

| REPORT

Impact of MoBIUS[®] Real-Time Energy Management Service

An analysis of Bright Power's continuous commissioning and real-time energy management service, and the value it has for multifamily and commercial buildings.

BRIGHT P  **OWER**



Summary

Bright Power's MoBIUS® (**Management of Building Information, Utilities, & Systems**) service monitors real-time energy and equipment usage, optimizes equipment performance and control settings and provides continuous training to building operators and managers across multifamily and commercial buildings. After piloting this service for three years with two clients, Bright Power began deploying MoBIUS to more buildings in the fall of 2018. This research intended to answer the following questions:

Are MoBIUS buildings consuming less energy over time compared to buildings without MoBIUS?

Are energy savings at MoBIUS buildings more predictable than buildings without MoBIUS?

Is energy consumption less volatile in buildings with MoBIUS than in buildings without?

We analyzed data from 15 multifamily and commercial buildings that were engaged in MoBIUS for the full year 2019 and compared that to data from 100 control buildings that were not engaged in a real-time energy management service but were enrolled in Bright Power's EnergyScoreCards benchmarking platform.

KEY FINDINGS

Buildings engaged in MoBIUS **reduced their energy spend by an average of 5.2%** in 2019 compared to 2018.

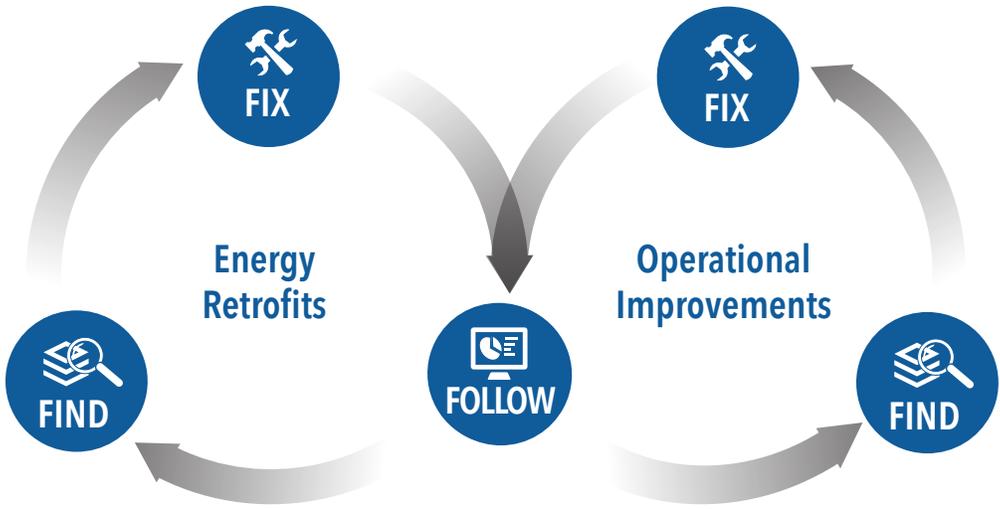
Buildings engaged in MoBIUS were **63% more likely to achieve energy savings** during the two-year period compared to the control buildings.

MoBIUS buildings had **less volatile energy use patterns throughout the year** compared to the control buildings.

What is **MOBIUS** Real-Time Energy Management Service?

MoBIUS utilizes real-time energy monitoring hardware for analytics and continuous commissioning to detect and diagnose equipment performance issues, improve building operations, and reduce energy consumption. Bright Power experts use the data to provide both on-site and remote technical support, fix systems and equipment, and follow systems performance. The building staff receives training to improve ongoing operations and enhance the owner's organizational capacity.

MoBIUS embodies Bright Power's **Find, Fix, Follow** approach to operational improvements for buildings. With MoBIUS, the Bright Power team follows the building's performance in real-time, finds any additional waste, provides operational fixes, and then continues to follow the progress of the operational improvements.



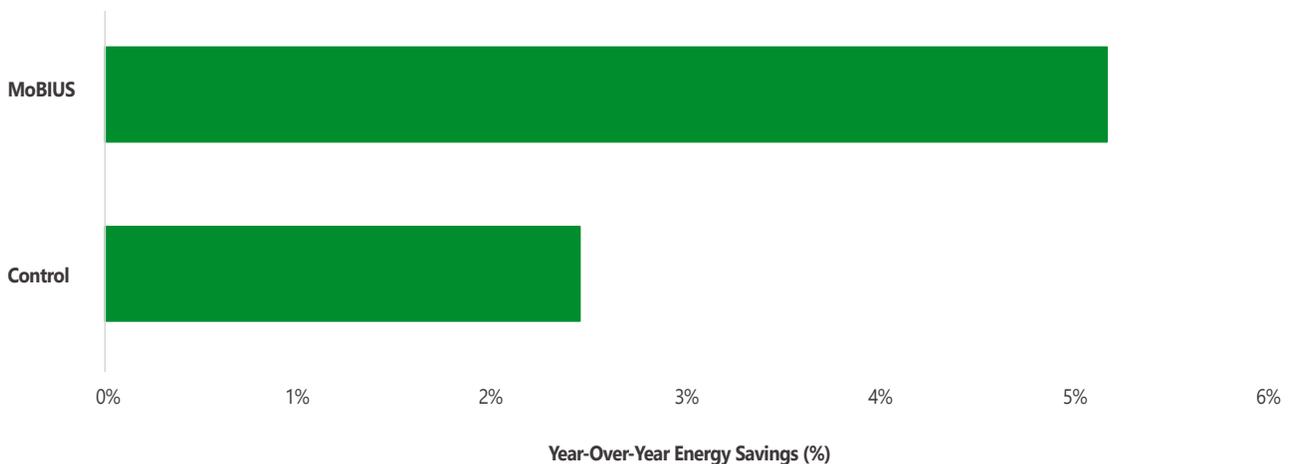
Results

We analyzed the impact and value of MoBIUS for multifamily and commercial real estate owners over a two-year period. The study compared the energy usage of 15 buildings that were actively engaged in Bright Power's MoBIUS service with 100 control buildings not engaged in a real-time energy management service. This study analyzed the total weather normalized energy each building consumed (in millions of British Thermal Units or MMBtu) in 2018 and 2019. The key findings are described below.

MoBIUS buildings saved twice as much energy as buildings not engaged in MoBIUS.

Buildings engaged in **MoBIUS reduced their energy usage by 5.2% on average** from 2018 to 2019, saving twice as much on energy as buildings not engaged in a real-time energy management service. The control group saw a 2.5% average decrease in energy savings during the same period.

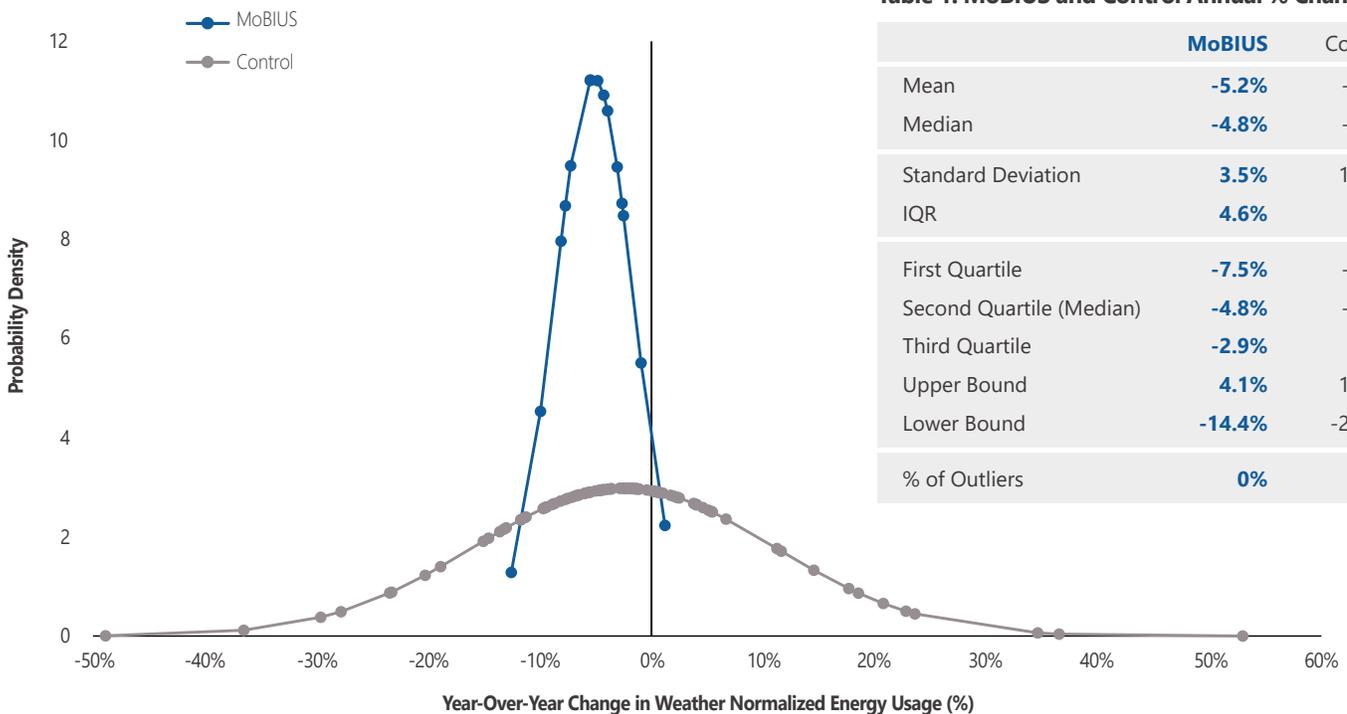
Figure 1: Average Year-Over-Year Savings



MoBIUS buildings had more predictable energy usage.

Buildings engaged in **MoBIUS were more likely to achieve more significant energy savings** than buildings not engaged in MoBIUS. Exactly 80% of MoBIUS buildings saw greater energy savings than the average 2.5% energy savings from the control group, with over 58% of MoBIUS buildings achieving additional savings over 5%. Only one of the MoBIUS buildings saw its energy use increase. In this study, MoBIUS buildings were 63% more likely to achieve energy savings during the two-year period than the control buildings.

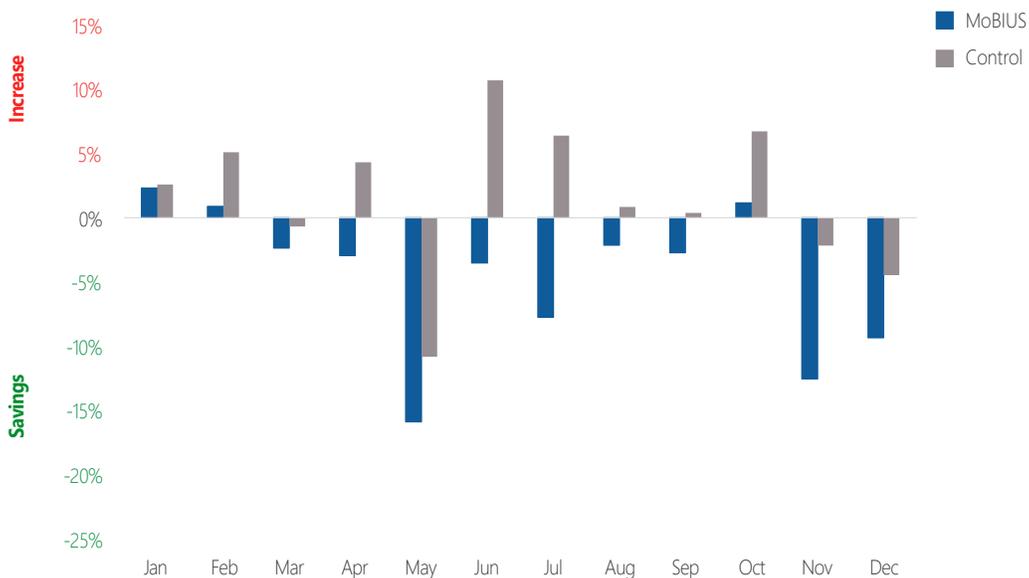
Figure 2: Probability of Saving Energy



MoBIUS buildings more consistently achieved greater energy savings.

Buildings engaged in **MoBIUS had higher and more consistent energy savings** month-to-month. MoBIUS buildings also had **less volatility** in the amount of savings each month.

Figure 3: Average Energy Usage Change 2018 to 2019

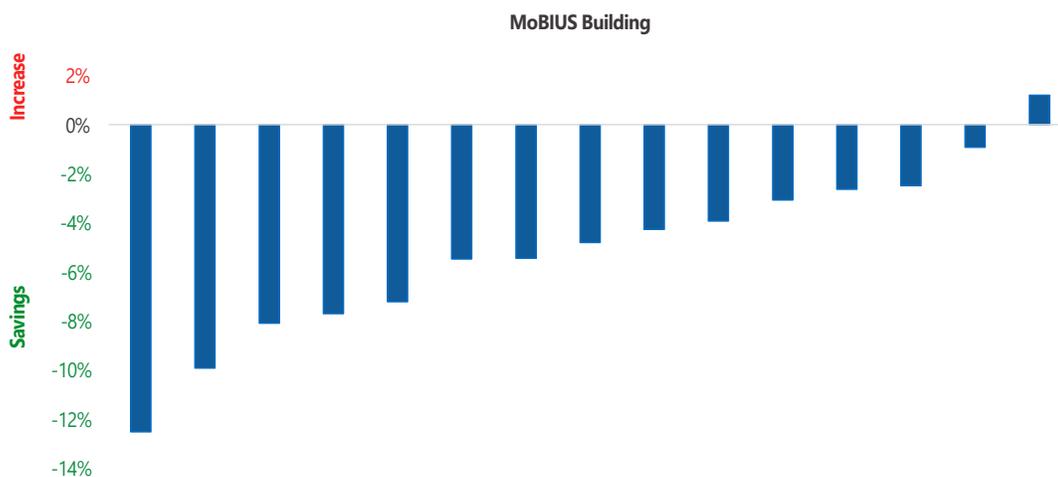


Analyzing each building's percent change, year-to-year, focused the analysis on comparing a building's energy usage to its own previous performance. The buildings are compared against their historical energy usage, rather than the average performance of the entire dataset.

Savings Potential

A deeper analysis exhibits that **93% of MoBIUS buildings realized savings** from 2018 to 2019, as seen in **Figure 4**, whereas 66% of the control dataset saw energy savings. The maximum savings for a MoBIUS building year-over-year was 12.4%. While this alone is noteworthy, it is also worth highlighting that eight of the MoBIUS buildings have realized savings over multiple years of engagement beyond this report. This can be seen in *Case Study: Deeper Insight Into a Median MoBIUS Site* (pg. 29) of the report.

Figure 4: MoBIUS Buildings' Energy Usage Change



Industry Impact

Leveraging real-time data analysis paired with an energy management engagement can yield significant and more predictable savings to building owners. This research demonstrates that multifamily—both market rate and affordable—and commercial building owners can benefit from a real-time energy management service like MoBIUS.

If building owners act on the results of this study to more broadly adopt MoBIUS and similar ongoing commissioning and real-time energy management, expect this to lead to **deeper energy savings, reduced building carbon emissions**, and **growth in the real-time** energy services marketplace. Further, reducing the amount of volatility of energy usage improves cash flow and budgeting for building owners and operators.

Beyond operational benefits, a real-time energy management service can equip building owners with the tools to comply with New York City's Local Law 97 (LL97), which will require building owners to reduce carbon emissions below specific caps starting 2024. LL97 supports New York State's goal of net-zero carbon emissions by 2050. Continuous commissioning with real-time energy management can help building owners achieve reliable energy and carbon savings, better maintenance and operation of building systems, and compliance with carbon emissions limits.

While this study was limited to a two-year research period, we believe additional analysis will show continuous savings and better long-term predictability of energy usage for buildings engaged with MoBIUS or a similar service.

Special Thanks

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For the full report, visit brightpower.com/mobius-report/.