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Step-by-Step Guide To Energy Efficiency



PARTNERS WITH

Cassidy
Turley

TABLE OF CONTENTS



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INTRODUCTION– Cassidy Turley Success Story

STEP 1– Get to Know Your Buildings and Set Targets

STEP 2– Engage Your Team

STEP 3– Get Real-Time Data

STEP 4– Use Real-Time Data to Make Operating Changes

STEP 5– Utilize Advanced Energy Efficiency Practices



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INTRODUCTION

Cassidy Turley Success Story

CASSIDY TURLEY CASE STUDY

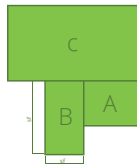


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Cassidy Turley is one of the leading commercial real estate service providers in the United States, managing over 400 million square feet of building space, and was named Energy Star Partner of the Year in 2013 and 2014.



National full service Real-Estate Provider



400 Million SF Managed



450+ buildings Benchmarked



2013 & 2014



55+ LEED Projects Completed

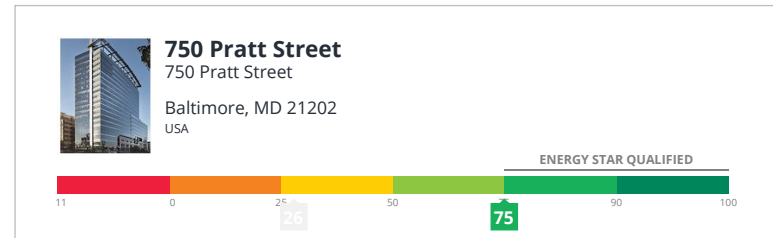


60 buildings in EPA Competition

HOW DID THEY DO IT?

- ✓ Decreased baseload
- ✓ Maximized use of economizer
- ✓ Fixed runtime issues
- ✓ Implemented HVAC lockouts

MY BUILDING TARGETS:	Baseline	Goal	Actual
	May 2009	June 2010	June 2010
• Energy Star Rating	26	50	75
• Average Monthly kWh	833,709	665,421	486,523
• Average Peak kW	1915kW	<1800	1764
• Percentage Reduction	-----	20%	42%



In 2009, Cassidy Turley's VP of Engineering Operations, Lee Dunfee, used Energy Star to benchmark a building in Baltimore, MD. He found that the building had a score of 26, meaning it was only performing better than 26% of similar buildings.

In just one year, Dunfee was able to use real-time data to help the building reduce its energy consumption by 42%, raising its Energy Star Score to 75.





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STEP 1

Get to Know Your Buildings and Set Targets

BENCHMARK YOUR BUILDINGS USING ENERGY STAR



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Energy Star Knows Your Building is Unique

Energy Star considers the size of your building, number of occupants, number of appliances, hours of operation, location, and weather patterns.

Energy Star Compares Similar Buildings

Energy Star compares buildings with others in their “peer group” with the same primary use, scoring them from 1 - 100, relatively.

Energy Star is Trusted and Recognized

Buildings with a score of 75 or higher are certified by Energy Star and receive a plaque to display publicly. Certification increases building marketability and instantly classifies the building as sustainable and efficient.

MANY CITIES REQUIRE BENCHMARKING

Several cities have official legislature requiring certain buildings to be benchmarked by Energy Star. This data is generally made public, so everyone can see how your buildings are performing.

Check out this [list](#) of states and cities that require benchmarking to understand their laws and make sure you are complying.

ACCURATE BENCHMARKING IS THE KEY TO SUCCESS

Energy Star Benchmarking allows you to automatically see which buildings have the most room for improvement. Oftentimes only a few simple changes are needed to raise your Energy Star Score by several points, with little to no upfront investment.





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ASK THESE CRITICAL QUESTIONS

The next step is to gain a deeper understanding of how your buildings really operate. Once you identify specific elements that are causing problems or unnecessary waste in your buildings, you can make educated decisions to kick-off improvements.

ULTIMATE BUILDING OPERATIONS CHECKLIST

Understand Your Building's Schedule

- ✓ What time does your building start?
- ✓ Does it start at the same time on Mondays as every other week day?
- ✓ Throughout the year does your building always start and stop at the same time?
- ✓ Do you use "relaxed" or "aggressive" start times?

Understand Your Building's Baseload

- ✓ What is operating at night? Why?
- ✓ What is operating on weekends? Why?
- ✓ Are there tenants in the building at night? On the weekends?
- ✓ What is included in the baseload?
- ✓ Is your baseload too high?

Understand Heating and Cooling

- ✓ How does your building heat up?
- ✓ How does your building cool?
- ✓ Are there coincident runs?
- ✓ Do you use an economizer?
- ✓ Do you use lockouts for certain temperatures?

Download a one-pager of the checklist to keep these questions in mind!

[DOWNLOAD](#)

SET YOUR TARGETS



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At this stage, it may be difficult for you to answer some of the questions on the previous page. The list should give you a good idea of what knowledge you need to gain, and how real-time data can get you the information necessary for efficient decision making.

Once you have benchmarked a building, set targets to raise your Energy Star Score.

Start by deciding how much you want to improve your score over the next 12 months. Mark your progress by benchmarking quarterly, to make sure you're staying on track.

Not sure where to start? Use Cassidy Turley's Pratt Street Building Case Study as an idea for how to set a challenging, but achievable goal.





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STEP 2

Engage Your Team

GET YOUR TEAM ON BOARD



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- 1 USE YOUR ENERGY STAR SCORE TO CAPTURE THEIR ATTENTION**
Energy Star Scores are an easy baseline for improvement. You can bring out the competitive edge in your team, since the score reports your building's consumption ranking compared to similar buildings.
- 2 SET GOALS AS MOTIVATIONAL BENCHMARKS**
Decide what you want your Energy Star Score to be by the end of the year, how many kWh you wish to save, and how much the savings will reduce your bills.
- 3 PROVE YOU CAN BE SUCCESSFUL**
Your building won't be the first to undergo an energy saving project. Use a case study from a different building, such as [Cassidy Turley's](#), showing how much can be saved with just a few changes.
- 4 SHOW THEM YOUR ROADMAP**
By showing your team a clear plan that includes easy and immediate fixes, you can get them on board to help you reach your target.

7 Steps to Get Your Team On Board to Invest in Energy Efficiency

LEARN MORE



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STEP 3

Get Real-Time Data

METERS SHOULD BE YOUR FIRST INVESTMENT



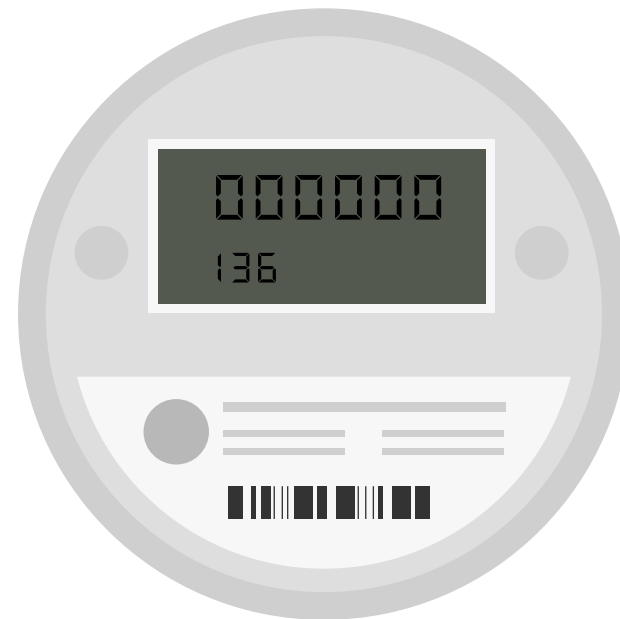
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Meters are fast and affordable to deploy, giving you immediate access to energy data. You can quickly make changes based on the data you gather, and see changes in your building's performance as early as the second week.

When you combine web-enabled meters with a cloud service, such as Aquicore, you can easily access your energy data anywhere, anytime. Additionally, a **cloud-based service** provides you with the flexibility to access free upgrades and avoid maintenance hassles that come with on-site local enterprise solutions.

METERS GIVE YOUR BUILDINGS A PULSE TO LISTEN TO

- Verify equipment operations
- Highlight operational inefficiencies
- Reveal peak and base load patterns
- Protect equipment and extend its life



METER TECHNOLOGIES FACILITATING EFFICIENCY



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1 SMART METERS

Many utility companies in the United States utilize smart meters, allowing them to automatically retrieve building energy data through a private network. Most smart meters have pulse outputs, allowing third party vendors to connect data acquisition devices and collect real-time data directly from the meters, dramatically reducing implementation costs for real-time solutions.

2 WEB-ENABLED METERS

Web-enabled meters and submeters communicate the energy data they read directly to the Internet. This data, stored in the cloud, can be easily accessed by third party vendors, allowing them to streamline sleek reports to provide insights for how energy is used in the building.

3 WIRELESS METERS

With the combination of web-enabled and wireless technologies, meters and submeters do not need to be physically connected to the gateway. Instead, they can be connected wirelessly, making decreasing the expense.



SCOPE YOUR PROJECT

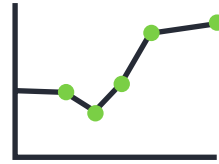


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1 HOW BIG IS THE PROJECT?



Number of buildings



Number of meter points



Number of square feet

2 WHO OWNS THE PROJECT?

In Aquicore's webinar about energy efficiency, presented by Today's Facility Manager, 65% of the audience reported facility managers and portfolio managers analyze energy data for their buildings, while 37% said their data was analyzed by building engineers.

In most situations, a few different people will need to access energy data, so it is important to use a tool that will generate **clean, clear, and presentable** reports for all key stakeholders to easily understand and act on.



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STEP 4

Use Real-Time Data to Make Operating Changes

OPTIMIZE SCHEDULING



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THE TRICK

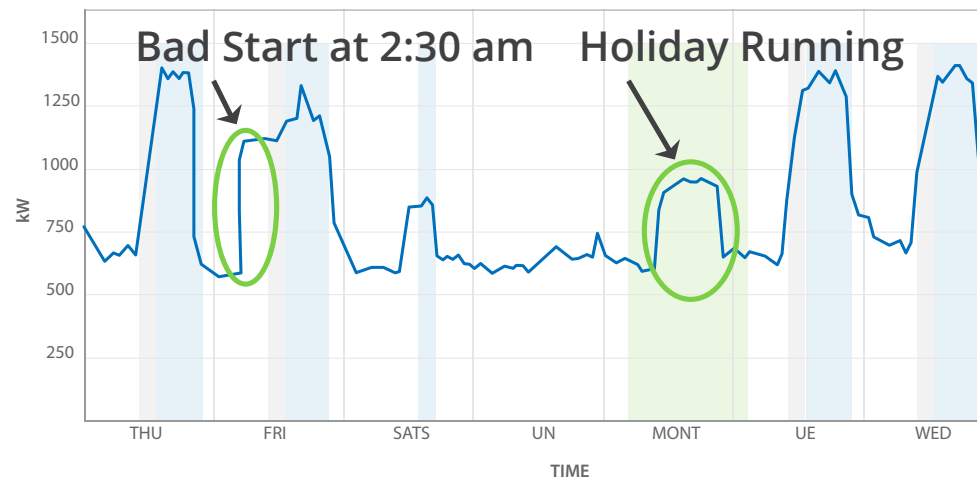
“Building start times should never look the same in December and January, or July and August, as they do in September and October, and in the spring,” Cassidy Turley’s Lee Dunfee explained during a webinar with Aquicore.

Dunfee told the audience that they should see a three- or four-hour difference in start times during different parts of the year. Buildings may start as early as 4:30am during the summer and winter, but may be able to start as late as 7:45am during the shoulder months of the year.

HOW REAL-TIME DATA HELPS

With real-time data, you can view weather-normalized reports, so you can align your building’s operating schedule with contributing external factors.

An even easier way to optimize scheduling is to make sure your building is not operating above its baseload when tenants are not present. Real-time data allows you to make sure your building isn’t operating when the building is vacant.



TAKE ADVANTAGE OF ECONOMIZERS



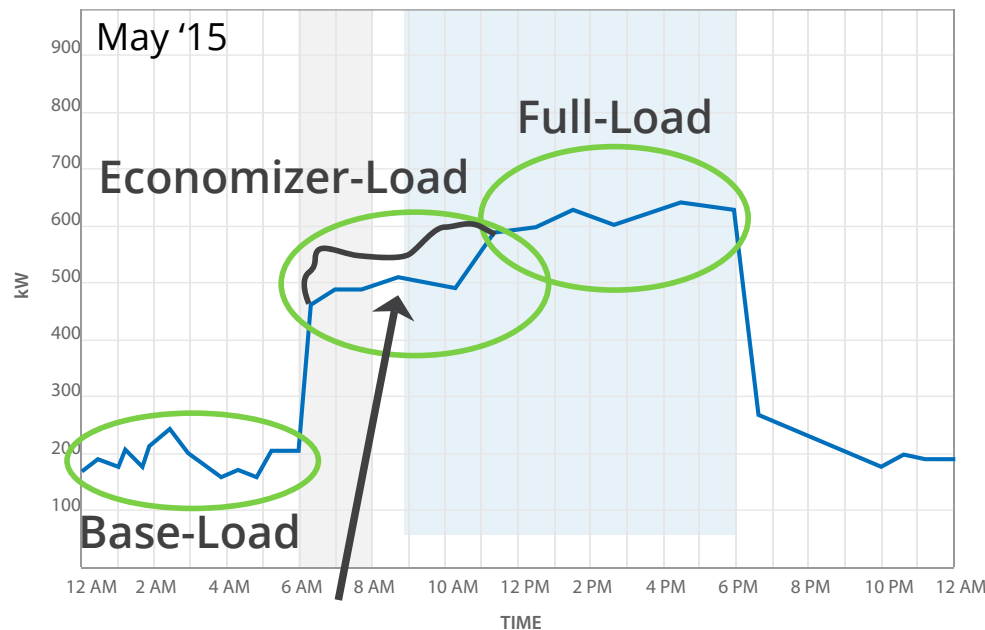
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THE TRICK

On spring or fall days when it's between 50 and 60 degrees in the morning, you should be utilizing that fresh air. By operating your building on an economizer, you keep your building at a comfortable temperature without using any electric heat or mechanical cooling. For up to 60 days each year, depending on the location of your building, you should be able to operate solely on air from the economizer.

HOW REAL-TIME DATA HELPS

Real-time data will alert you immediately if your economizers are not operating correctly. You can continuously check a real-time data platform to show how much less energy you are spending when using outside air. You can also use weather-normalized reports to keep track of when economizers are most efficient.



IMPLEMENT LOCKOUTS



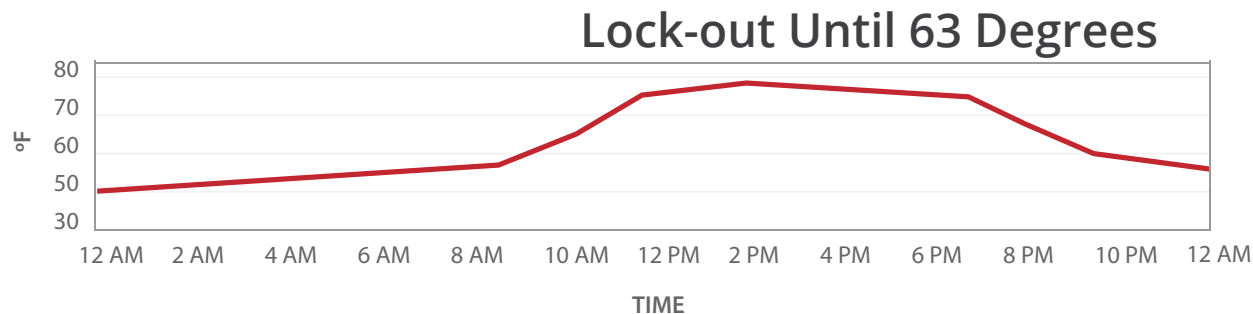
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THE TRICK

If it is less than 63 degrees outside, there is no reason there should be any mechanical cooling in your building. Likewise, if the outside temperature is greater than 47 degrees then you shouldn't be heating your building. To ensure that these standards are held, you can implement lockouts that will keep equipment from running, depending on the outside temperature.

HOW REAL-TIME DATA HELPS

Locking out heat and cooling when they aren't necessary is a great way to save energy, but sometimes lockouts don't occur as planned. Real-time data can help by alerting you if equipment is running when there is supposed to be a lockout. So when the temperature suddenly rises one day in December, you can use real-time data to make sure the lockout runs smoothly.



AVOID COINCIDENT RUNS



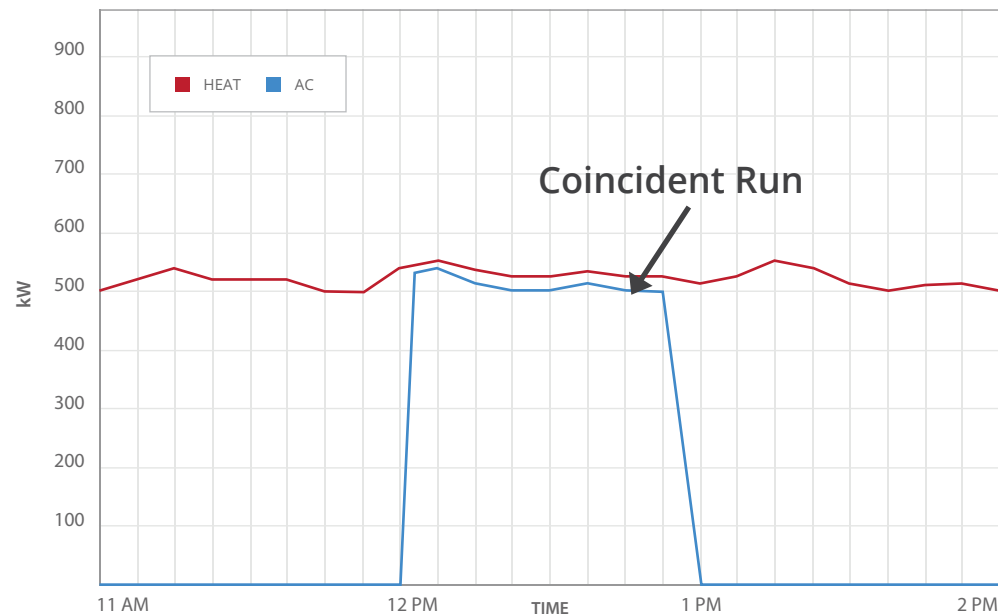
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THE TRICK

You'd be surprised how often buildings have their heaters and air conditioners running at the same time. These two operations obviously cancel each other out, and coincident runs can be costly when they aren't caught quickly.

HOW REAL-TIME DATA HELPS

With submetered data, you can separate heaters and chillers to make sure they are operating when they are supposed to be. Even without submeters, you can tell by fluctuations in energy consumption when equipment may be running when it isn't supposed to.



LOWER BASELOADS



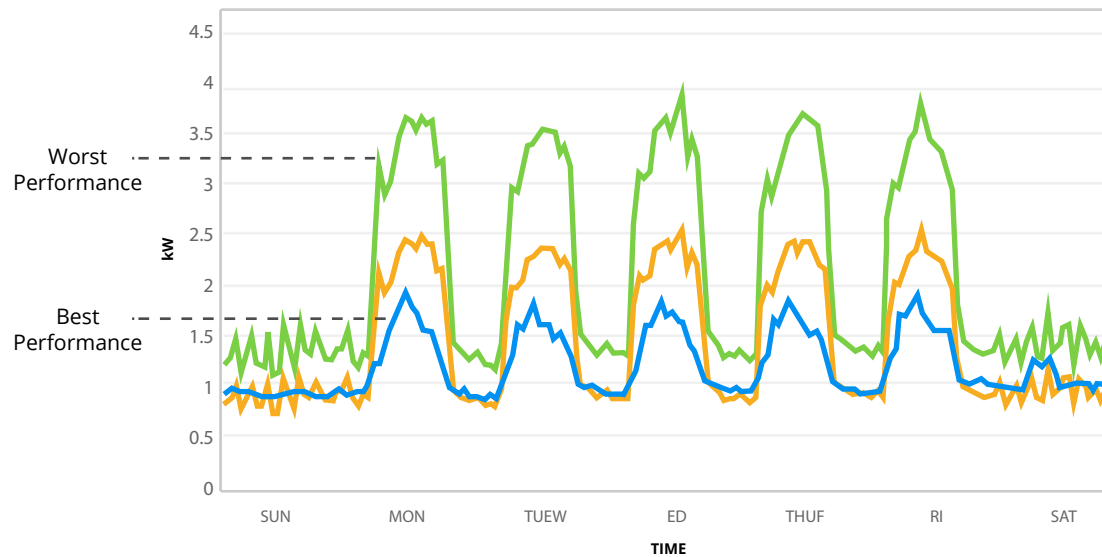
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THE TRICK

At night or on the weekend when your building is “off,” what equipment is still “on”? The answer is probably too much. Your baseload includes your water pumps, elevators when they aren’t running, safety lights, and anything else that is necessary to keep your building’s heart pulsing when it’s asleep. The goal is to use as little energy as possible when no one is occupying the building.

HOW REAL-TIME DATA HELPS

Real-time data is especially helpful when you can centralize information regarding your whole portfolio. Once you normalize buildings by square feet and weather, you can compare baseloads to see if one building’s is dramatically higher than its peers, pointing out where you should take action.



ANALYZE REAL-TIME DATA AFTER INITIAL SAVINGS



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Why should you keep analyzing real-time data after catching all of the low hanging fruit? It's a fact. Unfortunately, there is no one-time fix for buildings where you can just "set it, and forget it." Even after you raise your Energy Star Score and lower your bills, you still need to keep an eye on your real-time data.

- 1 THE ENVIRONMENT IS CONSTANTLY CHANGING.**
One major benefit of real-time data is that it incorporates weather normalization. You can use your energy management platform to compare your consumption to the weather.
- 2 BUILDINGS ARE NOT STATIC.**
Whether it's a coincident run of air conditioners and heaters, or a leak that goes unreported, buildings make expensive mistakes, and the longer you wait to fix them, the more expensive they can be.
- 3 YOU WANT TO BE ALERTED IF SOMETHING GOES WRONG.**
Real-time alerts are the true key to real-time data. Even if you're not on your computer looking at an energy usage report at the time of a problem, you'll want to know about it as soon as possible.
- 4 YOU WANT PERSISTENT SAVINGS.**
The time-to-value when you first include real-time data in your energy analysis can be as short as a few months. A lot of changes can be made quickly and easily once you have a transparent view of your buildings. When you are ready to make more complicated improvements, you will want to have real-time data so you can track your progress.



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STEP 5

Advanced Energy Efficiency Practices

SUBMETERING TAKES YOU TO THE NEXT LEVEL



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As meters get cheaper and easier to install, submetering becomes a more viable option. The more meters you have in a building, the more granular data you will receive.

BREAK DOWN BUILDINGS BY USE

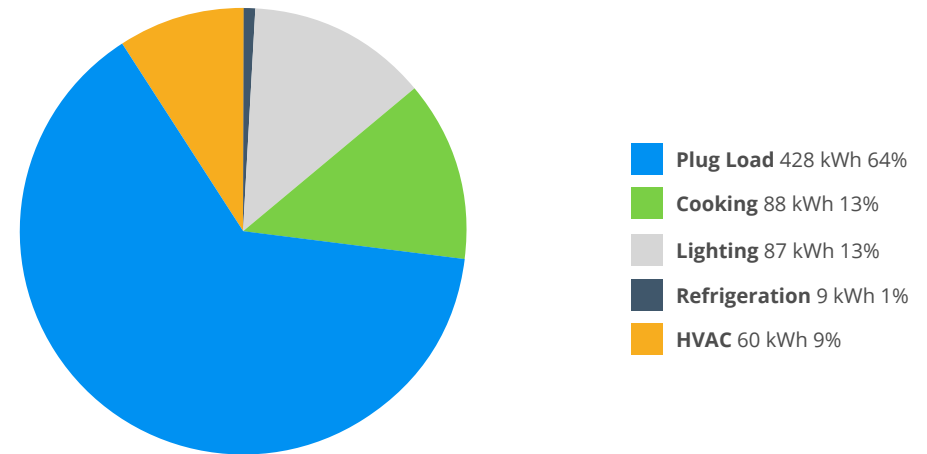
One option is to break your buildings down by utilities. By separating your lights, elevators, HVAC, and plugs, you can see exactly which appliances are using the most energy.

BREAK DOWN BUILDINGS BY SPACE

If you have several tenants who are billed using different methods, submeters can allow you to separate different space in your building. You can collect energy data from certain floors or from certain rooms, depending on how many meters you have.

Using submeters to separate energy use in different spaces allows you to:

- 1 Bill tenants for the energy they use
- 2 Take control of vacant spaces to lower their consumption



Submetered Tenant Billing is Your Secret Weapon for Improving Profits

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