

January 09, 2015

IOWA UTILITIES BOARD

**STATE OF IOWA
DEPARTMENT OF COMMERCE
BEFORE THE IOWA UTILITIES BOARD**

IN RE:

**ALTOONA TOWER CONDOMINIUMS,
LLC, f/k/a IRONWOOD
DEVELOPMENT, LC**

And

**PROFESSIONAL PROPERTY
MANAGEMENT, INC.**

WRU-2014-0013-0004

DOCKET NO.

REQUEST FOR WAIVER AND APPROVAL OF PILOT PROJECT

Altoona Tower Condominiums, LLC, formally known as, Ironwood Development, LC (“ATC”) and Professional Property Management, Inc. (“PPM”) (collectively the “Petitioners”), pursuant to 199 IAC 1.3, request that the Iowa Utilities Board (“Board”) issue an order temporarily waiving the provisions of 199 IAC 20.3(1)(b) and approving the implementation of the following Altoona Towers Master Meter Pilot Project (the “Pilot Project”). In support of this request, the Petitioners state as follows:

I. BACKGROUND

ATC owns the Altoona Towers multifamily housing project under construction on Adventureland Drive in Altoona, Iowa (“Altoona Towers”). Altoona Towers is comprised of 2 buildings containing 103 residential apartment units plus 17 corporate apartments for a total of 120 apartment units. PPM manages the apartments located at Altoona Towers. ATC and PPM are both owned solely by the property developer, Keith Denner.

Petitioners wish to implement a number of energy efficiency strategies in Altoona Towers. Such strategies include, among other things, high performance windows, sliding glass doors and building insulation systems; high efficiency LED and fluorescent lighting systems and controls; installing high efficiency appliances, supplying high performance fluorescent and LED lighting to tenants; installing high efficiency mini-split air source heat pumps for residential apartments; and providing low water flow showerheads and aerators in kitchen and bathroom sink faucets. See Technical Report attached as Exhibit B to Petitioners' Waiver Request. However, Petitioners have found that the initial construction costs associated with implementing the above energy efficient strategies to be substantial. As a result, Petitioners requested that they be allowed to use master metering at Altoona Towers. Master metering, as discussed more fully below, would allow the energy savings associated with high energy efficiency strategies to be enjoyed by the Petitioners, rather than the tenant. Moving the energy savings to the Petitioners, would allow the Petitioners to recover their costs associated with installing the energy efficiency strategies in Altoona Towers. Accordingly, on September 11, 2014, Petitioners filed a Waiver Request with the Iowa Utilities Board ("Board") requesting a permanent waiver of 199 I.A.C. 20.3(1)(b), which prohibits master metering of multi-occupancy premises.

On September 30, 2014, the Office of Consumer Advocate ("OCA") responded to Petitioners' waiver request. In its response, the OCA found that Petitioners had "presented sufficient evidence and justification to find that the requirements for a waiver set forth at 199 IAC 1.3 have been satisfied." On October 1, 2014, MidAmerican Energy Company ("MidAmerican") filed a Response to Petitioners' Waiver Request. In its

Response, MidAmerican requested that Petitioners provide more information about a number of issues, including how master metering makes energy conservation features more feasible than individual metering and how energy savings will be measured. On October 8, 2014, Petitioners responded to MidAmerican's Response, providing further explanation regarding the energy conservation features of its proposed master metering arrangement.

On October 29, 2014, the Board subsequently issued an Order requesting additional information regarding Petitioners' proposed master metering at Altoona Towers. On November 7, 2014, Petitioners filed a Response to the October 29 Order and provided additional information about Petitioners' proposed master metering at the Altoona Towers facility. Petitioners also requested that the parties hold a conference at the Board's location to answer any additional questions or address any additional concerns that the Board or MidAmerican had regarding its request for a waiver. On November 13, 2014, the parties held the requested conference. At the conference, it was agreed by all parties, including IUB staff and MidAmerican, that Petitioners, with the agreement and consent of the OCA and MidAmerican, would submit a proposal for a pilot project regarding Altoona Towers. The parties also discussed an appropriate rate to be used for billing Petitioners' energy usage at Altoona Towers.

Pursuant to the parties' agreement, Petitioners hereby submit the following preliminary Altoona Towers Master Metering Pilot Project (the "Pilot Project"). The Petitioners and MidAmerican have not yet agreed to an appropriate rate structure to be applied to the Pilot Project. The parties will supplement this submission with information

regarding a proposed rate at a later date. Both the OCA and MidAmerican agree and consent to the following preliminary draft of the Pilot Project.

II. THE PILOT PROJECT

A. OBJECTIVES OF THE PILOT PROJECT

There are two objectives of the Pilot Project: (1) Determine whether comprehensive energy efficient building design, operation and maintenance metered under a master meter provides an effective solution to the “split incentive” issue for multifamily residences; and (2) Address whether tenants’ energy consumption is influenced when the electric utility cost is included as an unidentified portion of the rent. Each of the above objectives is discussed in more detail below. The parties may supplement the Pilot Project with additional objectives at a later date.

1. The Split Incentive Problem.

It has long been recognized that achieving energy efficiency savings in rental housing presents unique challenges. In a rental housing situation, a tenant does not furnish his or her own fixtures and appliances and therefore has no opportunity to purchase energy efficient appliances and fixtures and is not responsible for properly maintaining the appliances and fixtures. The property owner may not have incentive to purchase the higher priced energy efficient appliances or properly maintain such appliances because any energy savings from the more efficient appliances is enjoyed by the tenant. Unless in the unlikely event that the tenant fully recognizes the value of the lower energy use offered by a more efficient property and is willing to pay a higher rent as a result, the property owner is unable to recover the costs associated with lower energy use. As a result of this split incentive between the tenant and property owner,

energy efficient appliances and fixtures are not installed in multifamily housing developments and maximum energy conservation is not achieved.

Allowing master metering addresses the disincentive to the property owner to invest in energy efficiency by allowing the energy savings achieved by more energy efficient strategies to be recovered directly by the property owner. In particular, master metering would meter the energy use for the entire residential complex. The energy bill would then be paid for by the property owner. Because the property owner is financially responsible for the tenants' energy use, the property owner has incentive to install energy efficient strategies and properly maintain appliances and fixtures.

Specifically, in this case, the Petitioners would invest \$292,050 to purchase and install the energy efficient equipment, Energy Star appliances and other energy conservation features. The Petitioners would receive a \$103,815 MidAmerican incentive, but receive no direct payback since the energy savings (a potential of approximately \$30,219 per year) would be under the tenant meter. This scenario is not economically favorable for the property owner, and it is to the property owner's economic advantage to avoid the additional construction cost by installing standard efficiency appliances and equipment described under the baseline scenario. Under master metering, however, the property owner would pay the energy bill and accrue the savings to offset the additional upfront cost of installing the higher efficiency appliances and equipment. This is the much more economically feasible option for the property owner.

Although Petitioners believe that the total energy use will be less for a comprehensive energy efficient apartment building design even though the tenant will

not be individually metered and billed, there have been no studies or programs which have compared the above scenario with apartment buildings where tenants are directly responsible for the energy bill. The Pilot Project will consider and gather data regarding whether shifting the incentive to the property owner results in net energy savings despite the fact that the tenant will not be aware or financially responsible for his/her individual energy use through individual metering.

2. Tenant Behavior

The implementation of master metering as proposed in this Pilot Project will eliminate the tenants' financial responsibility for their energy use, and will therefore eliminate any direct financial incentive for tenants to manage their energy use. In order to address this concern, Petitioners are going to implement a number of educational programs regarding energy conservation to educate tenants regarding their own energy use. In addition, the Pilot Project will gather data regarding tenant energy use under master metering to allow for comparisons to be made to non-master-metered properties.

B. DESCRIPTION OF THE PILOT PROJECT

1. Goal of the Pilot Project

The fundamental goal of the Pilot Project is to determine if the master metering of energy efficient multifamily housing projects provides a cost effective solution to the "split incentive" issue. It is the intent of the Petitioners to provide an energy efficient, privately developed, multifamily apartment building that reduces overall energy use by as much as 35% - 40% as compared to the baseline reference points defined below.

2. Energy Efficiency Strategies Implemented at Altoona Towers.

The energy efficiency strategies that will be implemented at the Altoona Towers are as follows:

a. Energy Efficiency Strategies for the General Service Areas

- An exterior wall assembly with various materials, configurations and wall finishes increase the importance of wall thermal performance. Thermal and moisture integrity for the building envelope is maintained by a wall sheathing system with integrated moisture and air barrier (trade name 'ZIP System Sheathing').
- An open cell spray foam insulation system fills the 2x6 wood framed wall cavity resulting in a wall assembly thermal resistance approaching R-20. The spray foam insulation system effectively seals any wall openings, essentially eliminating infiltration and air migration through the wall and increasing the effectiveness of the insulation R-Value.
- High performance vinyl casement windows with low-e insulating glass and exceeding Energy Star requirements with a U-Factor of 0.27; Solar Heat Gain Coefficient (SHGC) of 0.25 and 0.44 visible transmittance. Casement type windows with latch compression seals have the lowest operational leakage ratings of operable window types. The outward swing casement windows also increase natural ventilation and are easy to monitor externally for problems or inappropriate operation.
- Design sliding glass doors with low-e insulating glass exceeding Energy Star requirements with a U-Factor of 0.28; SHGC of 0.32 and 0.59 visible transmittance.
- The integrated wall sheathing system, spray foam insulation system, low air leakage windows and sliding glass doors and quilted window shades contribute to tightly sealed building envelope with extremely low air infiltration.
- Stepped daylighting control of lights in stairwell landings and occupancy control of lights in offices, public spaces, restrooms, laundry rooms, storage areas, fitness areas and other common use areas.

- High performance linear fluorescent and LED lighting to provide low lighting power densities for public spaces.
- High Efficiency air source heat pumps serving the community room, fitness center and other common areas with a 16 SEER and 9 HSPF rating.
- Total heat recovery ventilation system providing fresh air and exhaust air for the fitness center operating at 65% sensible and 65% latent effectiveness.
- Domestic water heating with a centralized, condensing high efficiency boiler coupled with an indirect heat exchanger/storage tank system. The system operates at 92 to 94% efficiency.
- Low water flow showerheads and low flow aerators on kitchen and bathroom sink faucets reduce water heating energy and save water.
- Building elevators with energy efficient regenerative drive systems reduce energy consumption.

b. Energy Efficiency Strategies for the Residential Apartment Units

In addition to the exterior wall assembly, open cell spray foam insulation system, high performance vinyl casement windows with low-e insulating glass, and design sliding glass doors with low-e insulating glass discussed above, the residential apartment units will have the following energy conservation strategies.

- Attic blown-in insulation system provides an R-50 insulation value over residential apartment unit ceiling areas in contrast to the R-37 energy code requirement.
- Apartment lighting using linear and compact fluorescent lamps as well as LED solid state lighting to achieve a low lighting power density of 0.43 watts per square foot; about 70% less than typical residential lighting power densities.
- High efficiency, inverter driven, variable capacity, ducted mini-split air source heat pump systems provide heating and cooling for the residential apartments at an HSPF of greater than 11 and SEER of 20 at part load conditions.

Performance ratings are over 40% better for cooling and 26% for heating. Heat pumps also have a fan energy rating of 0.17 brake horsepower per 1000 CFM capacity – 45% less fan operating energy than standard fan systems.

- Energy Star qualified low energy bathroom exhaust fan with occupancy sensor control and integrated LED lighting. These fans would be six times more efficient than a standard fan.
- A full complement of Energy Star appliances for each residential apartment: Refrigerators rated 20% better than NAECA; Clothes washers with a 2.4 MEF; and Dishwashers rated at 275 kWh/yr or 22% over NAECA.
- Energy Star rated ceiling fan and light assemblies for the residential apartment units.

c. Supplemental Energy Efficiency Strategies

- Retractable insulating quilted window coverings for all residential apartment unit windows and sliding glass doors reduce infiltration and glass transmission energy losses.
- Reduced building infiltration and air migration resulting from continuous spray foam insulation systems; air and moisture barriers placed in ceilings and walls; extensive caulking and sealing of building joints and wall/ceiling penetrations; and slightly positive building pressurization from outside ventilation air inlets. These measures all serve to tightly seal the individual apartments and substantially reduce outside air leakage.
- Upgrading to an Energy Star Qualified Bathroom Exhaust Fan 4 watt nightlight with a 0.8 watt LED nightlight.
- Ventless clothes dryers for each residential apartment unit condense the moisture in the airstream exiting the dryer, discharging the moisture into the washer standpipe and recirculating the air to the space.
- Range with Convection Oven capability which evenly circulates heated air around the food, allowing lower oven temperatures and a 30% reduction in cooking time. This translates to about a 20 to 30% reduction in cooking energy for a convection oven. At this time Ranges and Ovens are not Energy Star rated.

- High efficiency LED Solid State exterior/site lighting is proposed for all facility walkways, parking lots, building security and canopy lighting. The proposed exterior lighting includes ambient light sensor photocells and motion detectors to further minimize lighting energy.
- Water Efficiency strategies including Low Flow Toilets operating at 0.8 gallons per flush; Shower heads at 1.5 gallons per minute flow; and low flow aerators for kitchen and bathroom faucets.

d. Management, Operation and Maintenance Energy Efficiency Strategies

- Provide replacement high efficiency fluorescent, CFL or LED lamps for tenants without charge for the duration of their rental agreement. This would apply to the tenants' personal light fixtures as well as the permanent apartment light fixtures.
- Provide permanent building and apartment light fixtures designed with pin type lamp bases to prevent lamp replacement with standard lamps. This works with the above item to control energy consumption.
- Inspect HVAC equipment and change the heating/cooling equipment air filters four times a year to maintain unit efficiency. Dirty, clogged air filters can result in an energy and performance penalty of up to 15%. Routine air filter replacement by facility maintenance serves to maintain the ultra-high efficiency of the heating/cooling units and extend the life of the equipment.

3. Metering of the Altoona Towers

The Altoona Towers project will have one "master meter" that will collect hourly data on the total electric energy used at the building site. The data collected from the "master meter" will be used by MidAmerican to bill the Petitioners for the energy use and to estimate MidAmerican's relative cost of service for the project.

The Altoona Towers consists of two buildings. Each building will have a general service/house meter to collect data on the energy use for common areas, such as fitness center, laundry, site lighting, and extended stay apartments.

Each of the individual apartments will be individually metered for the collection of data regarding individual tenant behavior. Specifically, MidAmerican will place non-billing electric meters on each individual apartment unit to measure monthly electric energy use.

MidAmerican will collect and analyze data from the individual meters on a monthly basis and make such data and analysis available to the Petitioners for use as part of the Education Programs.

4. Education Programs.

The Petitioners will implement the following educational programs:

a. Tenant Handbook – The Tenant Handbook will contain information regarding the energy efficiency strategies implemented at Altoona Towers and will provide tenants with ideas and tips regarding how to conserve energy.

b. Quarterly Reports – Petitioners will provide a quarterly newsletter to each individual tenant. As part of the quarterly newsletter, Petitioners will communicate to the tenants information received from MidAmerican regarding tenant energy use.

c. Semi-annual Meetings – Petitioners will hold a semi-annual tenant meeting where they will discuss energy efficiency and provide information regarding how tenants can maximize the efficient operation of the equipment in their apartment homes and answer any questions. MidAmerican will be invited to attend such meetings. To increase attendance, Petitioners will provide food and beverage and recognize the most efficient tenants as discussed below.

5. Reporting

MidAmerican will annually submit a confidential report to the Petitioners. After Petitioners review and comment on the report, the Petitioners will submit the confidential report to the Board regarding the energy used by the tenants and Petitioners' conservation efforts, for the duration of the Project. Petitioners expect that Altoona Towers will be 90%-95% occupied by June 1, 2015. The Petitioners will submit the first annual report to the Board on June 1, 2016. The confidential report will contain the following information:

a. Tenant Information – (by Petitioners)

The report will contain general background information regarding the tenant population.

b. Data and Analysis– (by MidAmerican)

i. *Data Collected*

The following data will be collected by MidAmerican:

1. Total project hourly load data to be used in estimating cost of service
2. Individual tenants' monthly energy consumption
3. Data regarding weather

The above data will be collected and analyzed by MidAmerican and the report will contain, at a minimum, the following information:

1. The average monthly energy use by the tenants based on apartment size and number of occupants;
2. Energy use comparison to the baseline references discussed below.

3. A comparison of the average hourly load profile of the Altoona Towers with the average of rental properties contained in MidAmerican's load research sample.

- ii. *Baseline*

The data obtained from tenant meters will be compared to several baseline references. The first baseline reference will consist of the building energy system criteria that conform to current versions of the State of Iowa Energy Code; ASHRAE Energy Standard 90.1 and National Appliance Energy Conservation Act. Actual energy use will be compared to a baseline of predicted energy use as determined by standard energy estimating methods and adjusted for weather, occupancy, and non-assigned energy loads. MidAmerican will also compare the data obtained from the individual tenant meters with data obtained from other multi-family residences in the Des Moines, Iowa metro area as provided and analyzed by MidAmerican.

- c. Educational Programs – Finally, Petitioners will provide a summary and documentation of the educational programs it provided to the tenants during the reporting year. Other than the first annual report, the Petitioners will also provide a comparison of the Altoona Tower's average tenants' baseline energy use during the reporting year as compared to the previous years. The purpose of this analysis is to determine whether the educational programs provided by the Petitioners have had any effect on the tenant's behavior.

III. SUMMARY AND CONCLUSION

The Altoona Towers Apartment Complex is the most energy efficient multi-family housing project built in Iowa to date. However, the energy efficiency strategies

discussed above will not be financially feasible in future projects unless the property owner can recoup the higher initial upfront costs associated with implementing such energy efficiency strategies. The Pilot Project will allow all parties to gather data and to determine whether master metering is an effective solution to the split incentive barrier between the property owner and the tenant and whether the energy efficiency strategies discussed above result in energy savings even though the tenants are not financially responsible for their electric usage. It will also provide insight on tenant motivation and tenant behavior as it relates to energy consumption.

MidAmerican and the Office for Consumer Advocate have both reviewed and offered comments regarding the Pilot Project. All parties have consented to the preliminary Pilot Project as set forth herein. However, other sections of this Pilot Project may be revised and/or supplemented. The parties will work in good faith to submit additional or supplemental information by February 27, 2015.

WHEREFORE, Altoona Towers Condominium, LLC, formally known as, Ironwood Development, LC and Professional Property Management, Inc. request that upon the complete submission of the Pilot Project, the Board issue an order granting Applicant's Request for Approval of the Pilot Project and order that the first annual report regarding the Pilot Project be submitted to the Board on June 30, 2016.

Dated: January 9, 2015.

Respectfully submitted,

/s/ Rachel T Rowley

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