiting by Focus on Energy staff, referral by a Technical Assistance Firm, referral by a participating utility, information from marketing campaigns, or past program participation by the owner/developer, architect, or contractor.

After the project passes the screening criteria, the appropriate track for the project is determined. The possible paths are prescriptive track, custom whole building track, or a combination of the two tracks. Making the decision on the appropriate track is done by the program staff with input from the owner, design team, and Technical Assistance Firm.

For a project that follows a prescriptive track, the next step is for the owner to fill out an application to participate. This application records general information about the owner/developer, the project, and the project team. After the measures are implemented, the owner/developer provides verification that the measures are in place by completing a self administered form. For implementation verification, there are monetary thresholds that the program requires for pre approval with no site verification, pre approval subject to possible site verification, and pre approval with site verification.

For a project meeting the requirements of the custom whole building track, a Technical Assistance Firm is assigned by the program staff. The first project meeting between all the parties is the Initial Meeting, during which the New Construction staff and the Technical Assistance Firm present the Focus on Energy program and project's initial potential to the owner/developer, their design team, and contractors. This meeting is also the opportunity to determine the commitment the project owner/developer has to energy efficiency, and to present to the project team the realistic energy efficient measures and their monetary implications on the project's construction budget.

After the Initial Meeting, the Technical Assistance Firm develops a list of feasible measures that the owner/developer might implement for their project. Along with the measures, there is an estimate of energy savings and return on investment for the project. At this stage of the process, the measures are only a list of feasible items and estimates of savings are rough.

The Measures Meeting is the next stage in the process. At this meeting, the Technical Assistance Firm presents the feasible measures and rough savings calculations. The owner/developer has the opportunity to ask the Technical Assistant Firm questions about the different energy efficient measures. Either at this meeting or afterwards, the owner/developer makes their decision on which measures to proceed with for energy modeling.

The Technical Assistance Firm models the building using energy modeling software that they are familiar with and is appropriate for the project. The New Construction Program's baseline requirements for a specific building type are used for the modeling. The savings are developed from the difference between the model and the baseline. From those savings, an incentive is calculated.

At the Measures Proposal Meeting the modeling results, savings, and incentives are presented to the owner/developer and their design team. This step may take several iterations involving changes in the measures as the owner/developer determines the appropriateness for their project. After a model is accepted by the owner/developer, a signed agreement between the owner /developer and Focus on Energy is completed committing funds to the project for implementing the energy efficiency measures.

As a project is constructed, verification of implemented measures is required by the New Construction Program. This verification occurs at several points in the construction process dependent on the measures, for example prior to close in for insulation levels. After measure verification is complete, the owner/developer receives their incentive check from Focus on Energy.

## **Direct Install**

The Direct Install process starts with the owner/manager calling the manager of the Direct Install program. During that conversation, the limitations and appropriateness of the direct install products are presented. For example, the CFLs that the Program installs might not fit in a ceiling fan or be visually appealing in a bathroom vanity situation. A date and time are set up for an install team to install the CFLs and low flow measures. The Program provides the owner/manager with a generic announcement to post prior to the installation. The Program also provides a form for the tenants to leave on their door so they are able to request specialty installations such as a handheld showerhead. When the install team completes a unit they provide two leave behinds for the tenants, one describing the amount energy and water saved with the low flow technology and the other discussing CFLs and two coupons for future CFL purchases.

## **Energy Efficiency Measures**

The Apartment and Condo Efficiency Services program offers two types of incentives to the Owner/Managers: prescriptive and custom. The measures across all the program areas fall into the following categories:

- Air Conditioning
- Appliances
- Building Shell
- Controls
- Heating
- Heating and Cooling
- Heating and domestic Hot Water
- Lighting
- Motors
- Ventilation
- Water Heating – Central
- Water Heating - Individual

## **Prescriptive Measures**

Prescriptive measures are “simpler” or “do-it-yourself” types of measures. These measures are on a per unit basis, for example \$25.00 for an ENERGY STAR clothes washer. An application form for prescriptive measures is filled out and a copy of the equipment invoice is sent with for verification.

This type of measure is cost effective from the program’s point of view because there is little labor expended on the savings.

### Custom Measures

Custom measures are unique to a certain building. These measures require an Energy Advisor to do a site assessment to determine the situation. An example of a custom measure is the replacement of an old 80% efficient boiler with a new 90% high efficiency boiler. The building size, location, old equipment, and new equipment are all used to determine the energy saved and the amount of the incentive that the Program can provide. Custom measures provide the most therms per project, but require a large amount of work from the Energy Advisor. The Program rewards custom measures using a tier approach. Prior to this program year, many projects only implemented one measure category. To avoid this situation, we implemented the tiered approach to encourage multiple measure categories per project.

**Table 1.** Program Incentive Levels

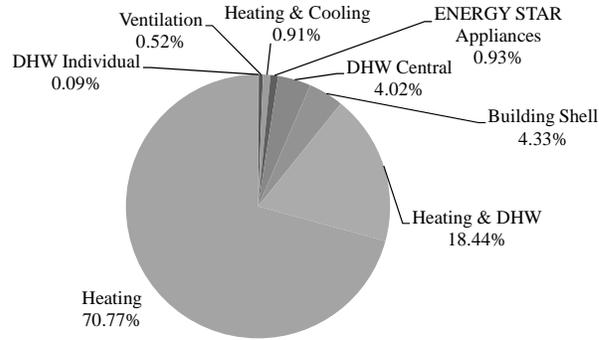
Program	Existing Buildings	New Construction	Direct Install
Tier 1 Incentive (one category)	\$0.04/kWh, \$125/kW, and \$0.40/therm	\$0.04/kWh, \$125/kW, and \$0.40/therm	8 CFLs, 1 showerhead, and 2 faucet aerators
Tier 2 Incentive (multiple categories)	\$0.06/kWh, \$200/kW, and \$0.80/therm	\$0.06/kWh, \$200/kW, and \$0.60/therm	
Project Cap (custom)	\$20,000	\$200,000	
Project Cap (prescriptive)	\$20,000	\$50,000	

### Measure Category Frequency

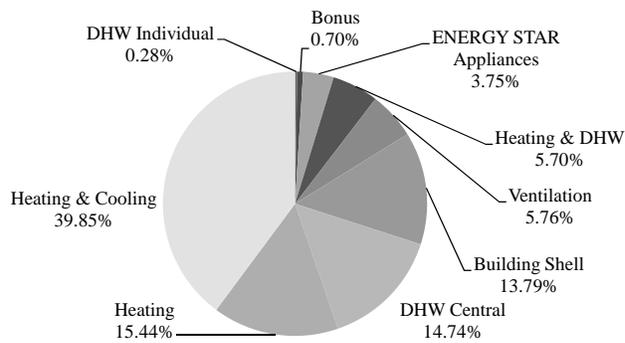
In the current contract period, Figures 3 – 5 show the percentage of the categories that were implemented. Existing Buildings largest therms category is Heating with over 80% of the therms implemented. The Heating category is also the largest for therms in New Construction. Ventilation, Building Shell, and Heating and Cooling are also major categories in New Construction. Direct Install’s major category is Showerheads 1.75 gpm followed closely by Bath Aerators and Showerheads 1.5 gpm.

### Strategies for Measure Implementation

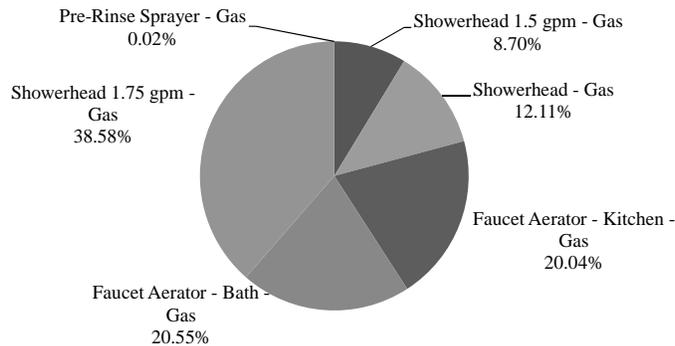
The measures outlined in the previous section may be categorized as static or dynamic. This differentiation is important in meeting savings goals of the Program. In program planning, a certain number of units with an assigned savings value are predicted to be implemented during the contract period. This prediction is difficult with custom measures because we don’t have the conditions of the building and equipment prior to determining savings goals. An example of this situation would be implementing small boilers when the expectation is large boilers. A shortage of therms would require ramping up a dynamic measure. In this case, Direct Install could increase their workload and emphasize projects with natural gas water heating to make up for the therms deficit. This strategy has worked well with boiler tune and cleans. Separate direct mailing campaigns were made to the market



**Figure 3.** Frequency of Therms Measure Categories for Existing Buildings



**Figure 4.** Frequency of Therms Measure Categories for New Construction



**Figure 5.** Frequency of Therms Measure Categories for Direct Install

providers and owners of inspected boilers. 200,000 therms were achieved through this strategy and this helped offset the loss of therms in other areas.

### **Static Measures**

Static Measures are characterized by the attributes:

- Large amount of savings per unit
- Potential small number of units implemented
- Difficult to increase the number of units due to capital investment
- Difficult to ramp up or down
- Measure is the result of planning or equipment failure

### **Dynamic Measures**

Dynamic Measures are characterized by the following:

- Small amount of savings per unit
- Potential large number of units implemented
- Easy sell to the owner or manager
- Easily ramped up or down depending on need
- Easily to manipulate by a direct mailing
- Easily to increase by increase number of field staff

### **Market Provider Driven**

For the Apartment and Condo Efficiency Services program, Market Provider Driven strategy involves paying an incentive to the contractor for installing a high efficiency boiler and or domestic hot water system. The incentive is only available to the contractor if the project is bought into the Program prior to equipment replacement and an Energy Advisor is involved with a site assessment of the building. This arrangement rewards both the contractor for recruiting a project and the owner for replacing the equipment with a high efficiency model. This strategy has proven successful. Certain Market Providers share the incentive with the installers and sales people to encourage increased participation.

### **Incentive Driven**

Incentive Driven strategies involve increasing the incentive levels to a higher tier for a limited time. The theory is that more money will drive the indecisive owner to commit to a measure. The Program increased the incentive level for high efficiency boilers from \$0.80 to \$1.00 for 6 months. This incentive increase was only offered through the Energy Advisors to projects and owners they thought would commit with added financial incentives. Although the increased incentives helped move several projects, it was not used as widely as the Program staff had thought. One possible reason is that if an owner is on the fence about committing, there are external forces that are influencing the decision and \$.20 more per therm is not enough of an increase.

## **Program Promotion**

There are four paths that the Apartment and Condo Efficiency Services Program follow to recruit projects: direct mailings, associations, intra-program, and inter-program.

### **Direct Mailings**

Direct mailing is very successful in recruiting new projects into the Program. The direct mailing campaigns target different groups depending on the measure offering. The groups targeted are: apartment association members, past Program participants, market providers, and specific technology owners.

The direct mailings to the apartment association members target those members that do not realize Focus on Energy has a program for multi-family buildings and have not participated in the program previously. The mailings are general in nature and promote the benefits of energy efficiency from a business point of view of lower operating costs and higher tenant retention through increased comfort and lower utility bills. Also, the mailing provides a brief overview of what the Program can offer and how they contact the Program for their free site assessment.

With past Program participants, we already know the type of technology they have or have not implemented in the past. Using this knowledge, the direct mailing can target a specific group that has shown support in the past, to increase their adoption of additional energy efficiency measures. An example of this is low flow showerheads. In the early years of the Program 2.0 gallon per minute (gpm) showerheads were installed. In the current program year, 1.75 gpm showerheads are the standard. As 1.5 gpm showerheads gain acceptance with better technology, the Program is transitioning to this as the new standard. We have targeted past Program participants who had 2.0 gpm showerheads installed 5 years ago with the Direct Install program offering 1.5 gpm showerheads.

Market providers, HVAC contractors for example, are influential in getting owners or managers to adopt energy efficiency measures. Quite often the contractor is the known quantity to the owner and Focus on Energy program is unfamiliar. In the fall, the Program pushes the boiler tune and clean incentive to the market providers. The emphasis of the mailings to the market providers is to use our incentive as a selling point to their customers. In the case of the boiler tune and clean, the market provider can offer the owner a reduced price on routine maintenance. Market provider mailings are always tied to customer mailings in timing and offerings.

Direct mailings to boiler owners are an example of a campaign tied to market provider mailing and a specific technology. The Program was fortunate this contract year in developing a relationship with the Wisconsin Department of Commerce. In Wisconsin, the Department of Commerce is responsible for the commercial building inspection unit which includes boiler inspections. Wisconsin requires boilers of a specific size to be inspected in non single family residences buildings. A direct mailing was sent out to the owners of multi-family buildings with boilers, alerting them to the tune and cleans measure and that their HVAC contractor could help them with the form. At the same time a mailing went out to the market providers letting them know the specifics of the measure and that their customers would be calling about the measure. The New Construction Team also receives building start information from the Department of Commerce. Using the building application information, the Program contacts the owners and details the program offerings.

## **Apartment and Condo Associations**

The Program has created a visible presence to the various associations in Wisconsin both at the state and local level. Prior to this program year, program staff annually attended between 5 and 10 conferences and local association meetings. Currently, the monthly attendance is between 5 and 10.

At the local apartment association level, the program offers staff to present at their monthly meetings and to provide short articles for their newsletters about energy efficiency. The program staff also presents to meetings of condo association owners. Condo owner association meetings are difficult presentations. The way that the program is structured all owners in the association must agree, not just a percentage, to the implementation of the efficiency measures. If there is not full participation by the owners, the project is treated as a series of single family residences and handed off to the Home Performance with ENERGY STAR Program.

The Apartment and Condo Efficiency Program has informational displays and presents at the larger regional apartment association conferences; Apartment Association of South Central Wisconsin and Southeast Apartment Association of Wisconsin. At the state level, the program helps sponsor and staff attend the Wisconsin Apartment Association, Community Association Institute, and Wisconsin Condo Association conferences. The Program also sponsors the Wisconsin Housing and Economic Development Authority Multi-family Conference. This is also the first year that the Program increased its effort to reach affordable organizations such as the United States Department of Agriculture Rural Housing Authority and the Wisconsin Center for Affordable Rural Housing.

## **Intra-program**

Intra-program promotion involves the different components within the Apartment and Condo Efficiency Services Program: Existing Buildings, New Construction, and Direct Install. If an Energy Advisor has the first contact with an existing building, at the conclusion of the site assessment they will inform the owner or manager of the Direct Install program. An informational sheet is left with the property's manager detailing the savings that they and their tenants could expect with CFLs and low flow water devices and scheduling information. Also during the site assessment, the Energy Advisor mentions the New Construction Program and the opportunities for renewable energy projects if the owner has interest.

The New Construction Program deals with developers that typically have a portfolio of buildings, not just those slated for construction. During the initial proposal phase meeting for the project, the New Construction team emphasizes the opportunities for the owner's existing buildings. Also, the first projects that participated in the New Construction Program are now 5 years old and are candidates for increasing or replacing the original energy efficiency measures.

Often, the Direct Install program is the first contact with a new customer. A building owner or manager is surprised that we offer the Direct Install program at no cost to them for materials or installation. At the end of installation, the Direct Install team discusses the Existing Buildings program to a grateful owner. Behind the scenes, the Direct Install team passes the owner's or manager's contact information to a staff person of the Existing Buildings Program. Also, the direct Install Team leaves a flyer with energy efficiency information in each unit for the tenant. The informational sheet also includes two coupons for two dollars off their next CFL purchase.

## **Inter-program**

Inter-program promotion involves other programs within the Residential Portfolio as well as Business Programs and the Renewable Energy Program. This program year has seen an emphasis

placed on cross program coordination and promotion. Within the Residential Programs, the Apartment and Condo Efficiency Services Program partners with Home Performance with ENERGY STAR Program to deliver a pilot program for 2 and 3 unit rental buildings. This is an underserved market in Wisconsin because in the past it fell between the two programs. The Program is also partnering with Wisconsin ENERGY STAR Homes to provide both building shell measures and prescriptive electrical measures to townhouse style buildings. Again, this is a market that in the past fell between programs' missions. We are also very involved with the Efficient Heating and Cooling Program since the Market Providers for that program are the same as those that work on multi-family buildings.

The New Construction component of the Apartment and Condo Efficiency Services Program is closely aligned with Business Program's New Construction Program for commercial buildings. In an effort to avoid offering duplicate large building new construction programs under Focus on Energy (one for multi-family, one for businesses), it was decided to offer one New Construction Program. Developing one New Construction Program allows both the Apartment and Condo Efficiency Services and Business Programs to target different building sectors using the same internal and external infrastructure. Also, running programs with a different emphasis in parallel under the New Construction Program avoids confusion in the market place. Many of the participants such as architects, contractors, and engineers are involved in both large multi-family and commercial construction.

The Apartment and Condo Efficiency Services Program and the Renewable Energy Program have cooperated on several new construction projects that incorporate solar hot water into their domestic hot water system. Additionally during the initial proposal phase of a project, the New Construction Team provides information to the customer about renewable energy options.

## **What's Next**

As the Apartment and Condo Efficiency Services matures as a program and makes large strides with energy efficiency in Wisconsin's multi-family sector, the question is what's next? All indications are that energy efficiency is a growing industry with expectations of greater deliverable savings in the future. Additionally, with national economic situation and the mortgage crisis, the multi-family sector in Wisconsin is experiencing historically low vacancy rates. The Apartment and Condo Efficiency Services program is looking into the following areas to generate more therm savings in the multi-family area:

Air Sealing – there is very little air sealing, or protocol for multi-family buildings.

Commissioning and Retro Commissioning – are the buildings performing the way we think?

New delivery methods- we are very efficient in our current model, can we do better?

## **References**

Energy Center of Wisconsin 2005. *Energy and Rental Housing A Wisconsin Characterization Study*. 7-22.

Energy Center of Wisconsin 2002. *Multi-Family Needs Assessment Draft Report*. 4-8.