The Definitive Guide to Energy Intelligence Software
Introduction

Part 1: What is Energy Intelligence Software?

Part 2: Six Trends Driving Energy Intelligence Software

Part 3: Six Likely Areas of Struggle for Your Business

Part 4: How Energy Intelligence Software Is Different From...

Part 5: Common Capabilities of Energy Intelligence Software

Part 6: The Business Case for Energy Intelligence Software

Part 7: Buying Energy Intelligence Software

Part 8: EnerNOC’s Energy Intelligence Software

Conclusion
Introduction

Why should you read the definitive guide to energy intelligence software?

For many businesses and institutions, energy is a material cost of doing business, yet it is often the most undermanaged. That is about to change. Increased investor attention, the many choices for (and complexity of) distributed generation, the current “Age of Transparency” that is forcing businesses to measure and report everything, shifting customer attitudes—all of these dynamics are driving enterprises worldwide to think about energy management in a whole new light.

This new era of energy management isn’t just about using less or even just about reducing costs; it’s about minimizing your business’ exposure to risk, understanding how new regulation will shape your costs of doing business, and aligning your employees and departments around common data and goals—in order to improve profitability and stay competitive with your peers.
So what does it mean to manage energy intelligently?
1. Buy energy better.
2. Know what’s driving energy costs and what impact it has on your business.
3. Use less energy, and spend less money.
4. Identify priorities within energy-related initiatives.
5. Report on key energy information with ease.

Energy intelligence software gives users the visibility necessary to do all of the above. The net result isn’t just lower costs: it’s a more efficient, resilient operation that is better positioned for long-term success. By being proactive, your team will actually spend less time reporting to internal and external stakeholders, tracking compliance with the increasing number of energy disclosure and benchmarking laws, figuring out where to invest next, and justifying the investments you’ve already made.

This guide will help you understand:
■ Why energy intelligence software is so important today
■ How energy intelligence software differs from traditional energy management technologies and services
■ What common features and functions are available in energy intelligence software platforms
■ How to build the business case and convince internal stakeholders to act

Ready to dive in? Let’s go!
Part 1: What is Energy Intelligence Software?
Part 1: What is Energy Intelligence Software?

First, some context...

Energy is a major operating expense for most organizations, yet few business leaders have the tools they need to:

- Understand exactly what is driving monthly energy spend
- Prioritize energy efficiency investments
- Establish and enforce policies that make the most sense
- Take the actions necessary to control the energy cost line item as they would other top operating expenses

Energy intelligence software helps organizations make more informed, intelligent decisions around seven key areas of energy management:

- Utility Bill Management
- Budgets and Procurement
- Sustainability and Reporting
- Facility Analysis and Optimization
- Demand Response
- Demand Management
- Project Tracking

For more on software features, see Part 5.
Part 1: What is Energy Intelligence Software?

Energy Intelligence Software (EIS) Defined

**What**

Energy intelligence software (EIS) is a category of enterprise software. It collects, analyzes, and displays different data streams in order to give you the information you need to meet your energy management goals. Its cloud-based tools help you manage a significant operating expense, identify opportunities for cost savings, and improve your team’s productivity. Energy intelligence software helps the enterprise optimize energy management similarly to the way Salesforce.com optimizes customer relationship management, or how Workday streamlines human resource management.

**How**

EIS collects information about a number of factors that impact overall energy costs (consumption, real-time pricing, production data, weather, etc.) through a variety of data streams (e.g., utility bills, smart meters, building automation/SCADA systems, etc.). The software manages and analyzes the data to surface actionable information for you and your team.

**Why**

EIS helps companies like yours improve visibility, set and enforce energy management policies, maximize resources, efficiently comply with energy mandates and regulations, improve profitability, and get an edge over the competition.

**Who**

**Companies:** EIS is ideally suited for large enterprises where energy is a significant operating expense. Typically, energy intelligence software is a worthwhile investment for companies with an annual energy spend of over $1 million (or an average of $100,000 per site across a portfolio of 10+ buildings).

**Industries:** Organizations across all types of industries can benefit from energy intelligence software. Industries where energy spend is a significant portion of ongoing operating expenses, or where energy is a key input to an operational or manufacturing process, are positioned to benefit the most from EIS.

Sample industries that fit these descriptions include:

- Commercial Real Estate
- Financial Services
- Retail and Grocery
- Food Processing
- Manufacturing
- Education (K-12 and Higher Ed)
- Government
- High Tech
- Pharmaceuticals
Part 1: What is Energy Intelligence Software?

What Energy Intelligence Software is Not

**Another building automation system**

Building automation systems (BAS) are great. They’re programmed to know when to turn things on and when to turn them off. They set temperatures in different parts of the building so you don’t have to run from room to room or floor to floor. They do a lot of things that make the occupants of your building happy and comfortable. Energy intelligence software isn’t a replacement for your building automation system; it’s a complementary tool that informs best practices for scheduling and optimizing that BAS for maximum cost savings.

**A tool designed only for energy managers**

Energy managers have it hard enough as it is—there’s only about one of them for every 360 buildings in the US. But on a broader scale, who “owns” energy within a given organization is often decentralized and disconnected. These silos create a lack of accountability between departments, resulting in a situation vulnerable to high costs and inefficiency. By having all energy data in one centralized platform, and features and tools designed for a more diverse set of users, everyone from the facility manager to the person responsible for delivering the latest forecast to the CFO is empowered to make smarter decisions.

**A solution that delivers value without effort**

Ultimately, not everyone looking at energy data knows what to do with it. To have a real impact, you need to combine that data with software analytics in order to identify opportunities for eliminating waste and to calculate the opportunity based on actual financial impact. Then you need to assign an action to an individual to actually get it done. Simple energy dashboards don’t do all of that.
Part 1: What is Energy Intelligence Software?

Can my organization benefit from energy intelligence software?

Use this worksheet to rate how important the following factors are to your organization on a scale of 1 to 5, where 1 is not at all important and 5 is extremely important.

<table>
<thead>
<tr>
<th>I need to be able to...</th>
<th>Scale of 1–5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Understand how much we spend on energy each month.</td>
<td></td>
</tr>
<tr>
<td>Create an energy budget and track against it.</td>
<td></td>
</tr>
<tr>
<td>Protect my business from risks associated with energy markets.</td>
<td></td>
</tr>
<tr>
<td>Calculate and report energy cost accruals at month’s end.</td>
<td></td>
</tr>
<tr>
<td>Procure energy at the best possible price.</td>
<td></td>
</tr>
<tr>
<td>Show that we received the best possible price.</td>
<td></td>
</tr>
<tr>
<td>Have a central record of utility bill data for reporting, budgeting, and tracking.</td>
<td></td>
</tr>
<tr>
<td>Identify and resolve errors on our utility bills.</td>
<td></td>
</tr>
<tr>
<td>Track, analyze, and report energy use and CO₂ emissions.</td>
<td></td>
</tr>
<tr>
<td>Identify new ways to reduce energy spend (with no or little out-of-pocket expense).</td>
<td></td>
</tr>
<tr>
<td>Comply with reporting standards (ENERGY STAR, GRESB, NABERS, CDP).</td>
<td></td>
</tr>
<tr>
<td>Compare facilities within my portfolio and benchmark them against similar peer groups.</td>
<td></td>
</tr>
<tr>
<td>Track the impact of our energy projects and investments.</td>
<td></td>
</tr>
<tr>
<td>Ensure that energy management policies are being enforced.</td>
<td></td>
</tr>
<tr>
<td>Engage your stakeholders (staff, tenants, students, etc.) in our broader energy management.</td>
<td></td>
</tr>
<tr>
<td>Figure out new ways to fund our energy management initiatives.</td>
<td></td>
</tr>
<tr>
<td>Know ahead of time when new facility and system demand peaks may occur.</td>
<td></td>
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<tr>
<td>Make operational decisions based on real-time energy price information.</td>
<td></td>
</tr>
<tr>
<td>Analyze peak demand charges and reduction opportunities.</td>
<td></td>
</tr>
</tbody>
</table>

If you scored above 48 points:  
Energy intelligence software is likely a wise investment for your organization.

If you scored between 32 and 48 points:  
EIS could be a “nice to have” tool for your teams, but isn’t necessarily mission critical.

If you scored below 32 points:  
Your dollars may be better spent on other initiatives.

Total points
Part 2: Five Trends Driving Energy Intelligence Software
Today’s business world is more dynamic than ever before. Here are some of the trends impacting how you should be managing energy.

**Trend #1: Energy is getting more complex (and so are your options for where to get it).**

Take the US for example: there are over 3,292 utilities across the country (some in regulated markets, some in deregulated), 18,300 electric rate classes for commercial and institutional customers, and 95,000 discrete tariff pages across those rate classes—that’s a lot that goes into calculating costs. And when you have an average of 13 departments involved in energy management, and bills arriving 45–60 days after a meter reading, cost management becomes even trickier.

In many US markets, businesses can incur peak demand charges based on the single 15- or 30-minute period during the month when a facility uses the most electricity—which can add thousands of dollars to a monthly bill. Meanwhile, with the ongoing volatility in energy pricing (including the impact of extreme weather events like the polar vortex), even the most proactive of energy managers frequently find themselves at a loss. Take into account the current exponential growth in energy sources—solar, wind, batteries, co-generation, etc.—and energy quickly becomes one of the most complicated line items to manage.

**Trend #2: Better energy management isn’t always voluntary.**

Over 190 countries at the Paris climate conference in late 2015 agreed to limit average global temperature increases to 2 degrees Celsius. Regardless of one’s personal views on the subject, one thing is now clear: more climate change legislation is coming. Local governments have already been taking action; since 2007, energy disclosure laws have increased by 150% year-over-year throughout the US. They come with all sorts of different names: in the US, there is Austin’s Energy Conservation Audit and Disclosure (ECAD), Washington DC’s Clean and Affordable Energy Act, New York’s Local Law 84 and Local Law 87.

Australia has the Building Energy Efficiency Disclosure Act 2010, the UK has the Carbon Reduction Commitment (CRC), and all of Europe is reacting to Article 8 of the EU EED. How many more cities and countries will adopt these policies in the next few years? Governments aren’t the only ones putting the pressure on; investors are asking for the numbers, too. Complying with these rapidly expanding laws can be a significant burden on time and resources, and can pose significant corporate risk.
Part 2: Five Trends Driving Energy Intelligence Software

Trend #3: We waste a LOT of energy—but we’re not doing enough about it.

This one isn’t so much a trend as a fact. According to the US EPA, commercial and industrial enterprises represent over 50% of US energy consumption—and 30% of that energy is wasted on average each year, representing $118B of corporate profit being left on the table.

Energy policy enforcement—similar to what you’d see within travel and expense or other distributed enterprise cost—is a great example of this at work. Our data shows that US buildings with a technology-enabled energy policy and enforcement strategy save 20% more energy during holiday periods than they would otherwise, equal to $700M in savings.

For policies like these to be successful, companies need access to the data and the tools to enable them. However, less than a third of businesses report having access to high-quality energy data or advanced analytical tools to manage it\(^1\). We’ve got a long ways to go.

Trend #4: Best-in-class companies—and their investors—are starting to pay attention.

In a world of scarce budgetary resources and increasing demands, the CFO has seen energy efficiency projects deprioritized over more “business-critical” initiatives. But as the connection between business profitability and energy management becomes clearer, that’s starting to change. According to Deloitte’s 2015 Resources study, “thoughtful, deliberate energy consumption has permeated the business psyche, and companies, by and large, now consider energy management to be an essential aspect of corporate strategy.”

Why the pivot? Today’s investors are starting to look at how businesses manage less-tangible assets, like brand value and process excellence. According to the Global Sustainable Investment Review, 30% of global stock investments in 2014 (US$21.4T) were selected in part because they demonstrated strong corporate responsibility performance—a trend that’s expected to keep rising.

The pressure on C-levels to make more sustainable business decisions also comes from today’s fastest-growing consumer and employee base: millennials. Over 60% of today’s CEOs rate demographic shifts as a key megatrend transforming their business\(^2\), as they begin to recognize that the companies that care about their environmental impact are the ones that win the favor of millennials.

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1 Deloitte’s 2015 Resources study
2 PwC’s 17th Annual Global CEO Survey
Part 2: Five Trends Driving Energy Intelligence Software

**Trend #5: Technology is turning energy into a manageable operating expense.**

Leading companies don’t treat energy like rent—they treat it like an actual, manageable cost. But for years there have only been a myriad of point solutions with complicated business propositions and unproven ROI, with no enterprise-class solutions in the market that really address the complexity of the energy management challenge.

Today, new technologies and advancements in machine learning, unparalleled amounts of data generated by the Internet of Things, and rapid advancements in big data analytics have converged to help companies manage energy like any other corporate expense. In a recent Forbes Insights report, US-based Boston Properties’ CIO Jim Whalen said that only five years ago, “there weren’t necessarily viable options for meeting these types of data requirements... we’re seeing an alignment of market dynamics to deliver new features and platforms right now.”

**Conclusion**

At a macro-level, energy is becoming more and more complex. The financial mandate to get energy costs under control is reinforced by legal mandates, such as compliance rules and regulations. Despite these compelling factors, and the increasing pressure to be a more sustainable business, those responsible for managing energy costs don’t always have the tools they need to take control.

To correct for this reality, energy decision-makers need to understand a) how energy cost drivers are impacting their business, b) how software can be used to manage these cost drivers, and c) how to build the business case for and align their business with a software-driven approach.
Part 3: Six Likely Areas of Struggle for Your Business
## Part 3: Six Likely Areas of Struggle for Your Business

<table>
<thead>
<tr>
<th>The Pain</th>
<th>Who Feels the Pain</th>
<th>Root Causes</th>
<th>How EIS Can Help</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. “I’m not sure we’re getting the best price on energy.”</td>
<td>CFO, VP of Finance, VP of Procurement, Procurement Manager</td>
<td>Every business has to buy energy to stay in business—but knowing when to buy and what to buy can be a challenge. Customers without access to market information and a platform to interact with competitive energy suppliers might pursue procurement strategies that end up costing them unnecessarily.</td>
<td>EIS helps customers go to market for energy at the best available price, at the right time.</td>
</tr>
<tr>
<td>2. “Complying with energy data disclosure laws is (or will be) a huge headache for us.”</td>
<td>CFO, Director of Corporate Sustainability, VP of Procurement/Procurement Manager, General Manager, Energy Manager</td>
<td>Regulatory compliance is a necessary component of conducting business, and energy consumption is also becoming more and more regulated. Throwing man-hours against the problem can be inefficient and costly.</td>
<td>EIS automates the process and reduces risk associated with non-compliance.</td>
</tr>
<tr>
<td>3. “My team spends way too much time tracking down information and reporting on energy spend.”</td>
<td>CFO, VP of Operations, VP of Sustainability, Energy Manager</td>
<td>Collecting and aggregating data to meet reporting needs for benchmarking tools like ENERGY STAR or NABERS, or other corporate sustainability purposes, takes up valuable time and resources.</td>
<td>EIS aggregates key data streams and has automated tools to help enterprises meet reporting goals.</td>
</tr>
</tbody>
</table>
# Part 3: Six Likely Areas of Struggle for Your Business

<table>
<thead>
<tr>
<th>The Pain</th>
<th>Who Feels the Pain</th>
<th>Root Causes</th>
<th>How EIS Can Help</th>
</tr>
</thead>
</table>
| 4. **“It is difficult to have an accurate view of energy costs and budget across my portfolio in order to manage against them.”** | General Manager  
Director of Facilities/Operations/Engineering  
Energy Manager  
Property Manager | Some buildings, and the teams that run them, are finely tuned machines—others, not so much. | **EIS collects data from all your buildings—via BAS, bills, meters, SCADA, etc.—into one central place and provides tools to help your teams manage building performance.** |
| 5. **“I’m focused on [X aspect of energy], but some other department handles [Y], I don’t have easy access to the information I need to do my job.”** | Director of Corporate Sustainability  
VP of Procurement/Procurement Manager  
Director of Operations  
General Manager  
Energy Manager | Responsibility for energy management is spread across the enterprise. Competing goals and silos of responsibility inhibit effective communication and alignment. | **EIS translates energy into the metrics that matter to all stakeholders, and serves as a single tool and communication platform between departments.** |
| 6. **“Energy feels like an uncontrolled cost.”** | CFO  
VP of Asset Management  
Energy Manager | With so many departments “managing” energy it’s challenging to establish enterprise-wide best practices, never mind enforce them. | **EIS helps operations leaders establish clear energy policies and provides the tools to ensure policy enforcement.** |
Part 4:
How Energy Intelligence Software Is Different From...
Energy intelligence software is a relatively new class of enterprise software, but individual point solutions have been around for decades. Understanding how EIS is different than other common energy management tools is essential for explaining the value of EIS.

### Building Automation Systems

**What it is**
Software to manage the myriad mechanical and electrical systems in your building.

**What it’s good at**
Setting schedules and controlling equipment to prescribed sequences of operation.

**What it’s not good at**
Managing energy and providing centralized data across multiple sites. One of the biggest challenges in managing a portfolio is the diversity of building management systems; as facilities are bought and sold, facility managers have to learn and use the legacy systems that come with the building.

**How it’s different than EIS**
Building management systems will send you alarms when systems aren’t being controlled correctly, but they won’t tell you when and where the facility is wasting energy and costs.

EIS provides a common platform connecting facility operations to the finance organization, and ties energy consumption to utility rates and tariffs to speak a common language across the organization: dollars.

### ENERGY STAR Portfolio Manager

**What it is**
An online tool for measuring and tracking energy and water use.

**What it’s good at**
Comparing a facility’s energy performance to similar facilities nationwide. Complying with local regulations to disclose energy performance.

**What it’s not good at**
Streamlining the data collection process across facilities in a portfolio. ENERGY STAR reporting requirements often put additional burden on energy and sustainability teams to gather energy and water usage data from sites.

**How it’s different than EIS**
The ENERGY STAR benchmarking process and score is just a start—once you know which facilities have the lowest scores, EIS helps identify tactical ways to improve.

EIS can help automate the reporting process by integrating with tools like ENERGY STAR to provide benchmarking using utility data tracked in a central platform.
### Part 4: How Energy Intelligence Software Is Different From...

#### Energy Audits and Retro-Commissioning

<table>
<thead>
<tr>
<th>What it is</th>
<th>A set of tests and evaluations culminating in a report documenting the many ways you can save energy.</th>
</tr>
</thead>
<tbody>
<tr>
<td>What it's good at</td>
<td>Providing a comprehensive list of energy savings opportunities.</td>
</tr>
<tr>
<td>What it's not good at</td>
<td>Turning recommendations into action. Energy audits typically identify capital projects and operational improvements to reduce costs. But without context into how facilities are performing over time, audit reports can sit on the energy manager's desk for months and not get translated into persistent savings.</td>
</tr>
<tr>
<td>How it's different than EIS</td>
<td>The biggest difference is that EIS isn't a &quot;one-and-done&quot; tool for finding savings. As Lawrence Berkeley National Labs reports, even the performance of a fully tuned building will start to erode at a rate of 20% each year, which means after five years, you’re back at square one. Persistent visibility into energy costs across your organization means that the savings you’ve already achieved don’t degrade over time.</td>
</tr>
</tbody>
</table>

#### Spreadsheets

<table>
<thead>
<tr>
<th>What it is</th>
<th>Hello, Microsoft Excel.</th>
</tr>
</thead>
<tbody>
<tr>
<td>What it's good at</td>
<td>Analyzing data, building very basic budgets and forecasts, customized to your heart’s content.</td>
</tr>
<tr>
<td>What it's not good at</td>
<td>Collecting data from disparate systems and sources across an organization. Maintaining version control and consistency over time.</td>
</tr>
<tr>
<td>How it's different than EIS</td>
<td>Spreadsheets are powerful and easily customizable tools, but with so many chefs in the proverbial kitchen and little quality control, they’re prone to errors. As energy management efforts grow beyond the scope of a single facility or group within the organization, spreadsheets quickly become insufficient as an enterprise-class tool for energy intelligence.</td>
</tr>
</tbody>
</table>
Part 4: How Energy Intelligence Software Is Different From...

Seven Signs It’s Time to Embrace the New World Order

1. During budget season, your team spends more time entering data than sleeping.

2. You have more than one retro-commissioning or energy assessment report collecting dust in your office.

3. You’re still traumatized by the impact the polar vortex of 2014 had on your energy budget.

4. Your BAS has so many alarms set that you now ignore them all.

5. Your utility bill made you gasp out loud at least once last year.

6. Your investors keep asking when you’re going to submit paperwork for the requirements laid out for ENERGY STAR/GRESB/NABERS.

7. “How about we take last month and add 2%?” is how your accountants typically calculate accruals during budget season each year.
Part 5: Common Capabilities of Energy Intelligence Software
#1: How You Buy Energy

The way you purchase energy—and how you pay for the energy you bought—matters. Have you secured the best price per kWh or BTU on your contract? Are you exposed to market risk? Have you fully unpacked the different components of your tariff? And even if you did negotiate the best contract, do you know if your utility bills are accurate?

Securing optimal contracts and accurately tracking utility bills, tariffs, and costs are the foundation for building budgets and making purchasing decisions. Understanding your performance against budgets and forecast, particularly during intra-reporting periods, can affect your operations.

#2: How Much Energy You Use

If the cheapest kilowatt hour is the one you don’t use, think about how much the wasted kilowatt hours are costing you. Do you know where most waste is occurring within your facilities? Do you know where to start looking?

Knowing how much energy is used in any given hour or minute can reveal potential sources of energy waste, and help you understand the status of your building(s). But in many cases the person responsible for uncovering insights in the data may not be the person responsible for taking action, so it becomes important to quantify that waste in terms of dollars to help make the case for change.

#3: When You Use Energy

Peak demand charges can wreak havoc on your energy budget. In deregulated markets, these charges are often passed through as a separate line item, but even in regulated markets, your peak demand profile could bump you into a higher rate class. Do you have the visibility you need to know when these peaks occur and strategies for how to avoid them? Are you participating in a demand response program that pays you for using less energy during times of grid constraint?

If you have the flexibility to shift energy-consuming activities, this is a huge opportunity for better energy productivity. With a smart demand management approach, energy managers have the visibility to understand when these charges are incurred and can take measures accordingly to shift production schedules or turn off non-essential equipment until the critical period passes.

Each of these cost drivers can be managed independently, but a siloed approach leaves money on the table and exposes your organization to unnecessary risk.
An enterprise EIS solution should address all three energy cost drivers by delivering against seven core areas of functionality with tools to:

1. Set and manage budgets and procure energy.
2. Manage utility bills.
3. Get visibility into and report on energy consumption and costs.
4. Optimize facilities.
5. Track energy projects.
6. Participate in demand response.
7. Manage peak demand.

Different vendors offer strengths and capabilities across these categories, so we’ve indicated how common each feature is in the tables on the following pages.
Part 5: Common Capabilities of Energy Intelligence Software

How You Buy It

Budgets and Procurement

Every business has to buy energy. In competitive energy markets, it can be a time-consuming, tedious process—and you never really know if you secured the best possible price.

Whether you locked in a fixed rate or have a certain level of exposure, or even if you’re in a vertically integrated market where there is only one utility, understanding how you are billed for energy is essential for effective budgeting, forecasting, and evaluation of energy management initiatives.

EIS can help manage energy costs through better budget management, cost accrual tracking, providing insight into real-time energy prices, and facilitating energy procurement in open markets.

Utility Bill Management

Managing dozens or hundreds of bills is time-consuming and can be maddeningly complex. Utility bill management (UBM) is a critical part of any EIS solution because it takes data out of spreadsheets and makes it accessible to other back-office financial and operational systems that can provide better planning.

<table>
<thead>
<tr>
<th>Capability</th>
<th>Description</th>
<th>Commonality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Develop accurate energy budgets</td>
<td>Developing and tracking energy budgets is critical for operations and portfolio managers, yet these are often managed using backward-looking utility bills. By streaming energy data directly from the facility, EIS can help users track performance against their annual budget.</td>
<td>★★</td>
</tr>
<tr>
<td>Track cost accruals</td>
<td>EIS connects energy consumption measured by the utility meter with accurate utility rates to show accrued energy costs prior to receiving the utility bill. These tools reduce the time and risk associated with the month-end accrual process.</td>
<td>★★</td>
</tr>
<tr>
<td>Manage exposure to real-time pricing</td>
<td>Real-time pricing information is critical for facilities purchasing energy with exposure to market prices. Alerts on real-time prices help facilities react to avoid cost overruns due to price spikes.</td>
<td>★★</td>
</tr>
<tr>
<td>Procure energy through competitive auctions</td>
<td>Energy auctions connect commercial, institutional, and industrial end-users with competitive energy suppliers, providing a marketplace to procure electricity and natural gas at cost-effective rates.</td>
<td>★★</td>
</tr>
<tr>
<td>Collect historical utility bills</td>
<td>Centralizing utility billing information is often the first step toward more effective energy management. Ditch the spreadsheets, and use EIS to gather your bills in one place!</td>
<td>★★</td>
</tr>
<tr>
<td>Track trends in utility usage and cost</td>
<td>Utility bills are often overlooked as a starting point in energy management. By tracking trends in utility consumption over time, you can pinpoint the facilities that are costing you the most.</td>
<td>★★</td>
</tr>
<tr>
<td>Discover and report billing errors</td>
<td>With hundreds of different formats, countless line items, and opaque charges and riders, it can be tough to dig into your utility bill to identify errors. EIS tools simplify this challenge by applying a set of rules on each invoice to identify and flag bill errors.</td>
<td>★★</td>
</tr>
<tr>
<td>Streamline accounts payable</td>
<td>For larger organizations, paying utility bills can represent a logistical challenge. Avoid late fees by using a bill payment service or automating the accounts-payable process through EIS tools.</td>
<td>★★</td>
</tr>
</tbody>
</table>
Part 5: Common Capabilities of Energy Intelligence Software

How Much You Use

Sustainability and Reporting
Demand for energy reporting is increasing—whether it’s requirements to comply with ENERGY STAR disclosure policies, investor interest in standards such as GRESB and CDP, or internal KPI tracking.

EIS provides the real-time visibility necessary to understand the big picture—trends in energy consumption, how weather impacts energy usage, what processes increase carbon impact—as well as a centralized data platform to make reporting less painful.

Facility Analysis and Optimization
Facility managers and operations staff know their buildings inside and out, but often lack the time and resources to fix known problems or effectively prioritize projects. EIS helps identify opportunities to reduce waste and prioritize efforts to improve energy performance across a diverse portfolio.

<table>
<thead>
<tr>
<th>Track trends in energy use and carbon impact</th>
<th>Energy intelligence software tools provide numerous ways to analyze energy performance, starting with basic trending of consumption and costs over time and across a portfolio.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visualize real-time energy data to understand consumption patterns</td>
<td>Real-time energy monitoring provides a level of insight deeper than the utility bill, identifying load profiles and patterns in energy consumption in order to highlight anomalies and better manage usage.</td>
</tr>
<tr>
<td>Automate compliance reporting</td>
<td>Local benchmarking and disclosure laws have led many companies to report energy usage through ENERGY STAR or other benchmarking standards. Doing so manually places a burden on your energy team and takes time away from more valuable activities—EIS tools can interface with ENERGY STAR Portfolio Manager and other compliance databases to simplify the reporting process and give your team more time to focus on reducing costs.</td>
</tr>
<tr>
<td>Disaggregate and track actual consumption and demand costs</td>
<td>Real-time energy information provides insights into usage patterns, but coupling this with utility rate information allows users to tackle the usage patterns that drive higher costs.</td>
</tr>
<tr>
<td>Benchmark and compare facilities</td>
<td>Managing energy can be difficult without an effective means of comparison across buildings. Benchmarking using standard KPIs helps energy managers identify top-performing facilities which could share best practices, as well as lower-performing facilities which could benefit from additional analysis.</td>
</tr>
<tr>
<td>Analyze meter data to identify cost-saving opportunities</td>
<td>Automated analytics on metered energy usage pinpoint anomalies and energy waste that can be corrected through simple operational changes.</td>
</tr>
<tr>
<td>Prioritize actions across a portfolio</td>
<td>The biggest challenge facing many energy managers is one of limited resources—limited staff, limited time. EIS can help the energy manager prioritize projects and efforts across the portfolio to make the most of those limited resources.</td>
</tr>
</tbody>
</table>
Part 5: Common Capabilities of Energy Intelligence Software

**Project Tracking**

Whether your organization’s objective is to manage risk, comply with local benchmarking and disclosure regulations, or reduce energy costs, achieving your objectives requires constant and vigilant project management.

For an energy manager with stretched resources, project management is often a full-time job! Energy intelligence software reduces this burden by helping energy managers make the business case for energy projects, track progress and accountability along the course of a project, and demonstrate the success of completed initiatives.

**When You Use It**

**Demand Response**

Demand response (DR) programs pay large energy consumers to reduce at times when the grid is stressed, available supply is limited, or when real-time prices for electricity are skyrocketing. Energy intelligence software tools should give you access to demand response programs as well as comprehensive tools to manage your performance during demand response events.

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**Make the business case for energy projects**

Viable opportunities to reduce energy costs and eliminate waste sometimes languish because the energy team doesn’t have budget to implement the project. The first step toward getting budget is a sound business case—something that EIS can help you prepare.

**Assign owners to key projects**

Projects get implemented faster and more effectively when you can establish clear accountability and ownership. EIS tools can provide a communication platform for assigning ownership to energy projects and operational changes that reduce waste.

**Measure and verify the impact of initiatives**

Seasoned energy managers know that measurement & verification of energy and cost savings is critical to ensuring ongoing support for an energy management program. By accounting for factors like weather and operating profiles that drive energy consumption, EIS can track the impact of energy projects.

**Assess performance against baselines**

High-performing energy teams don’t always get the credit they deserve for reducing energy costs. Baseline models provide a way to measure and demonstrate success by showing what consumption and costs would have been, had your team not intervened.

**Earn revenue to fund your projects**

Until recently, operational cost centers have rarely had the ability to generate revenue to fund their energy management program. Demand response changes that paradigm by monetizing your operational flexibility and generating revenue or credit for providing a valuable service to the electricity grid.

**Measure and manage DR event performance**

You’ll need the real-time visibility and feedback provided by EIS to ensure you get the most out of available demand response programs by managing your energy consumption during grid emergencies.

**Track payment history**

Make sure you’re performing as expected and getting the revenue you expect from your participation in demand response programs. Some EIS platforms make this data available at your fingertips, so you know what you can expect to receive.

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* Demand response programs are highly regionalized. In some territories, utilities have exclusive relationships with a specific provider.
## Demand Management

In addition to energy charges, most large facilities pay demand charges for the ability to consume energy at specific times of the day—and these charges can be significant!

Energy intelligence software should help you make sense of demand charges, alert you when your facility is peaking, and provide some visibility into upcoming peaks and price spikes.

### Alerts on demand thresholds
Managing peak demand starts with a smart strategy for operating your facility and systems during peak hours, and remaining proactive to reduce consumption when demand starts to rise. Savvy energy teams control demand charges by setting expected thresholds for their electric demand during peak times, and use EIS to alert operations staff when demand exceeds these thresholds.

### Quantify cost impact of demand peaks
Demand charges can represent over 30% of your monthly utility bill, but there are myriad ways that utilities can bill you for your peak demand. By integrating with your utility rate schedule, EIS can demystify these charges and give you visibility into how much you pay for peak demand.

### Forecast new facility peaks
Demand management strategies are most effective when your team has advance notice to prepare for necessary changes to the operation. Advanced EIS tools now include prediction capabilities to alert your operations team that the facility will set a new peak in the upcoming days.

### Predict system peaks to manage capacity charges
In addition to local distribution utility charges, many commercial and industrial facilities in competitive markets (PJM, ERCOT, ISO-NE, and NYISO in the US) also pay capacity charges to the supplier or transmission company to ensure the grid has enough generation and transmission capacity to provide power to all customers when the system hits peak demand. EIS helps facilities reduce their capacity charges by forecasting upcoming peak days and curtailing usage to reduce their capacity obligations.

### Alert on real-time and day-ahead index prices
Tracking price shifts in the market is a critical element of managing risk for organizations and facilities that purchase energy on open markets; during the polar vortex of January 2014, average prices in some zones of PJM soared to 40 times their average! EIS provides visibility and alerting on real-time market prices so facilities can react, reduce consumption, and avoid price shocks.
Part 6:
The Business Case for Energy Intelligence Software
The Core Business Case

When putting together a business case for energy intelligence software, most people’s first instinct is to start with energy savings and payback period; after all, for decades “energy management” was synonymous with a big capital improvement project.

Energy savings are certainly a big piece of building a compelling business case, but it’s just one piece of the puzzle. To get started, frame the goal you are trying to achieve and the returns you can expect. Start with the current state and challenges, and then describe the positive business outcomes you’ll achieve from putting EIS in place.

Our work with customers shows that EIS helps businesses and institutions achieve their goals by recognizing the following five key areas.
Visibility

Sometimes building a compelling business case is challenging because it’s difficult to even scope the size of the problem or opportunity. For many businesses, having visibility can be extremely valuable. Why? Because without data, it’s hard to make informed decisions, and energy management in general is notoriously opaque and complicated. The majority of business leaders we speak to don’t even know how much they spend on energy, let alone understand the complexities of the cost drivers that determine their energy bill each month.

While it’s not easy to put a hard dollar figure on it, any case for energy intelligence software has to include the importance of data management, better decision making, and an understanding of how much you spend on energy and how it’s getting used.

Here are some of the key positive business outcomes you should be looking for:

- An energy budget you feel confident you can achieve, month-after-month, no matter what happens in energy markets
- The ability to manage to a budget at business speed, identify issues, and take action to avoid overspending
- A clear understanding of what is typically a “top five” expense for your business and its impact on your bottom line
- An understanding of the components of your energy spend and where you can take action to mitigate any risks or reduce costs
- An understanding of what energy metrics are material to your business and your performance against them

As investors pay more attention to these metrics, visibility will start to translate into business value and financial performance.

Reduced Costs

Here, in addition to clearly describing positive business outcomes, you can start to bring in real dollars to show ROI to your key stakeholders. The two main types of cost reductions you can expect to achieve are to save money off your energy bill, and to save staff time.

Saving Off Your Energy Bill

On average, users of energy intelligence software will save 6–10% off their energy bill from software alone. Factor in professional services and that number can easily reach upwards of 20%. Start to use EIS to identify priorities and better execute your capital projects and your team will be operating at a best-in-class level. Some customers are able to reduce their bills by as much as 50% through targeted upgrades, renewable strategies, and the visibility they need to manage an integrated energy strategy.

When coming up with figures for your business, take into account not only consumption savings, but the potential impact of demand charges, bill error savings, and improved procurement processes.

Time Savings

Reporting is a necessary evil in life. You can’t manage what you don’t measure, but reporting is time-consuming and takes up valuable resources. Automatic reporting arms your teams with timely, actionable information without becoming a drain on staff resources. Whether it’s doing your monthly accruals with accounting, reporting against internal goals, or working with external standards such as GRESB, ENERGY STAR, and NABERS, taking those hours off the table frees up valuable resources.
Collaboration

One of the major challenges in managing energy is that it’s often not just one person’s responsibility—it touches as many as 13 different departments. The result is often a series of disconnected initiatives across procurement, finance, operations, real estate, facilities, and sustainability or energy teams.

With EIS, you’ll all be working from a single set of data, with the tools and framework in place to manage energy holistically. For example, when procurement goes out to bid, you’d know your load profile, and understand the impact of your decisions on energy efficiency initiatives, capacity charges, sustainability goals, and how finance will do your accruals at the end of the day.

Here are some of the key positive business outcomes you should be looking for:

- A single source of data for energy costs across the enterprise that is accurate, up-to-date, and reliable
- A framework for managing energy across your enterprise and a playbook to make you and your team successful
- The ability to easily share reports, dashboards, and alerts to manage energy across the enterprise

Accountability

The flip side of having energy touch every employee across the enterprise—from the employee who leaves their office lights on at night to real estate companies signing new leases to plant managers making production and scheduling decisions—is that often no one feels accountable for the spend at the end of the day. Energy becomes something that just “happens.”

Here are some of the key positive business outcomes you should be looking for:

- Clear governance and ownership for your energy spend
- Visibility into where and how money is spent on energy—and what you can do about it
- The ability to allocate costs to different parts of the business
- The ability to find best practices and underperformers and share information across the enterprise

Relevance

You know energy is important—as a significant operating expense for your enterprise, as a key input in our economy, and as a valuable resource to conserve. That’s why you’re focused on evaluating energy intelligence software.

But how do you make energy relevant to the rest of your business? By connecting it back to key business initiatives and financial goals.

For more tips on selling energy intelligence software internally, keep reading.
Part 6: The Business Case for Energy Intelligence Software

How to Position EIS to Your Stakeholders

If the decision was yours and yours alone, you’d be ready to move forward with EIS. But unfortunately, you answer—either directly or indirectly—to many different stakeholders in your organization. Here’s how to make the case for each of them:

<table>
<thead>
<tr>
<th>Role</th>
<th>Biggest Concerns</th>
<th>Making the Case for EIS</th>
</tr>
</thead>
</table>
| Chief Financial Officer | ■ Manage costs  
■ Mitigate risks  
■ Enable profitable growth  
■ Plan for the long term | ■ Show how EIS translates non-financial metrics (kWh) into financial metrics ($), and provide the visibility necessary to turn it into a controllable cost.  
■ Demonstrate the tools EIS provides to help forecast budgets more accurately.  
■ Highlight the ROI: EIS can help reduce energy spend up to 20% across the enterprise. |
| VP of Operations       | ■ Optimize operations while staying within budget  
■ Maximize profitability (often across a portfolio of plants) | ■ Show how EIS reduces the time spent tracking down energy information to inform budgets and efficiency priorities.  
■ Discuss EIS’s ability to access up-to-date budget variance info across multiple facilities.  
■ Show how EIS can help expose inefficiencies in order to better prioritize cost savings measures. |
| Energy/Plant Manager   | ■ Optimize reliable operations while staying within budget  
■ Maximize profitability  
■ Minimize energy costs | ■ Highlight the various analyses that can track energy consumption by key operational metrics (per square foot, per widget produced, per student, etc.).  
■ Show how EIS can help expose inefficiencies in order to better prioritize cost savings measures.  
■ Talk about EIS’s ability to help create energy budgets faster and more accurately, and consolidate bills in one platform. |
## Part 6: The Business Case for Energy Intelligence Software

<table>
<thead>
<tr>
<th><strong>Sustainability Manager</strong></th>
<th><strong>Employees</strong></th>
<th><strong>Other Stakeholders (Tenants, Students, etc.)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>■ Meet corporate sustainability goals</td>
<td>■ Do my job well and earn a good living</td>
<td>■ Feel safe, happy, and comfortable at my home or school</td>
</tr>
<tr>
<td>■ Reduce time spent tracking against goals</td>
<td>■ Help my company meet its goals</td>
<td></td>
</tr>
<tr>
<td>■ Show how EIS can measure and manage all energy costs in a single platform to simplify reporting.</td>
<td>■ Discuss how EIS helps saves money and time, helping companies get closer to meeting their overall goals.</td>
<td>■ Discuss how reduced energy costs translate into lower rents/tuition costs.</td>
</tr>
<tr>
<td>■ Highlight EIS’s sharing and communication tools that enable information-sharing across the organization.</td>
<td>■ Show how EIS can successfully break down silos in energy management, and drive more organizational efficiency.</td>
<td>■ Show how better energy management tools result in a more efficient—and comfortable—home or learning space for all.</td>
</tr>
<tr>
<td>■ Discuss how EIS can help organizations save time by standardizing reporting processes.</td>
<td>■ Discuss how an investment in EIS and a commitment to energy intelligence foster a more engaged community.</td>
<td>■ Discuss how an investment in EIS and a commitment to energy intelligence foster a more engaged community.</td>
</tr>
</tbody>
</table>
Part 6: The Business Case for Energy Intelligence Software

Five Tips to Selling EIS Internally

Know what keeps executives up at night.
Understanding management’s objectives—both as a team and as individuals—will help you craft a proposal that addresses those needs head on. Are your investors asking about energy or are you subject to new local laws or regulations?

Talk dollars, not kilowatts.
Sustainability is important. Being a good corporate citizen is a part of most companies’ missions, but at the end of the day, decisions are best influenced by dollars. What is a kilowatt anyway? Monetary terms just make more sense to the people that control the purse strings. For example, Tom Johnson, a facilities manager for a major US hospital, made the business case for EIS this way: “In a good year, margins for a hospital are 4%. That means for every dollar I can save in energy, that’s the equivalent of $25 in new patient revenue.”

Let’s push this example further using a US-based grocery store that operates with even tighter margins, typically around 2.5%. If that same grocery store, which spends an average of $100,000 a year in energy, can shave even $5,000 in energy savings, that’s the equivalent of $200,000 in new sales.

Here’s the math:
$5,000 in energy savings / 0.025 Gross Margins = $200,000 in revenue

You may know your company’s gross margin, or if you’re a public company, you can always look it up in your company’s Annual Report 10K. Or if you just want to get a rough idea, a quick online search of gross margins by industry will give you some ballpark estimates. Communicating in monetary terms will help you get the attention of the people who are responsible for approving investments.

Encourage dialogue.
A good communicator seeks to understand before being understood, then communicates based on objectives and context. Be positive, constructive, and action-oriented. You might go into a discussion with the belief that cost savings is the biggest value of EIS, but your budget decision maker might have an entirely different pain point.

A little fear can go a long way.
Your biggest obstacle is fighting the status quo. Financial decision makers often favor the known over the unfamiliar. Be sure you can articulate the cost of doing nothing. “Fear is an incredibly powerful motivator. Financial decision makers are a lot quicker to act when they feel like something is being wasted versus jumping on the opportunity to do something proactive to deliver a positive benefit. I often encourage them to ‘stop the bleeding,’” adds Tom Johnson.

Be ready if they say yes.
So, you got the yes. Hurray. Are you ready for the next steps such as knowing what questions to ask a potential partner? Keep reading!
Part 7: Buying Energy Intelligence Software
Part 7: Buying Energy Intelligence Software

Selecting the Right Partner

Ok, we’re biased. 99 times out of 100, we think that EnerNOC is the right choice for any company that is serious about energy savings, but we also want to be fair. There are many great companies doing interesting things in the EIS space. And, at the end of the day, we’re only successful if you’re successful, so we have a vested interest in making sure you find the best partner for your particular needs.

Five steps to make the EIS purchasing process easier:

**Step 1**
Write down your goals for the project. What metrics are important to you? And to other stakeholders in your organization?

Hard metrics could include:
- X% reduction in energy spend
- X% reduction in total consumption
- X% reduction in CO₂
- X% less time spent reporting

Softer metrics could include:
- Improved organizational/departmental alignment
- Better visibility into what is driving energy costs
- Extended lifetime of equipment

**Step 2**
Identify your requirements: Remember that worksheet on page 9 where you outlined what was important to you and what was “nice to have”? That’s a good place to start setting up your basic requirements. But don’t forget to plan for the future. What may not be as important today may be important tomorrow, depending on what direction your business is heading. For example, are you considering expansion? Will the ability to support sites in multiple locations be more important 1, 3, or 5 years down the road? Planning on doing a big capital upgrade project? Will the ability to conduct measurement and verification suddenly seem more critical? Live in an area of environmentally conscious voters? Will a newly passed disclosure ordinance cause you headaches down the line?

**Step 3**
Assemble the team of decision-makers and engage them early. Work to get alignment on goals and requirements, and be wary of “selection by committee.” Getting the primary users engaged at this stage will make adoption more successful down the road.

**Step 4**
Evaluate solutions against the goals that you outlined as important. Ask tough questions. Solid partners don’t have anything to hide. Avoid getting dazzled by features that don’t really matter.

**Step 5**
Make a decision and commit to making it successful. Energy intelligence software isn’t like other forms of software that are a simple download-and-go. There are a lot of stakeholders involved in the enablement process: your utility, your operations teams, your finance teams, and more. In order to realize value quickly, have a clear understanding of steps in the enablement process and commit your organization to delivering.
Part 8: EnerNOC’s Energy Intelligence Software
We mentioned the key drivers of energy costs earlier—how you buy energy, how much you use, and when you use it.

EnerNOC’s energy intelligence software solution is built on the principle that to best manage spend and capture the most savings opportunities, these interrelated cost drivers must be managed together, not independently.

EnerNOC has invested millions of dollars in creating the most comprehensive EIS solution that addresses all seven areas of core competency required for a complete solution: budgets and procurement, utility bill management, sustainability and reporting, facility analysis and optimization, project tracking, demand response, and demand management.
Part 8: EnerNOC’s Energy Intelligence Software

Our key points of differentiation include:

**Connect Energy to Real Dollars**
EnerNOC puts energy costs in terms businesses use: dollars. With the only comprehensive tariff engine, combined with your real-time data, we can both generate timely, actual cost data and predict what our costs will be in the future.

**Technology-Enabled Energy Procurement**
EnerNOC’s procurement platform includes an auction platform where suppliers compete for your business, an audit trail of bids and final prices for ultimate transparency, a single online repository for supplier contracts, and an interface that proactively surfaces buying opportunities.

**Single Platform for Enterprise Energy Management**
EnerNOC’s platform provides a single source of truth for all stakeholders, across all three energy cost drivers (how you buy it, how much you use, when you use it), facilitating better communication, collaboration, and helping to ensure consistent, accurate data is available to those who need it.

**Data Source Agnostic**
EnerNOC’s software can leverage any data source, which allows you to leverage existing investments and avoid having to install redundant equipment. The flexibility also helps ensure you’re not locked into a single hardware vendor going forward, reducing your risk of stranded assets.

**Actionable Analytics**
Connecting reporting to analytics and surfacing the most relevant information helps your organization make better decisions and deliver positive business outcomes. EnerNOC’s unique in its ability to give you not only real-time information, but predictive analytics as well.

**Transformational Approach to Energy Management**
EnerNOC takes a holistic approach to energy management, integrating people, process, and technology to turn energy into a competitive advantage. Our professional services team provides the best practices and skills required to drive adoption of EIS and tackle big business problems head on.
Conclusion

There you have it: a comprehensive (yet comprehensible) guide to energy intelligence software. Whether your company’s annual revenue is over $100 million a year or $1 million, EIS can help you turn energy management into a new competitive advantage for your business.

The world of energy management is constantly evolving. Stay updated on the latest industry news and best practices on our EnergySMART blog (energysmart.enernoc.com).
About EnerNOC

EnerNOC, Inc. is a leading provider of energy intelligence software (EIS). EnerNOC unlocks the full value of energy management for thousands of customers worldwide by delivering a comprehensive suite of software applications and professional services that help users buy energy better, manage utility bills, optimize energy consumption, participate in demand response, and manage peak demand.

For more information, visit www.enernoc.com.