

Improving Operations and Energy Visibility for the GM of Two Hotels

Verdigris is the comprehensive electricity monitoring and notification system for commercial facilities. By delivering deep building intelligence, Verdigris enables greater operational efficiency throughout the built environment.



CASE STUDY

“Most GMs want to know what’s going on in their hotels. By having a system like Verdigris, you can delegate that information so you don’t have to be in ten places at the same time. *Just let Verdigris do that for you.*”

JUAN BUENO, GENERAL MANAGER

**ORCHARD AND ORCHARD GARDEN
HOTELS**

In 2015, Juan Bueno of the Orchard Hotel Group engaged Verdigris to help him get energy use under control in his two hotels. With an understaffed engineering office, Juan lacked the bandwidth to effectively manage energy spend at multiple sites. Verdigris showcased how our system can help general managers achieve more effective operational management and prove achieved ROI at multiple sites.

Verdigris provided key data points for the Orchard team to seek out savings in time and money[CC2] , and its user-friendly notifications can help bridge the gap for under-resourced teams where expertise and man-hours are limited[CC3] .

A photograph of a hotel room. The room features a large bed with a dark wood headboard and footboard, covered in white linens and several pillows. The walls are decorated with vertical yellow and white striped wallpaper. On the left wall, two framed pictures of fruit are displayed. A wooden chair stands near the bed. A nightstand with a lamp is visible on the right. The room is well-lit and appears clean and comfortable.

A Green Pioneer

Under the stewardship of its ownership group, led by committed environmentalist S.C. Huang, the Orchard and Orchard Garden hotels have long been recognized as among the most sustainable properties in San Francisco, an area already known for its leadership in sustainability.

Upon completion in 2007, the Orchard Garden Hotel was the first hotel in San Francisco, and just the third in the US, to achieve the LEED-NC Leadership in Energy & Environmental Design for New Construction designation. Two years later, the Orchard Hotel became the fourth hotel in the world to be granted the LEED-EB certification for an existing building renovation.

Orchard management has always sought to improve efficiency, lower costs and take on new initiatives that are important to its owners, staff and guests, to remain leading eco-friendly hotels.

Customer Challenges

“I always looked at it as having two hotels with different systems, and trying to figure out which hotel was more efficient or see which hotel performs better when we make changes...before Verdigris, we didn't have a way to really analyze that. Now we do.”

- JUAN BUENO, GENERAL MANAGER

However, Juan and the Orchard ownership group had reached their limit. Orchard faced two challenges:

1. Limited engineering capacity to proactively manage their properties in an effective manner.
2. A rigorous method to measure success and return on investment, especially for new energy efficiency projects.

Moreover, from his position overlooking two hotels, Juan wanted a better way to monitor usage and compare results between the two properties. Each 10 stories tall, with a roughly equal number of rooms and located just 500 yards apart, the energy consumption profile should be very similar. In fact, this wasn't the case.

Verdigris Solutions

Orchard turned to Verdigris to access data at a more granular level and assess the impact of engineering decisions made.

In a process that Juan described as “effortless” and without interfering with day-to-day operations, Verdigris installed two systems in each building and began generating actionable insights within five days.

[CC4] Juan chose Verdigris because the system tracks energy usage in real-time and with high granularity, giving him the detail he needs to make informed decisions. But the high resolution of Verdigris’ sensors goes beyond simple energy management by directly highlighting critical equipment malfunctions and inefficiencies, providing much needed operational leverage to Juan and his staff.

Additionally, the system allows users to access this continuous data via a convenient dashboard. Working together, Verdigris presented data in a digestible way to Bueno and his team,

leading to clear, targeted recommendations to present to ownership and move forward with.

“The [Verdigris] data really opened up a kind of Pandora’s box. It’s a lot richer than I expected, and it led us into many conversations like ‘What about this? What about that?’

I was really impressed with the quality and quantity of data from Verdigris.”

Solution 1

Boosting Maintenance Staff Capacity

Orchard needed assistance to supplement its existing building engineering capabilities, where limited headcount made it hard to run the building(s) as effectively as Juan would prefer.

Current procedures required Juan's chief engineer to do manual checks of each building to review equipment operation. Daily physical walk-throughs were scheduled to catch problems before guests notified them of issues, and maintenance staff dispatched to fix them before they became critical.

But as most general managers can attest, this manual process is inefficient at best, and without the resources to spare, Juan often found himself stepping in directly to address issues. At least when they could catch them.

Verdigris automatically identifies these inefficiencies and malfunctions in equipment without taking extra time to hunt for them or waiting for guests to notify management.

“Verdigris’ data allows me to find critical problems I don’t get from daily walkthroughs. Our emergency panel was off, and our VFD's weren’t operating correctly.”

Rather than allocating time to hunting for unknown problems, Juan's chief engineer could allocate time to fixing problems he already knew existed. And with persistent 24/7 monitoring, Verdigris catches these problems any time they occur – whether overnight, on the weekend, or in the middle of Thanksgiving dinner.

Wondering what Verdigris found?

- A broken chilled water pump that maintenance checks had missed, leading to overloading of the paired pump
- No activity on stairwell pressurization fans, required by building code
- Minimal activity on corridor exhaust fans
- The standby heater for the emergency generator shut down for two weeks

“Now I can delegate information, have people follow up on it. I can manage without having to walk around. You can learn a lot from checking out different rooms, but these notifications allow you to let the system do that for you.”

Solution 2

Better ROI Measurement and M&V

“We always try to make decisions to improve efficiency, to lower cost, to tackle initiatives and follow that path that’s important to our owners and to our guests, and it’s sometimes difficult to measure the ROI on those decisions.”

Juan was experiencing a problem that many GMs and CFOs often face: just how do you prove ROI on your efficiency projects?

At the Orchard properties, Juan had been experimenting with different efficiency measures, including VFDs and lighting. The

circuit level data provided by Verdigris allowed Juan to isolate the impact of these projects one by one to judge their value. The results were interesting.

For example, it’s one thing to compare a 100W lightbulb to a 200W bulb and assume you’ll cut electricity in half. It’s another thing entirely to install those bulbs in a real building and see how the ambient lighting affects actual loads. After experimenting with different wattages, and validating his spending with Verdigris data, Juan determined that 150W bulbs actually resulted in the lowest electricity bill. Armed with this information, Juan could confidently upgrade corridor lighting throughout the building.

In July 2015, Juan replaced a 2-step fan drive on the cooling tower with a variable frequency drive. A before and after analysis showed a clear change in operation: a frequently changing, high-spiking power draw was suddenly smooth and predictable. In the peak heating months, average hourly energy

use on the circuit was 18% lower, and real savings had been delivered in energy and peak demand charges.

But the vendor models had promised 30% savings or more. Despite promises of a 15-month payback, modeled data based on ground truth data pointed to a much longer payback.

Never before did Juan have the tools to understand his energy ROI so acutely. With this granular energy data, Juan was able to more comprehensively evaluate the potential benefits of new projects, like waterside economizers and on-site battery storage and make better decisions.

“With Verdigris we had the opportunity to use that tool to look at different time periods to say ‘We made that change; this was the impact’ in a much more quantitative manner.”

Solution 3

Portfolio and Building Benchmarking

On the surface, these two properties could not be more similar. They're both 10 stories. One has 86 rooms, one 104. They were built six years apart. Just two city blocks separates the two properties.

And yet, they weren't as similar as you'd expect. The most surprising fact is that the newer hotel consumes 15% more energy per square foot.

To investigate, Juan compared guest rooms on the fifth floor of each hotel. Adjusting for occupancy, the results were encouraging: although overall energy at the Orchard Garden was higher, energy per unoccupied room was consistently lower.

The newer hotel had a keycard access system, requiring guests (and the housekeeping staff) to insert their key to turn on the

lights. Without the keycard, unoccupied rooms drew just a few hundred watts per day from persistent load, 30% below the sister property. Now Juan can show his ownership the value that this system delivers in both energy savings and real dollars.

“So it’s a way to benchmark things, and hopefully going forward we’ll have so much data we can say that even though our costs went up, we’ve gone down 10% in electrical use, and we’re being better savers and better environmental partners.”

Key Results

Verdigris has provided Orchard with a clearer picture of where energy is going at both properties, while providing directed notifications to engineering staff to help them spend time more efficiently.

Further context into monthly energy bills and the impact of improvements has Juan and the Orchard ownership group excited by the potential of what better data can unlock within their buildings. Moving forward, Juan is looking to use the system to benchmark progress over time to showcase real savings and environmental improvements at his two leading properties. With the right staff in place, supplemented by the power of Verdigris building intelligence,

Moreover, with enough data, these comparisons can include other hotels across the United States to help managers continually push for improvements. For buildings of all sizes, Verdigris can help.

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