



MEMORANDUM

TO: Low Income Consumer Advisory Task Force

FROM: Liz Jambor, Manager, DABI

DATE: July 17, 2015

SUBJECT: Multifamily Retrofit Report

Summary

In 2014, a paper, "Hard to Reach Markets: Delivering Comprehensive Retrofits in the Multifamily Sector", was submitted to the American Council for an Energy Efficient Economy (ACEEE) covering work in the multifamily segment performed as part of the Better Buildings grant. This paper was written with the sole purpose of sharing the unique efforts undertaken, and experiences gained, when providing comprehensive retrofits in multifamily communities. The development of the paper, from data gathering and analysis, to report writing and presentation, required the work of 3 grant employees, covering over 150 staff hours. The final result was a well-accepted presentation at the 2014 ACEEE Summer Study Conference as well as the electronic publication of the paper by ACEEE. The paper was never designed to be an ongoing report, but rather to share some of the grant experiences with others in the utility sector.

The LICATF has requested further information regarding this report. While we will not be updating the paper, we can provide information regarding the properties that were upgraded through the Better Buildings efforts as compared to similar properties. This information demonstrates the impact of the efficiency improvements. It also coordinates the information with the ongoing rebate/rent impact report provided to Council via Resolution No. 20130523-069.

Overall, the data shows an approximate 10% decrease in energy consumption as measured by an annual Energy Use Index (EUI) for those apartment complexes that had energy efficiency upgrades made through the Better Buildings grant. There are several factors in the multifamily space that impact energy use, most importantly, the transitory nature of apartment dwellers. That a 10% decrease was seen is a positive outcome. Additionally, while not weather-normalized, the data anecdotally shows a decrease in energy consumption from a cooler summer to a hotter summer, a trend opposite of what is expected with an increase in summer temperatures. In other words, these efficiency-improved buildings used less energy during a warmer summer.

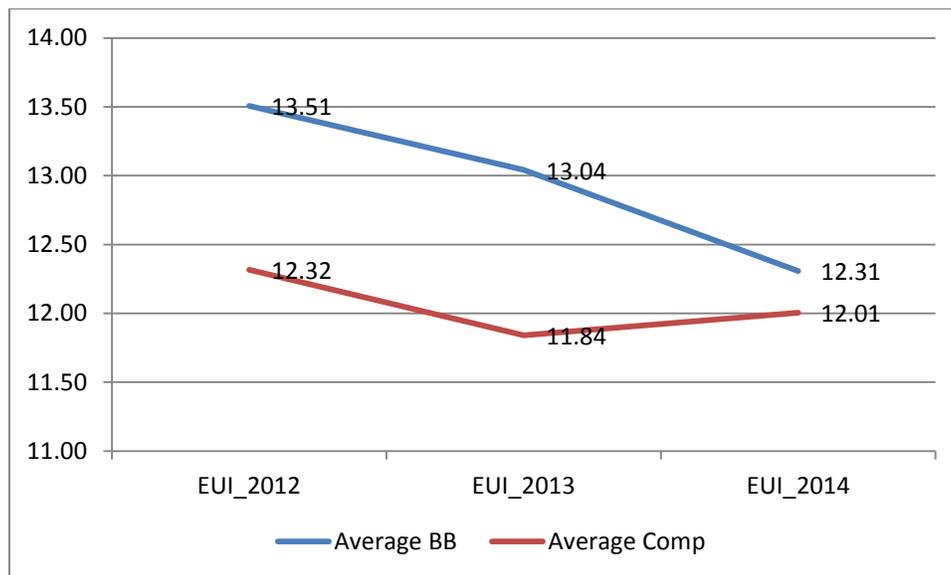
From the initial report and the current EUI data, we can conclude that energy savings is possible in the multifamily sector through comprehensive energy efficiency improvements. We will continue to evaluate our multifamily rebate program to ensure the provision of quality retrofits at a sustainable dollar per kW cost.

Data Analysis

To best conduct the comparative analysis, apartment complexes chosen were both part of the Better Buildings effort as well as the semi-annual rebate/rent impact report provided to Council. Along with the eight improved complexes, we used the comparable properties that are found in the semi-annual report but have not been upgraded. These comparable properties are similar to the retrofitted properties in terms of location, size, and class. By comparing similar properties, we are better able to assess the realistic impact of the energy improvements.

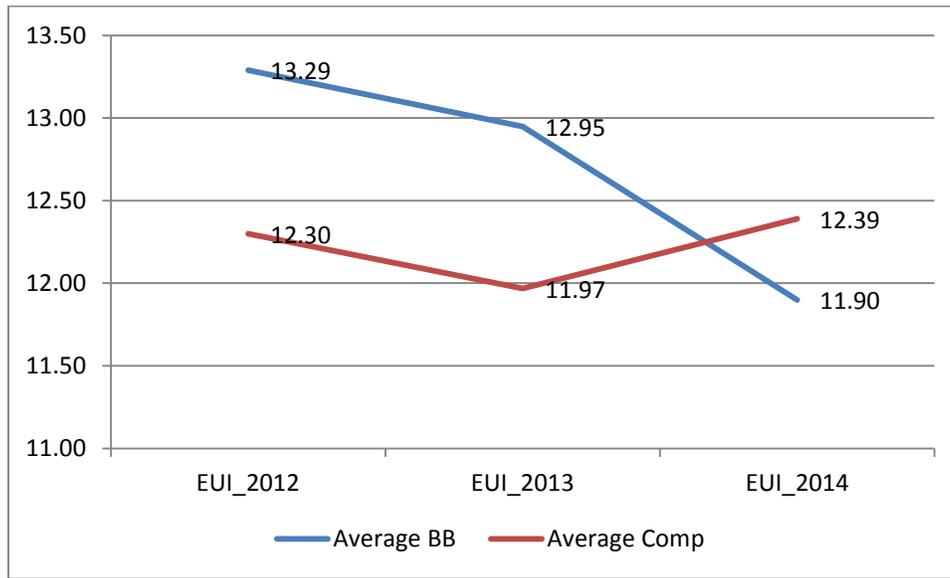
We analyzed the EUI's for 2012, 2013, and 2014. Retrofits were completed between January and September of 2013, giving us a baseline of 2012 data. We compared all data as well as those data points within one standard deviation of the mean. In both assessments, there was a definite downward trend in energy use for the retrofitted apartments. Graph 1 provides the trend lines for all data points. There is a 1.2 point drop in EUI from 2012 to 2014 for the Better Building (BB) properties. This equates to nearly a 10% reduction in energy usage. The same cannot be said for the comparable (Comp) properties.

Graph 1. EUI Over Time – All Properties



As with Graph 1, the data without the outliers shows a similar trend and savings for the Better Buildings complexes with nearly a 1.4 point drop in EUI. The trend for the comparable properties is nearly smooth.

Graph 2. EUI Over Time – Properties Within One Standard Deviation



Based on the proof of concept employed with the Better Buildings effort, we showed that there was an impact as a result of the multifamily energy improvements. We took the lessons learned from that effort to continue modifications of the current multifamily program. As we continue to track energy savings through the EUI measures, we can continue to evolve the program. Additional efforts include education and outreach related to behavioral impacts on energy use as well as continued education on our residential energy app.

In terms of the rebate/rent impact, as those reports have shown, there is no rent increase related to rebate participation. Combining this information with the EUI analysis demonstrates an overall savings for apartment residents in properties with efficiency improvements.

Original Request

The following information is a response to data that member Tim Arndt requested regarding the multifamily retrofit report, "Hard to Reach Markets: Delivering Comprehensive Retrofits in the Multifamily Sector". Per member Arndt's email request to staff on June 20, 2015:

"On 11/7/2014 I had asked if a report would be updated so that this data could be used by the taskforce in formulating recommendations. Dr. Jambore informed me that I had not requested the report to be updated only IF it was going to be updated. My intention was to give your department ample time to plan for updating the report. I am requesting the report to be updated. Below is the report I referenced and need updated: "Hard to Reach Markets: Delivering Comprehensive Retrofits in the Multifamily Sector. "The report sated *When staff has a full 12 months (24 would be even better) of post upgrade consumption, a more conclusive evaluation can be made about the accuracy of the energy modeling software for the multifamily sector in Central Texas.* I was simply calling to ask when the data would be updated. In the interim while you are updating this report please provide the Multi-family ECAD EUI data for 2011, 2014, 2013, 2014, and 2015. I would like all available data including property id, square

feet of the property, property address, apartment name, all owner contact information as well as energy audit disclosure information.

All EUI data for the Multifamily ECAD results can be found at <https://data.austintexas.gov/>.