EBOOK

Energy Efficiency in Warehouse Facilities: Tips for Smarter Operations

MINER®
DOCKS, DOORS AND MORE.

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Energy Efficiency in Warehouses: More Important Than Ever

At times of economic uncertainty, every dollar saved takes on new importance for your organization. When you're searching for line items to target for savings, you can focus on energy usage in your warehouses, distribution centers and other supply chain facilities.

Creating a more efficient system for energy efficiency can deliver several financial benefits simultaneously, including:

- Bottom-line savings from increased efficiency.
- Rebates and tax credits for sustainability performance.
- Reduced risk of regulatory noncompliance fines.

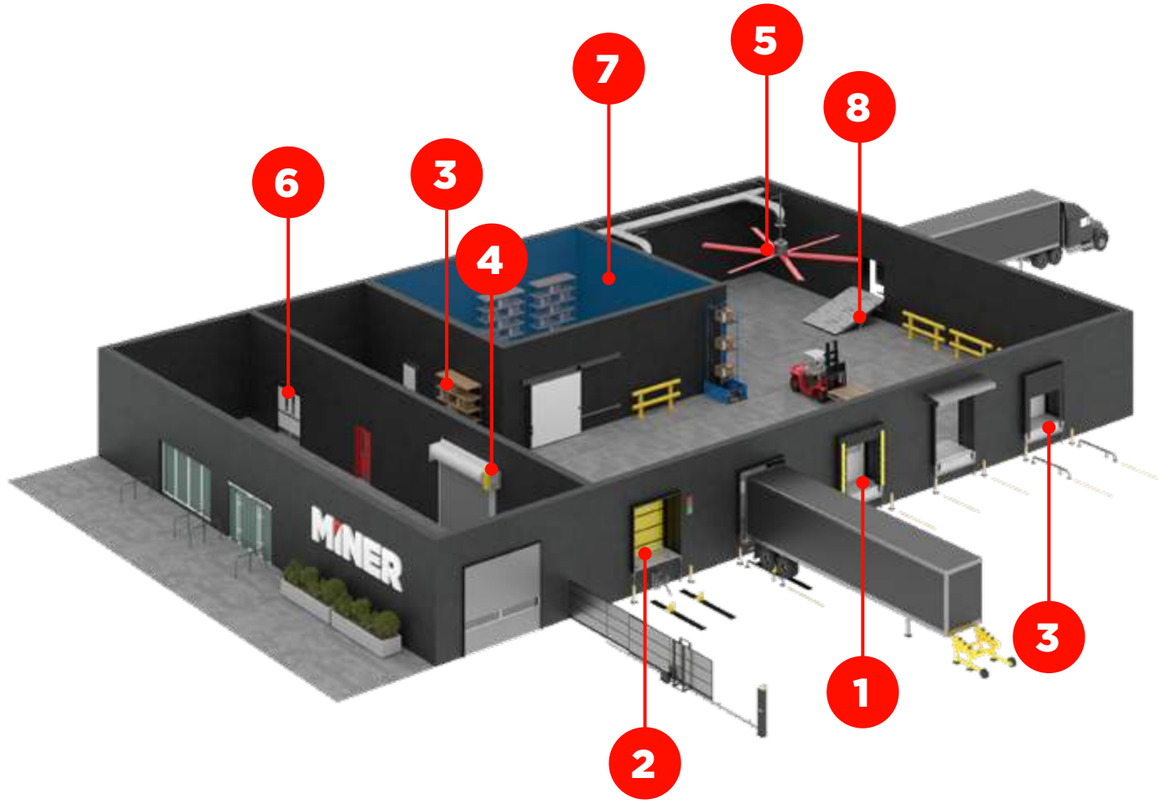
Once you start inspecting your warehouses, you may find numerous areas for impactful improvements. Some of these opportunities are quick wins, while others involve longer-term changes to your operations; however, all are worth pursuing as you seek savings amid persistent market uncertainty.

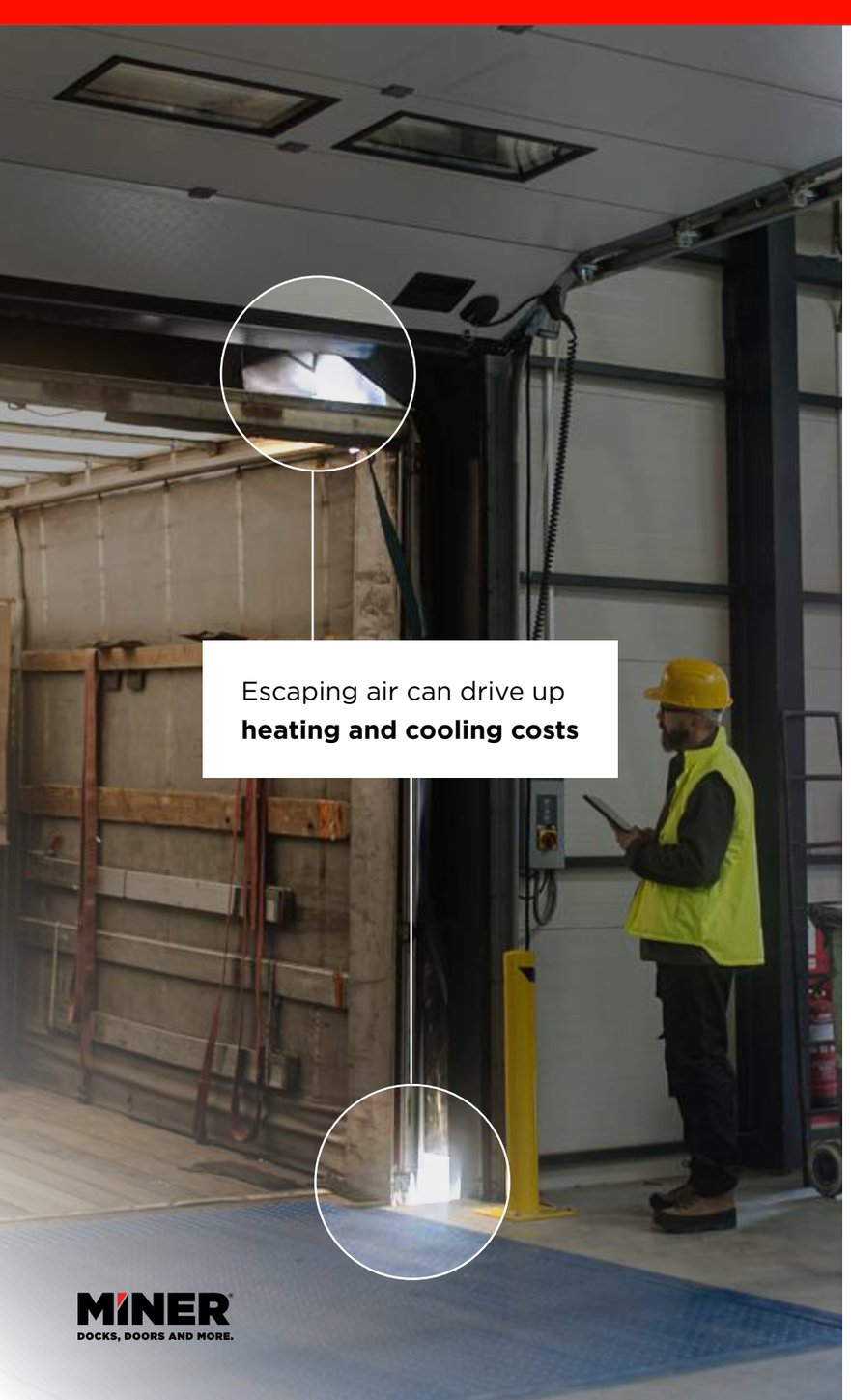
Understanding Energy Consumption in Warehouses

Warehouses are major sites of energy consumption, as well as potential savings. Loading dock doors provide a compelling example of both the costs involved and the chances you have to protect your bottom line.

The following are the most effective strategies to maximize energy efficiency at the loading dock:

1. **Install the appropriate dock seal or shelter for your application**
2. **Vertically storing dock levelers over traditional pit mounted levelers**
3. **Insulate doors properly**
4. **Upgrade to high-speed doors**
5. **Engage in climate and air quality control**
6. **Use air curtains or strip curtains**
7. **Implement temperature zoning**
8. **Begin preventative pest control measures**





Warehouse Layout and Design for Sustainability

Some of the most impactful decisions you can make when optimizing your facility's energy consumption include interior layout and organization. This applies to both the design of specialized spaces, such as cold-storage areas, and the more general setup of the whole building.

Layout and design considerations include:

SETTING UP DOORS TO MINIMIZE LOST AIR

Escaping air during loading and uploading operations can drive up heating and cooling costs. Installing seals, shelters and high-speed doors can minimize this.

OUTFITTING PRIMARY AREAS WITH ENERGY-EFFICIENT AIR CIRCULATION:

As the previous page explained, the use of low-power equipment like HVLS fans can deliver temperature control with less power needed.

SEALING OFF TEMPERATURE-CONTROLLED ZONES:

Using assets like interior high-speed doors to minimize the air escaping from cold-storage areas comes with energy savings.

Equipment and Automation for Energy Efficiency (Beyond Temperature Control)

While heating and cooling are major users of energy, they aren't the only power-centric systems within your facility. This means you can look further to achieve everyday savings on your power bills and comply with energy-savings mandates in your region.

Some of these additional energy-efficient systems include:

INSTALLING INDUSTRIAL INTERNET OF THINGS (IIOT) SENSORS:

Wasteful power usage is often a case of imprecise monitoring. By tracking exact power output with advanced sensors, you can tune and optimize output.

HIGH-EFFICIENCY MATERIAL HANDLING EQUIPMENT:

Older material handling equipment may use more power than recent systems. Inspecting your facility can reveal opportunities for upgrades.

OPTIMIZED CONVEYOR SYSTEMS:

Conveyors including features such as variable speed drive can optimize your workflows and energy consumption on the warehouse or distribution center floor.

Maintenance and Repairs To Keep Efficiency High

Choosing and installing effective equipment is only step one in optimizing energy consumption within your warehouse or distribution center. Equipment suffering from excessive wear and tear, or simply the effects of age, can represent a drain on the grid.

Energy-efficiency maintenance priorities include:

IMPLEMENTING PROACTIVE MAINTENANCE:

Proactive maintenance programs can address issues with equipment before they result in major breakdowns. This effectively planned advance care can help you prevent inefficiencies in key assets.

MONITORING CONDITION IN REAL-TIME:

The most powerful proactive maintenance programs are based on comprehensive and frequently updated data. This improves precision and helps you measure the total cost of ownership.

PREPARING FOR EMERGENCY REPAIRS:

Major equipment failures can create inefficiencies, along with safety risks and productivity loss. Having expert technicians on call for repairs minimizes downtime.

Other Energy Considerations: Lights, Generators, EMS

There are dozens of systems throughout your facility that address various parts of the energy management process and which you can optimize to deliver maximum functional impact throughout your warehouse or distribution center with minimal power use. **Some of these include:**

LIGHTING FIXTURES

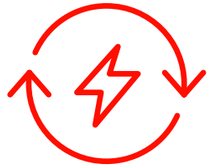
You can spend less on energy for light systems when you:

- Install high-efficiency LED light systems.
- Use smart sensors to switch lights off automatically.
- Rely on natural light whenever possible.

ON-SITE GENERATION

Generator options that may offset your power consumption include:

- Solar panels and cells.
- Battery storage systems and microgrid assets.
- Wind or geothermal generation systems.



ENERGY MANAGEMENT SYSTEMS (EMS)

Useful systems within an advanced, modern EMS include:

- Advanced real-time energy tracking.
- Databases that enhance predictive maintenance.
- AI algorithms to recommend optimization methods.

LED: In commercial and industrial settings, low/high bay LED fixtures offer the highest energy savings potential, especially when paired with controls[1].

CTRL: A meta-analysis of commercial buildings found that lighting controls can reduce energy use by up to 38% when multiple strategies (like occupancy sensors, daylight harvesting, and tuning) are combined[2].

HVAC: Upgrading to high-efficiency systems or using smart thermostats can reduce HVAC energy consumption by 10–30%.

VFD: In industrial applications, Variable Frequency Drives can reduce motor energy consumption by up to 50%, especially in HVAC fans and pumps that don't always need to run at full speed.

EVC: For fleet vehicles, installing smart EVCs can reduce charging energy costs by up to 30% through load management and off-peak scheduling.

Compliance and Beyond: Earning Incentives and Avoiding Penalties

The savings associated with energy use optimization extend beyond the direct cost of your facility's power bills. By qualifying for certifications and avoiding penalties, you can unlock additional bottom-line advantages of slimmed-down power usage.

- **Achieving certifications:** When your facility meets standards laid down by government programs such as the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) and the Environmental Protection Agency's ENERGY STAR, you may qualify for tax rebates or other incentives.
- **Avoiding penalties:** In addition to rewarding strong performance, agencies monitor companies so they'll uphold high standards. Sometimes, this process goes beyond efficiency — for example, the U.S. Department of Energy is responsible for enforcing air quality in commercial facilities.

Explore the ENERGY STAR Rebate Finder to discover incentives for ENERGY STAR-certified products available in your state.

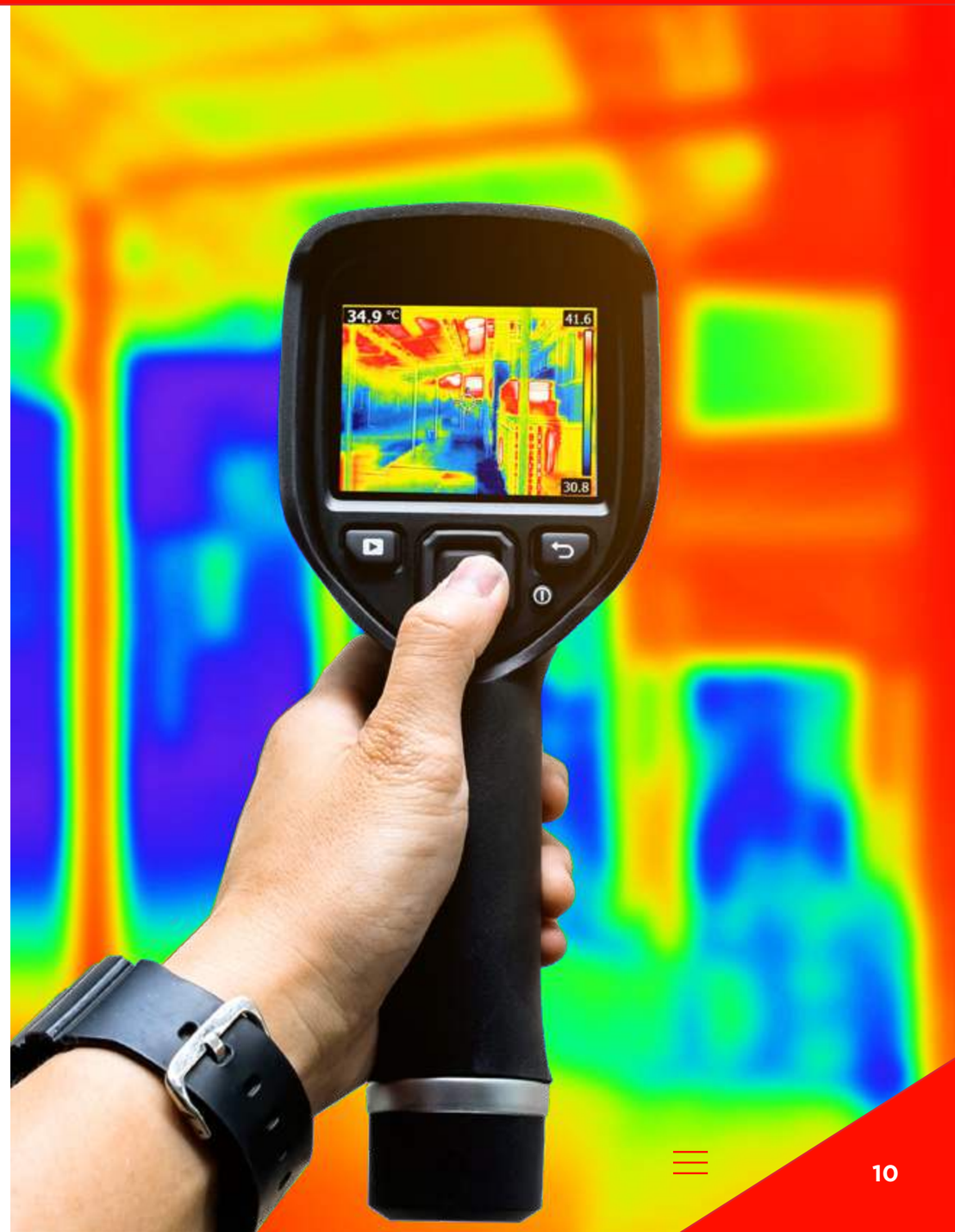
Find Your Ideal Warehouse Energy Efficiency Solution

Calculating the potential energy savings doesn't have to be a long or complex process. MINER employs a three-step process to assess which particular solutions can have the greatest impact on your warehouse or distribution center's performance. **These steps are:**

- **Retrieve:** Using thermal heat testing, technicians determine temperature disparities to find opportunities for more effective sealing.
- **Review:** MINER professionals use a custom ROI calculator to determine potential energy savings.
- **Recommend:** The team provides customized recommendations for warehouse equipment that enhances overall efficiency and performance.

Installing optimal equipment and processes and implementing procedures to keep those assets in top condition can help you build energy efficiency consistently, no matter how many facilities you operate. The everyday performance, compliance and long-term ROI advantages can provide valuable reassurance through uncertain market conditions.

The facilities that excel will be those that transform these critical transition points from energy liabilities into strategic assets that strengthen both operational resilience and environmental performance.



How Your Business Can Transform Its Energy Efficiency Practices

If you haven't recently inspected your facility's energy efficiency performance, you may have unrealized opportunities for savings. These issues may include:

- Inefficient processes regarding energy usage.
- Inadequate, outdated or worn equipment.
- A lack of coordination at a corporate level.

Working with a national service provider like MINER allows you to uncover efficiencies at any number of facilities. Our facility experts can help you evaluate and improve efficiency, regulatory performance and return on investment (ROI) from equipment throughout each facility.

Key areas of your facilities, especially around the loading dock, are valuable sites to implement proactive solutions that deliver energy savings.

Request an energy assessment to get started.

Build Resilience with a Trusted Facility Service Partner

As operational demands fluctuate, you face constant pressure to maintain facility safety, equipment reliability, and overall efficiency. Without a proactive strategy, unexpected breakdowns can create costly disruptions. A trusted equipment service partner helps ensure your business is always ready to meet these challenges head-on with a seamless, scalable approach to readiness.

MinerCARE® Safety and Service Programs support a comprehensive and proactive strategy for operational excellence, so you can stay ahead of issues before they impact performance. When the pressure is on, you need more than a service provider—you need a partner who's already prepared. With MINER by your side, you gain the confidence of a facility that's ready for anything.

MINER delivers comprehensive solutions that keep facilities running smoothly year-round, offering:

CONNECTIONS WITH OEMS:

As a vendor-agnostic provider, MINER ensures access to the right equipment solutions for your facility, without restricting you to a single manufacturer.

NATIONAL REACH AND SINGLE POINT OF CONTACT:

Whether you operate one facility or many, MINER provides consistent service, streamlined communication and access to 24/7 emergency support.

FACTORY-TRAINED, WELL-EQUIPPED EXPERT TECHNICIANS:

MINER's technicians arrive ready to solve complex issues quickly, bringing the tools and parts necessary for fast, effective maintenance and emergency repairs.

COMPREHENSIVE SUPPORT:

From equipment selection and installation to proactive maintenance and emergency repair service, MINER covers the full asset lifecycle.

Build resilience with MINER to keep your operations moving, your people protected, and your business ready for whatever comes next.

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1. https://www.energy.gov/eere/ssl/led-adoption-report
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