

**wegowise**

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# **Property Utility Benchmarking Report**

New Insights on Increasing Asset Value



## Introduction

**Property owners who adopt utility benchmarking achieve immediate, sustained, and scalable improvements to property value.**

By taking a broad look at the largest database of multifamily utility performance in the United States, we have identified specific strategies taken by top performers, identifying best practice behaviors by industry leaders which drive accelerated savings and increased return on investment.

Based on a long-term study of properties engaged in water and energy benchmarking, this analysis traces utility savings in multifamily real estate from usage

savings to increased property performance, and from improved NOI to increased portfolio value.

The link between energy and water efficiency and asset value is direct, actionable, and scalable. The WegoWise® Utility Benchmarking Report highlights how the most effective owners and managers are pulling the lever of utility analytics to directly increase the value of their portfolios.

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### Who We Are

WegoWise provides utility benchmarking and data analytics for owners and managers of multifamily housing. We are on a mission to catalyze economic, environmental, and social sustainability in the built environment by providing accessible, actionable business intelligence. We are data-driven, we understand real estate, and we are passionate about seeing our clients succeed.

Since 2010, we've worked with a broad swath of the multifamily real estate industry, state and local governments, and major utility companies, to assemble the largest database of multifamily building performance data in the world. We leverage that data to drive improved efficiency across the industry and allow our clients to continually improve asset valuations while meeting double bottom line goals towards social and community impact.

# Executive Summary

**Sustained utility savings makes a meaningful long-term impact on asset value.**

In 2017, forward-thinking investors and underwriters will be incorporating utility benchmarking and performance into real-estate asset valuation. For multifamily owners and managers, this escalates the importance of a data-driven utility strategy as a means to improve operating income and drive property value.

With interest rates threatening to rise, the heat is on to improve NOI in multifamily housing.

Nine years into the post-2008 economic recovery, multifamily vacancy rates are creeping up and interest rates are threatening to rise. The heat is on to improve Net Operating Income (NOI) in multifamily housing. WegoWise’s analysis lays out the direct and significant link between proactive utility benchmarking and increased NOI and asset value. It reveals significant opportunity for owners, managers, and investors to capitalize early on a pivotal industry moment by adopting building analytics as a strategic tool to drive additional value across their investment portfolio.

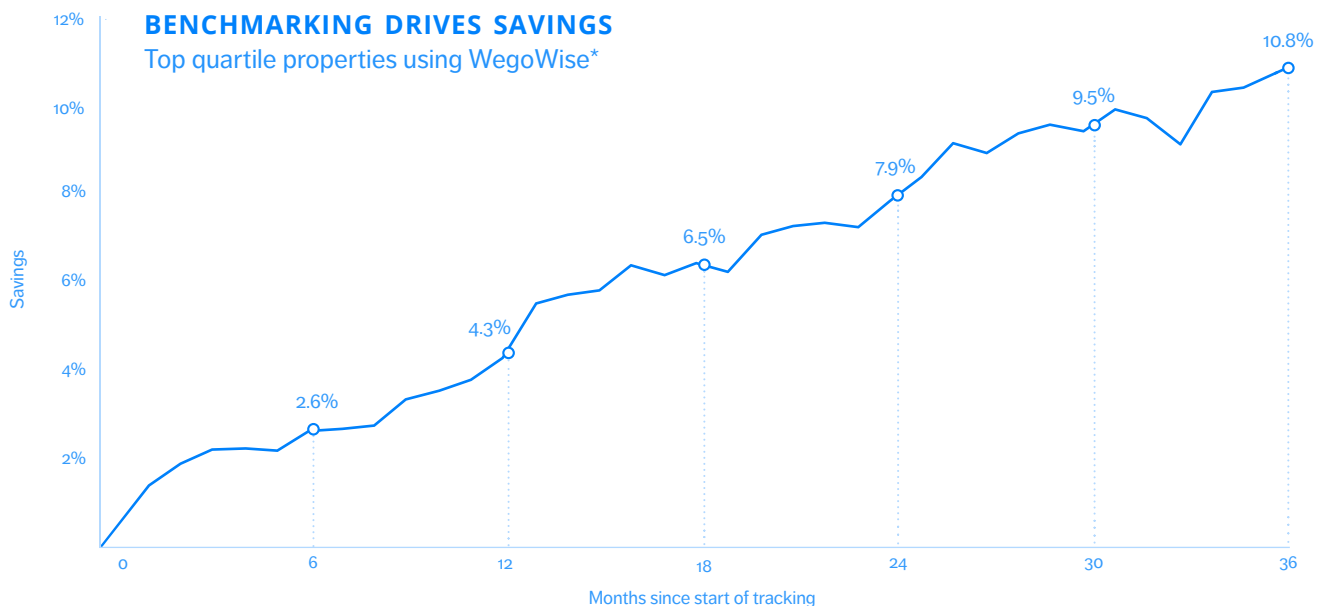
In a first study of its kind, WegoWise has taken a broad and multi-year look at utility consumption

across the U.S multifamily housing industry to identify how utility benchmarking and analytics affect usage and costs immediately and over time.

We found that owners who actively benchmark and prioritize energy and water efficiency see savings of 4.3% or better. In addition, we see continued savings over time. The study revealed that the top quartile drives savings to nearly 8% at 24 months, and over 10% at 36 months.

Through the lens of improved NOI, we ask the question: **“How much does asset value increase when owners drive down the cost of utilities?”** At a 5% cap rate, \$1 of utility savings adds \$20 to the value of the property. Utility efficiency creates sustained savings resulting in meaningful and long-term impact on asset value. Applied across an entire portfolio of properties, a proactive benchmarking & energy management strategy becomes a sustainable driver of increased value impacting the operating income at a time when rent increases are difficult to achieve.

Our analysis also identifies best practices in use by real estate leaders that yield more savings, drive higher NOI, and deliver more value to property owners, reinforcing that property owners who adopt utility benchmarking achieve immediate, sustained, and scalable improvements to property value.



\* Monthly results reflect the savings rate of top quartile properties at that time.





## Convergent Trends

**Utilities make up 20-25% of controllable operating costs.**

The last several years have been good to the multifamily real estate industry. Millennial urbanites and downsizing baby-boomers have both increasingly chosen to rent apartments rather than own homes. Alongside the broader post-recession economic recovery, these trending demands have allowed building owners to rely on steady top-line increases to drive NOI and asset value. As well, the historically low interest rates and favorable borrowing costs have contributed to new development across the sector.

The market is levelling off, posing real challenges for property owners. In markets across the country, new multifamily construction has led to excess supply, vacancies are rising, rents are flattening, and real estate professionals are under increasing pressure to continue the favorable portfolio valuations of past years. With revenues leveling

off, looming excess inventory and the threat of rising interest rates, something needs to give.

“ With rent revenues leveling off, property owners are under more pressure than ever to drive value. ”

Intelligent operating expense management provides a sustainable avenue for growing asset value. Though less glamorous than rental increases, operating cost reductions affect NOI just as surely and directly. Utility costs represent as high as 25% of controllable operating expenses and offer an accessible cost-control lever to help increase value.

SAVINGS SCALE OVER TIME



Figure shows the top quartile savings attained for each group over the first 36 months of benchmarking.

Specific Strategies Drive Savings

We set out to determine the extent to which energy and water benchmarking affects the utility consumption in multifamily buildings. Benchmarking and analytics alone do not lead to efficiency improvements; rather, gains are the result of actions at each property. Understanding this, our data scientists focused on understanding a broader question: How does the energy or water

use at a property change once the owner starts benchmarking the utility consumption using a professional solution like WegoWise?

In order to answer that question, we conducted an extensive analysis using the WegoWise database which contains data from over 8 million utility bills sourced from over 49,000 buildings.



## Benchmarking Leads to Strong Results

To understand the impact of benchmarking, we considered three distinct groups, each with a unique user profile. The primary group yields the top quartile of savings results, reflecting properties that are being actively managed and benchmarked to identify opportunities for improvement. The second group is a subset of those, made up of properties subscribed to advanced analytics on property performance, savings opportunity potential, and alerts for abnormal usage spikes. The third group, also a subset of the first, consists of properties that have been retrofitted with efficiency upgrades.

### Our findings are striking:

- Our top quartile of properties enjoyed 4.3% savings across all utilities after 12 months of benchmarking, and over 10% after 36 months.
- Properties that subscribe to advanced analytics saved 4.9% after 12 months and over 15% after 36 months (again, top quartile results in each case).
- The properties that have been retrofitted with efficiency measures surpassed both, with top-quartile savings of 7.6% and 17.2% after comparable periods.

The analyses detailed in this report provide relevant and valuable insights about benchmarking. Most important, they validate that data-driven software solutions have significant and lasting positive impacts on building performance.

## Rigorous Modeling Methods

To analyze the change in performance, we first modeled usage for each property based on the historical usage prior to using WegoWise (typically two years of data). Using the pre-benchmarking data and historical temperatures associated with each property's location, we built regression models to describe the consumption pattern for every utility account being analyzed. These regression models accounted for various patterns of use, including heating and cooling. By applying these regression models to actual temperatures post-introduction of WegoWise benchmarking, we estimated how much a given property would have used in the absence of benchmarking. The savings from using WegoWise were then found as the difference between the actual usage and modeled prediction.

## Clean Data is Critical

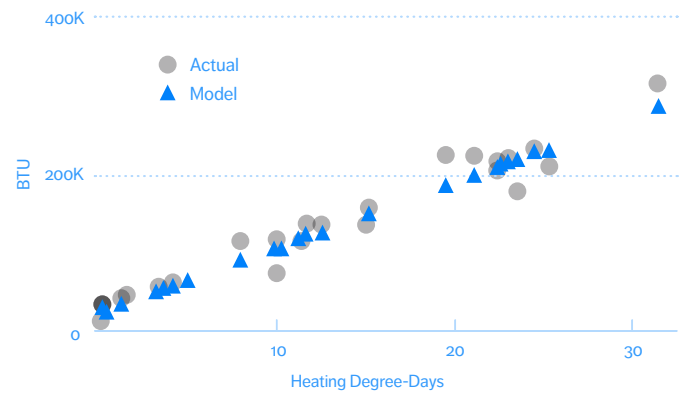
The WegoWise multifamily database is the largest of its kind, and includes everything from core holdings to value-add properties. There are properties we have been benchmarking for 7 years, with extensive historical data, and properties that have come on board very recently with very little data. The full database was pruned for this study in order to ensure a sound technical analysis.

**“Data scientists spend from 50 percent to 80 percent of their time collecting and preparing data, before it can be explored.” \***

- To determine savings compared to a baseline, we limited our analysis to utility accounts at properties that had at least 12 months of pre-WegoWise data.
- To ensure validity of our savings figures, we further constrained our data set to only those utility accounts where regression modeling of pre-WegoWise data met a statistical threshold indicating a good predictive fit.

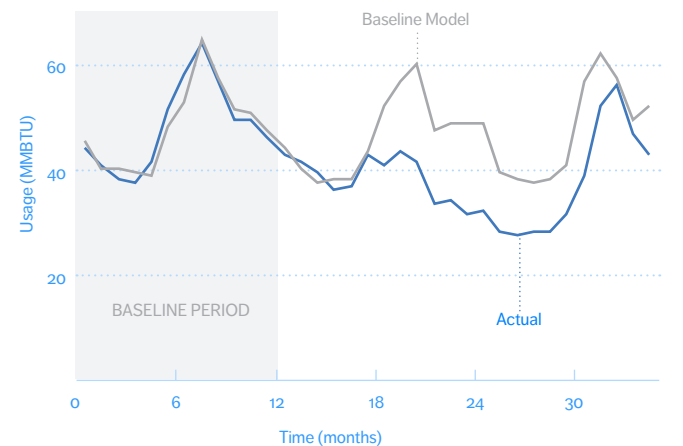
## BEST-FIT MODEL CALCULATION

Daily degree-days vs daily usage



We use the industry-standard PRISM methodology, which is based on the linear relationship of energy usage to changes in weather, measured in degree-days.

## BASELINE MODEL VS ACTUAL



We generate a baseline model from pre-WegoWise utility data, using the method described by the figure at the top of the page. The baseline model simulates usage in the absence of any action, which we compare to the actual usage data.

\* <https://www.nytimes.com/2014/08/18/technology/for-big-data-scientists-hurdle-to-insights-is-janitor-work.html>



# Scalable, Sustainable Savings

**SAMPLE PROPERTY  
SPOTLIGHT**

200  
UNITS

\$150/unit  
MONTHLY UTILITY SPEND

\$360,000  
ANNUAL UTILITY SPEND

It's clear that benchmarking reduces utility consumption and therefore utility expenses. The study analyzes usage reductions at the property level in order to get a good understanding of the performance improvements that result from proactive benchmarking. In order to get a more intuitive sense of what those savings mean to a property owner in the real world, let's apply the results to a typical property.

After a year of active benchmarking, the top quartile of properties uses 4.3% less across all utilities. For this sample building, that translates to \$8,550 in savings over the first year. At year two, utility consumption is down 7.9%, improving to 10.8% at the end of the third year. In addition to accrued savings of \$65k after three years, that 10.8% savings rate translates directly into increased NOI.

**ACCRUED SAVINGS**

\$65.1 K  
Savings Rate 10.8%



**All Properties**

12 mo. \$8,550 / 4.3%  
24 mo. \$31,230 / 7.9%  
36 mo. \$65,160 / 10.8%

\$82.1 K  
Savings Rate 15.5%



**Properties with  
advanced analytics**

12 mo. \$12,510 / 4.9%  
24 mo. \$36,000 / 10.4%  
36 mo. \$82,170 / 15.5%

\$106.2K  
Savings Rate 17.2%



**Retrofitted Properties**

12 mo. \$17,100 / 7.6%  
24 mo. \$52,740 / 11.2%  
36 mo. \$106,200 / 17.2%





# Savings Improve Net Operating Income

## SAMPLE PROPERTY SPOTLIGHT

200  
UNITS

\$150/unit  
MONTHLY UTILITY SPEND

\$360,000  
ANNUAL UTILITY SPEND

The cash savings that accrue once property owners start leveraging proactive benchmarking are compelling, but the true value of a data-driven efficiency strategy lies in impact on ongoing NOI and property value.

To illustrate, let's take another look at our sample property's operating statement. After 3 years, the property sees a savings rate of 10.8%. On an annual utility spend of \$360,000, that yields \$38,880 in annual operating cost savings going forward. The operating statements below compare the same property before and after implementing a benchmarking strategy.

REVENUES	BEFORE BENCHMARKING	AFTER 3 YEARS OF BENCHMARKING
Gross Rent	\$6,000,000	\$6,000,000
Vacancy And Credit Loss	-\$300,000	-\$300,000
<b>EXPENSES</b>		
Maintenance and Other Expenses	-\$600,000	-\$600,000
Taxes and Insurance	-\$720,000	-\$720,000
Utility Expenses	-\$360,000	-\$321,120
Net Operating Income	\$4,020,000	\$4,058,880
Capitalization Rate	5%	5%
Property Value	\$80,400,000	\$81,177,600
<b>Increase In Property Value</b>		<b>\$777,600</b>



# Increase NOI, Increase Value

**SAMPLE PROPERTY  
SPOTLIGHT**

200  
UNITS

\$150/unit  
MONTHLY UTILITY SPEND

\$360,000  
ANNUAL UTILITY SPEND

Real estate investors look at property as any investor looks at their investments, expecting a high rate of return to indicate the value of the asset. When we look at our sample property, we've just seen a material increase to the annual return of the property after the first year, which has a striking effect on the asset value.

Beyond the cash savings unlocked by reduced utility consumption, the savings rate indicates the improved performance of the property into the future. By reducing utility costs, the operating income of the property increases, as does the value of the asset.

Looking across our groups, the value of improving energy efficiency becomes immediately apparent. Let's assume a 5% cap rate for our sample property. The \$38,880 increase in NOI after three years delivers 20x that in created value: \$777,600. For retrofitters, a 17.2% savings rate after 3-years translates into over \$1.2 million in value gains.

**ADDED VALUE AFTER 3 YEARS**



# Best Practices: Continuous Improvement

Considering the dramatic increase in property value from proactive benchmarking at a single property we can extrapolate the opportunity latent in a portfolio with hundreds of properties. Our study clearly demonstrates the value of benchmarking, implementing retrofits, and

regularly analyzing property performance with proactive reporting. We have also identified the key best practices that trend-setting WegoWise clients and the more effective owners and managers are using to drive asset value across their portfolios.

## 1 Start tracking and set a goal

Picking a target and measuring performance against that goal is foundational to a data-driven energy management strategy.

## 2 Identify inefficient buildings

Benchmarking, both within a portfolio and against a broader universe of similar buildings, makes it easy to identify the buildings in your portfolio that have the greatest savings potential.

## 3 Implement cost-effective retrofits

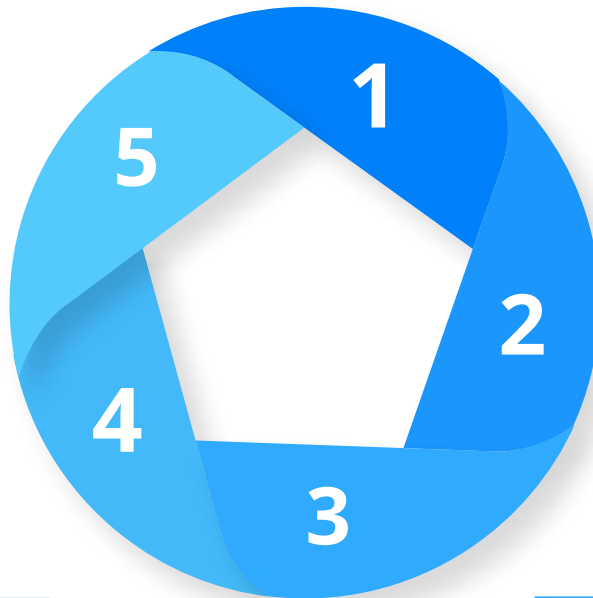
Benchmarking identifies inefficiencies, and an on-site auditor can put together an improvement plan to drive cost-effective savings.

## 4 Measure the results

Part of proactive reporting is monitoring the performance of retrofit projects already completed. Measurement and verification of efficiency projects is critical to verify expected performance and quantify NOI improvements.

## 5 Scale savings across the portfolio

Lessons learned from success at one property can be leveraged to replicate NOI increases at similar properties. Benchmarking within a portfolio and against a broad database reveals adjacent savings opportunities and helps multiply asset value increases.





## Conclusion

The results from this study tell a clear story: there is a strong link between energy and water efficiency and asset value. Property savings can be achieved within a matter of months, and those savings, when applied over time and across an entire portfolio, can be substantial. Today's technology makes valuable and actionable building analytics easily accessible and affordable, and forward-thinking owners recommend key best practices to identify savings opportunities and scale them across a portfolio.

The benefits of a proactive and continuous utility benchmarking strategy extend beyond just operational improvements; they can be leveraged to identify undervalued assets for acquisition, to obtain low-interest "green" loans when financing, and to justify a higher sale price during disposition. Asset and property managers with a benchmarking strategy are better positioned to find opportunity, implement cost-effective projects, and deliver increased property value throughout the ownership cycle.





WegoWise, Inc.  
20 Ashburton Place, Suite 401  
Boston, MA 02108  
617-367-WEGO (9346)

[sales@wegowise.com](mailto:sales@wegowise.com)  
[www.wegowise.com](http://www.wegowise.com)

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