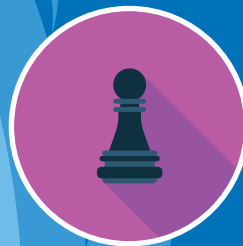




# THE 7 DEADLY SINS OF FACILITY ENERGY MANAGEMENT



# Introduction

Building operators and corporate real estate managers everywhere are now charged with moving their facilities toward ‘best practice’ levels of energy management and occupant engagement. The journey begins with understanding—you need to measure before you manage, make the invisible obvious, and generally walk before you run.

Here are 7 modes of thinking and acting to avoid on your way to success:



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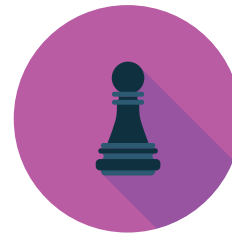
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## Sin of Wrong Accounting

### Capital budget financing

For manufacturers and critical facility managers, energy shouldn't be just a bill at the end of the month. It's not a fixed cost beyond your control. By considering energy as a variable cost and including it within Cost of Goods Sold (CGS), you make energy consumption more visible.

A first step in your plan for energy efficiency is to take a baseline measurement. Then you have something to gauge your progress as you identify, analyze, prioritize and implement Energy Conservation Measures (ECMs). Start with the activities that will give you early, tangible, and statement-making results that will build momentum.

Make it a practice to measure before and after an ECM in order to document your successes. Secure sufficient resources to get the job done, going with external consultants if the resources are not there internally.



Measure energy efficiencies before and after you get started on your project.  
This provides a baseline and will help document your achievements.





## Sin of Fits-and-Starts

### Once-and-done commissioning

You cannot achieve long term improvement goals or energy reduction mandates through periodic retrocommissioning or using a SWAT team to fix problems after you get a phone call. Those approaches may provide temporary benefits, but they are only slowing the performance decline.

Today's critical facilities have the connected infrastructure to support cloud-based data management and analytics software for persistent, ongoing building commissioning.

Rules-based monitoring and analysis of real-time and near real-time information, streaming from energy meters and building equipment, can reveal energy waste due to improper setpoints or faults in equipment, saving money day after day.



Be persistent when measuring energy waste. Consistently measuring real-time data already streaming from meters and building equipment is an ongoing process.





## Sin of Flying Blind

Making decisions without tapping into  
your own data

Many energy benchmarking tools rely on high-level comparisons of similar buildings. While these tools have their place [both the US EPA's Portfolio Manager and the Energy Performance Certification (EPC) system in Europe are key to meeting state and municipal energy disclosure regulations] they cannot tell you how to address issues in your own facility.

Real insight only comes when you have clean, accurate data about your unique environment and use that for analysis and decision making. To support the systematic practice of identifying the root causes of your energy waste and prioritizing conservation measures, you need to plan for the collection of actual time-series data from your meters, submeters, sensors, and building equipment—correlated and analyzed by your own team.

### Ready to demystify your operational data?

▶ [Watch and listen](#) as companies describe their building operations before and after adopting a data infrastructure.



Ensure your data collection is clean and accurate before applying analytics tools.





## Sin of Caveat Emptor

Ripping and replacing equipment without first analyzing your building's data

Many building owners/operators deal with myriad equipment manufacturers and data structures in the daily running of their facilities. Few have a homogeneous environment which can provide a unified view across assets, systems, and buildings.

Moreover, it has been common practice for large equipment vendors to protect their markets through the use of proprietary protocols that make it hard for subsystems to exchange data in the interest of top-down, whole-building energy optimization.

However, this is no reason to spend millions of dollars to standardize equipment.

Today there is intelligent software to create a common and open data infrastructure. These tools can layer across disparate equipment and provide a common view of data and events, regardless of the underlying manufacturers.



An open data infrastructure, when layered across disparate equipment, buildings and systems, provides a common, unified view of whole-building energy optimization.





## Sin of Narrow Scope

Limiting your vision to only  
BAS-connected equipment

Equipment connected to the BAS typically represents less than 50% of the energy consumed in a building. By limiting your attention to BAS data, you are ignoring more than half of your energy costs!

A better strategy is to create a data architecture that will let you connect to equipment and data sources beyond the building control systems. This way, you will be able to expand when you bring new systems into the picture, incrementally adding lighting, plug loads, water, waste water, and on-premises generation like solar, etc.

### Embrace System-wide Flexibility

Carnegie Mellon University lowered their energy footprint by 30% by integrating their systems. [▶Click to watch](#) how they did it.



Your BAS will only provide you with data representing about 50% of the energy your building consumes.  
Remember to connect data sources beyond the BAS to understand the big picture.





## Sin of Stealth Mode

Attempting energy management without involving all stakeholders

If you really want to reduce energy costs, it's not enough to focus on the efficiency of the equipment. You need to engage with all stakeholders: IT, facility managers, engineers, and don't forget the occupants!

Getting IT department buy-in and counsel from the earliest stages of a new energy management project is the best way to ensure your proposed solutions will meet corporate data security and service contract requirements.

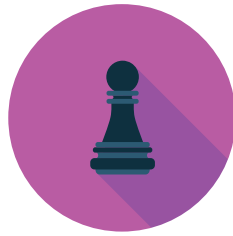
To engage occupants, strive for cleanly designed, easy-to-interpret visualizations to present the data. Behavioral change starts with helping people to see the impact they have on consumption. These visuals need to be (near) real-time to enable positive reinforcement. If people don't see data until the end of the month, it reinforces the feeling of helplessness.



Identify key stakeholders who are impacted by an energy efficient building or campus. Provide them with clear, up-to-the-moment data so they understand their role in energy consumption and can have a positive impact.







## Sin of Short-Term Thinking

Deploying solutions without future-proofing

It's a marathon, not a sprint. There will always be something more to do, another good idea, another way to improve. We know that the next generation of enterprise computing will deliver more applications via cloud services and mobile devices, and we know that staying current with security technology best practices will continue to be an ongoing battle.

With such macro-trends in mind, focus on flexible technologies that can integrate with systems and tools that you haven't even implemented yet.

Avoid specific purpose technologies that might deliver short-term but create hurdles when you evolve.

Start with a vision—even if it includes ideas and goals you might not think are possible for you—it will act as a North Star to guide your decisions today and into the future.



Get started with your vision and strategy by including short-term and long-term goals.  
Investigate flexible technologies that can evolve and integrate with your tools.



## Conclusion

The best starting point for achieving your energy management goals is to create a vision—think several years down the road. Then find the right technologies, flexible enough to enable today’s needs and tomorrow’s goals. Use software as a common infrastructure to connect disparate data sources—including future systems. Lastly, create visibility throughout your enterprise to make the invisible obvious and enable all stakeholders to have an impact.

Avoiding these “7 Sins” may seem challenging, but taking the time to understand them and how they impact your enterprise will ensure you are on the right path to meet your long-term goals.



# About OSIsoft

OSIsoft, a global leader in operational intelligence, delivers an open enterprise infrastructure to connect sensor-based data, operations, and people to enable real-time and actionable insights. As the maker of the PI System, OSIsoft empowers companies across a range of industries in activities such as energy, exploration, extraction, production, generation, process and discrete manufacturing, distribution, and services to leverage streaming data to optimize and enrich their businesses. For over thirty years, OSIsoft customers have embraced the PI System to deliver process, quality, energy, regulatory compliance, safety, security, and asset health improvements across their operations. Founded in 1980, OSIsoft is a privately-held company, headquartered in San Leandro, California, U.S.A, with offices around the world. For more information visit [www.osisoft.com](http://www.osisoft.com).

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