THE 7 DEADLY SINS OF FACILITY ENERGY MANAGEMENT
Introduction

Building operators and real estate managers everywhere are charged with moving their facilities toward ‘best practice’ levels of energy management and occupant engagement. The motivation comes from many directions – cost savings, good stewardship, corporate requirements, and federal/state/local mandates. The industry is crowded with solutions and new technology to solve every problem. How do we decide where to invest in order to solve today’s problems and enable tomorrow’s ideas?

The journey begins with understanding—you need to measure before you manage, make the invisible obvious, and generally walk before you run. But remember this is a marathon, not a sprint. Today’s decisions will impact tomorrow’s problems. So how do you address today’s issues without creating hurdles down the road?

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

- **Sin of Wrong Accounting**  
  Page 2

- **Sin of Fits-and-Starts**  
  Page 3

- **Sin of Flying Blind**  
  Page 4

- **Sin of Caveat Emptor**  
  Page 5

- **Sin of Narrow Scope**  
  Page 6

- **Sin of Stealth Mode**  
  Page 7

- **Sin of Short-Term Thinking**  
  Page 8
Sin of Wrong Accounting
Treating Energy like a FIXED cost

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.

This requires a fundamental change in the way energy is perceived. It’s not enough to show people a monthly bill and expect them to make improvements. There must be a connection between behavior and energy consumption. People have to understand their own cause-and-effect.

A first step in your plan for energy efficiency is to take a baseline measurement and enable people to see their impact in near-real-time. Timely information will enable people to understand the impact of behavior and catch when they start to deviate from expectations. Then you have a baseline to gauge progress as you identify, analyze, prioritize, and implement Energy Conservation Measures (ECMs).

Always measure energy efficiencies before, during, and after your improvement projects. This ongoing visibility and will help document your achievements and enable future projects and successes.

LESSON

Change your mind-set about energy. It needs to be more than a monthly bill; empower people with clear visibility in a timeframe that provides an understanding of cause and effect.
**Sin of Fits-and-Starts**

Once-and-done improvements really aren’t

Everything breaks. Everything fails—maybe quickly, maybe slowly. But if you only pay attention once in a while, you’ll be missing most of the failures.

You cannot achieve long term improvement goals or energy reduction mandates through periodic improvements such as retro-commissioning, scheduled maintenance, 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 pace of failure.

The only way to improve over time is to pay attention continuously. It’s not about big-bang projects; it requires a thousand little bangs. Today’s critical facilities have the connected infrastructure to support continuous data management and analytics software for persistent improvement—ongoing commissioning, condition-based maintenance, and continuous innovation.

Rules-based monitoring and analysis of real-time and near-real-time information streaming from energy meters, building control systems, and IoT devices can reveal energy waste due to improper setpoints, faults, and failures, saving money day after day.

---

**LESSON**

Be persistent when measuring energy waste. Consistently measuring real-time data 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 data, attempting to compare 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 data about your unique environment and use that for your analysis and decision making. To identify the root causes of your energy waste and prioritize conservation measures, you need to collect timeseries 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 listen as companies describe their building operations before and after adopting a data infrastructure.

Time-based sensor data is different than relational data and requires different tools to properly store, analyze, and report. Make sure you select the right technologies for the job.
Sin of Caveat Emptor
Don’t rip and replace – new technology will not solve all of your problems

Many building owners/operators deal with myriad equipment, manufacturers, and data configurations. Few have a homogeneous environment to provide a unified view across assets, systems, and buildings.

Moreover, it has been common practice for equipment vendors to protect their markets through the use of proprietary protocols that make it hard to integrate systems in the interest of top down, wholebuilding energy optimization.

However, this is no reason to spend your limited budget on replacing equipment in the name of standardization.

Today’s intelligent software can 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 manufacturer.
Sin of Narrow Scope
Limiting your vision ignores most of the problem

Equipment connected to the BAS (typically HVAC) represents less than 50% of the energy consumed in a building. By limiting your focus 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 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, wastewater, and on-premises generation like solar, etc.

Embrace System-wide Flexibility
Carnegie Mellon University lowered their energy footprint 30% by integrating their systems. Click to watch how they did it.

LESSON
Remember to connect data sources beyond the BAS to understand the whole picture.
Sin of Stealth Mode

Energy management should involve 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: facility managers, engineers, IT, and don’t forget the occupants!

To engage occupants, strive for cleanly designed, easy-to-interpret visualizations to present 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.

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.

LEsson

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 capabilities – dashboarding, cloud services, mobile devices – and we know that staying current with cybersecurity best practices will be an ongoing effort.

With such macrotrends in mind, focus on flexible technologies that can integrate with systems and tools that you haven’t implemented or maybe even thought of yet.

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

Start with a vision and include ideas and goals you might not think are possible in the foreseeable future. It will act as a North Star to guide your decisions today and into the future.

LESSON
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 future systems.
Conclusion

The best starting point for achieving your energy management goals is to create a vision—think several years down the road. Learn to treat energy as a variable cost, measuring down to a level that enables understanding of consumption, waste, and individual impact. Find the right technologies, flexible enough to address today’s needs and tomorrow’s goals. Avoid the big-bang mentality; true improvement requires a thousand little bangs enabled through continuous monitoring and innovation.

Don’t rip-and-replace systems if it can be avoided; use software as a common infrastructure to connect disparate data sources, including future systems. Remember, many technologies will change, it’s your data that’s critical. 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 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.

Many ways to reach us

Visit | www.osisoft.com/corporate/facilities
Watch | OSIsoft Facilities Webinar OnDemand
Follow | Facebook | Twitter | LinkedIn
Call | +510.297.5800
Email | sales@osisoft.com

All companies, products and brands mentioned are trademarks of their respective trademark owners.
Copyright 2016 OSIsoft, LLC | 777 Davis Street, San Leandro, CA 94577 | www.osisoft.com # TL7EMENO61316