

ISO 50001 allows business leaders to establish a practice around the use of energy that reduces business risk and improves productivity and operations.

Manage Energy. Manage Risk. Control Costs.

Competitive organizations manage many diverse issues including staffing, inventory, shipping, and quality. ISO 50001 brings an effective process to measure and manage energy use in order to:

- Optimize energy consumption
- Realize greater cost savings
- Increase cost competitiveness
- Improve health, safety, and comfort
- Retain and grow staff



Detroit Diesel is the first U.S.-based Daimler subsidiary to implement ISO 50001. *Photo courtesy of Detroit Diesel.*

“The money we save on energy can be reinvested back into the plant and ultimately create more jobs for the people here in Detroit.”

Jeff Allen, Plant Manager, Detroit Diesel

ISO 50001: Energy Management

This voluntary energy management standard helps organizations boost energy productivity and cut costs. Keys to success:

- Gain management support
- Set energy targets
- Establish energy team
- Track energy use
- Identify major energy uses
- Publicize successes

Corporate Benefits

ISO 50001 improves operational efficiency and cost reductions in all sectors, including manufacturing, commercial buildings, utilities, government facilities, military bases, and more.



Risk Management



Profitability



Expanded
Production

ISO 50001 in America

- 3M
- Aflac
- American Axle & Manufacturing
- BAE Systems
- BMW
- Bosch Rexroth
- Bridgestone
- Cargill
- Chrysler
- Coca-Cola
- Cummins
- Curtiss-Wright EMD
- Detroit Diesel
- Google
- HARBECK Inc.
- Hilton Worldwide
- IBM
- Intertape Polymer Group
- Land O'Lakes, Inc.
- Mack Trucks
- Marriott International, Inc.
- MedImmune
- NewGold
- Nissan North America
- Samsung
- Schneider Electric
- Titan America
- Volkswagen
- Volvo

ISO 50001 Leads to Deep Savings for U.S. Manufacturers

REAL SAVINGS: U.S. DOE Analysis of Savings in Industrial Plants

Results from 10 facilities certified to ISO 50001:

- \$36,000–\$938,000 in cost savings per year
- 12% reduction in energy costs (on average) within 15 months of initial implementation
- Energy performance improvements of 5.6% to 30.6% over three years
- \$430,000 or more in savings each year from low- or no-cost operational improvements.

Read the analysis for full results: <https://www.energy.gov/eere/amo/downloads/sep-2015-cost-benefit-analysis-paper>



HARBEC, a small manufacturer in Ontario, New York, used ISO 50001 to identify operational improvements that now save the plant \$52,000 annually—with no capital cost.
Photo courtesy of HARBEC



3M Company



The multinational Fortune 100 manufacturer saves \$3.6 million by using an enterprise-wide approach to certifying six sites to ISO 50001. Operational changes with little capital expenditure account for 67% of the energy cost savings at five of those sites.

“The proven performance of our ISO 50001-certified facilities has led 3M to include ISO 50001 and Superior Energy Performance among our strategies to meet our next set of corporate energy efficiency goals.”

Jean Bennington Sweeney
3M Chief Sustainability Officer



Cummins Inc. saved \$4.1 million across three sites after implementing ISO 50001 at an enterprise.

The Fortune 500 American manufacturer plans to expand ISO 50001 to 40 sites by 2020.

Photo courtesy of Cummins Sustainability Report



Key Steps to ISO 50001

- Set an Energy Policy
- Have management commitment
- Empower an energy team
- Identify where energy is used
- Create plans to improve energy use
- Management approval of plans
- Track progress and reassess energy action plans



Nissan's vehicle assembly facility in Smyrna, Tennessee, saved \$2.4 million in annual energy costs over six years—with \$1.7 million of that total based on operational changes alone. *Photo courtesy of Nissan*

NISSAN

Land O'Lakes, Inc. **LAND O'LAKES, INC.**

The Carlisle, Pennsylvania dairy plant has shown that robust energy management brings economic and environmental value. The facility improved its energy performance by 5.7% per year—which is worth cost savings of approximately \$280,000 annually.

Volvo Group

ISO 50001 led to significant 25.8% and 20.9% energy performance improvements over three years at its sites in Dublin, Virginia and Hagerstown, Maryland, respectively. Mack Trucks, also part of Volvo Group, achieved a 41.9% improvement over ten years at its Macungie, Pennsylvania facility.



The Coca-Cola Company



The Dunedin, Florida Juice Facility is the first U.S. beverage manufacturing facility to achieve ISO 50001 certification—improving its energy performance by 12.2% over 3 years.

MedImmune



The global biologics research and development arm of AstraZeneca, earned ISO 50001 certification at the Gaithersburg, Maryland facility. The facility improved energy performance by 8.5% over three years at its largest building, deriving much of its savings from low- to no-cost changes in operations.

General Dynamics **GENERAL DYNAMICS**

The Army Ammunition plant operated by General Dynamics in Scranton, Pennsylvania, earned certification to ISO 50001 and achieved annual cost savings of \$956,000. In three years, the plant improved its energy performance by close to 12%.



Bosch Rexroth saved \$2.7 million over three years by implementing ISO 50001 at its Bethlehem, Pennsylvania facility. *Photo courtesy of Bosch Rexroth*

Rexroth
Bosch Group

Commercial Facilities Use ISO 50001 to Meet Corporate Goals

Insurance



“ISO 50001 helped us nearly double our ENERGY STAR Portfolio Manager score over the years.”

Alfred Blackmar,
Aflac Vice President, Facilities Support

Between 2007 and 2016, **Aflac** reduced energy use by over 50% across its two campuses in Columbus, Georgia. ISO 50001 is credited with helping the Aflac team optimize its energy review process, better understand weather impacts on energy use, set savings targets, and measure progress toward meeting them.

Technology



Photo courtesy of Google

Google became the first company in North America to earn a multi-site ISO 50001 certificate. Now it has 12 certified data centers globally, including 7 in the United States, 3 in Europe, and 2 in Asia. Google now delivers over 3.5 times the computing power it did five years ago—consuming the same amount of electrical power.

ISO 50001 can support and improve ENERGY STAR, LEED, and corporate sustainability scores or targets

Hospitality

Sustainability and Customer Comfort



ISO 50001 fosters employee engagement on energy efficiency, as shown in a 2016 Earth Day energy-themed poster contest at JW Marriott Hotel in Washington, DC. Photo courtesy of JW Marriott.

“At Marriott, ISO 50001 helped us save over one million kWh of electricity and improve guest satisfaction—our top priority. Using the standard helped us identify and correct a room thermostat malfunction to enhance guest comfort.”



Rajaram Srinivasan, Director of Engineering
JW Marriott, Washington DC

“Hilton uses ISO 50001 to drive continuous improvement at more than 4,200 properties. It aligns with our goal to reduce carbon footprints and increase cost savings across our global portfolio.”



Maxime Verstraete
Vice President of Sustainability, Hilton Worldwide

Government Leads by Example with ISO 50001

Increased confidence in energy service performance contracts



Photo courtesy of Air Force photo by Kelly White/Released

The Oklahoma City Air Logistics

Complex at Tinker Air Force Base

is the first U.S. Air Force base to pursue ISO 50001 certification. The base implemented ISO 50001 as part of an energy service performance contract (ESPC) with a service provider that included other capital projects. ESPCs can pose some risk to both parties, but ISO 50001 significantly reduced these risks by facilitating a rapid examination of the impacts of operational changes on monthly utility bills. Timely analysis helped both parties clarify the savings directly attributable to ISO 50001.



U.S. AIR FORCE

Integrating energy and water systems to boost sustainability



The Denver Federal Center

Photo courtesy of General Services Administration

The **Denver Federal Center** cut its energy use 10% from 2012 by applying ISO 50001 and integrating it with a water management system. DFC now easily tracks and reduces water and energy use across its 40 active buildings more systematically than tracking of thousands of pieces of equipment and hundreds of small projects.



“ISO 50001 helped us focus on the greatest opportunities for savings.”

Doug Baughman

Denver Federal Center Energy Specialist

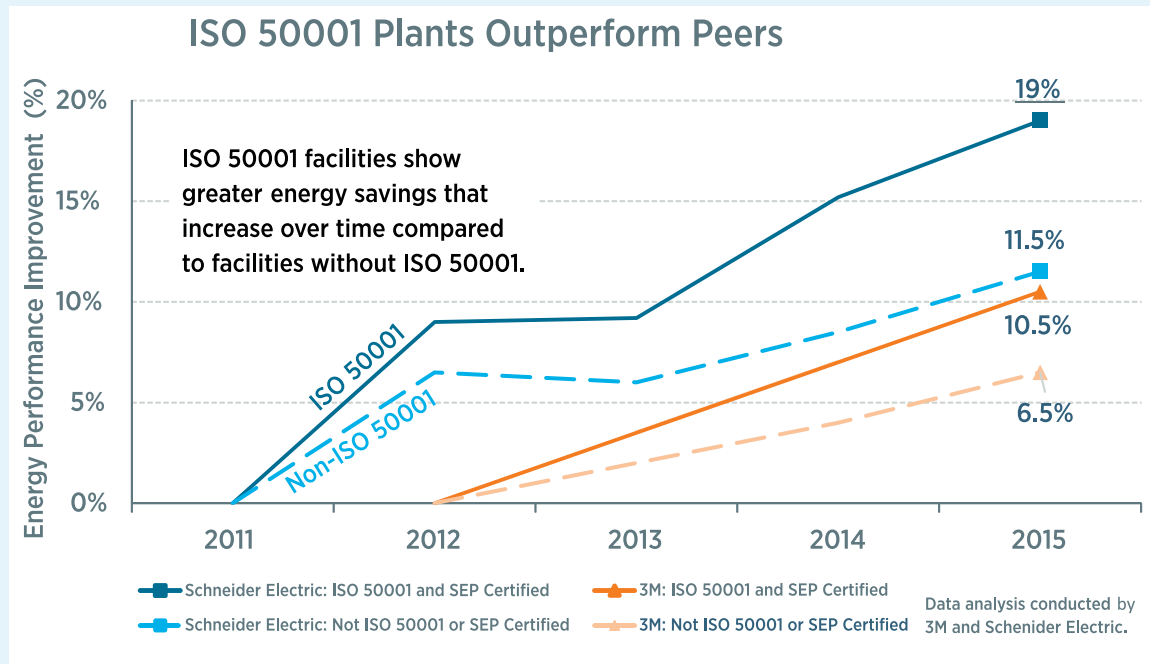


Government facilities and complexes are using ISO 50001 to manage energy costs and improve operations.

Photo courtesy of National Renewable Energy Laboratories

Facility and Enterprise Levels Benefit from ISO 50001

3M and Schneider Electric have worked with DOE to assess the impact of ISO 50001 on their facilities and to compare those savings to their other facilities. The results showed that sites using ISO 50001 outperformed other sites by up to 65%.



Johnson Controls has promoted ISO 50001 and energy management practices in its more than **140 manufacturing facilities**

across the world—reducing energy intensity by 40% and annual energy costs by over \$100 million dollars since 2002.



Schneider Electric, which specializes in energy management and automation, uses ISO 50001 as the blueprint for continued energy savings. The company has at least **21 certified sites** in the United States, 6 in Mexico, and 2 in Canada.



Cummins has committed to implementing ISO 50001 at **40 sites** by 2020, which will encompass 90% of its global energy footprint.



IBM achieved certification to ISO 50001 at the corporate level within a year of the standard's launch. By the end of 2016, IBM had **26 entities** registered under its global ISO 50001 certification—including 21 in the Americas.



Deeper, Sustained Savings

ISO 50001 adoption is proven to produce long-term, persistent energy savings through the establishment of a “culture” of managing energy

Company/Plant	Energy Performance Improvements over Time with ISO 50001	
	1st Certification	2nd Certification
Schneider Electric Smyrna, TN	15.3% 3 years	23.1% 3 years
3M, Brockville Ontario Canada	15.8% 3 years	21.4% 7 years
Nissan NA Smyrna, TN	7.2% 3 years	17.7% 3 years
Schneider Electric Seneca, SC	15.6% 3 years	16.4% 3 years

“The ISO 50001 framework not only builds upon our energy management systems, but also help us drive consistency and performance improvements across our locations.”

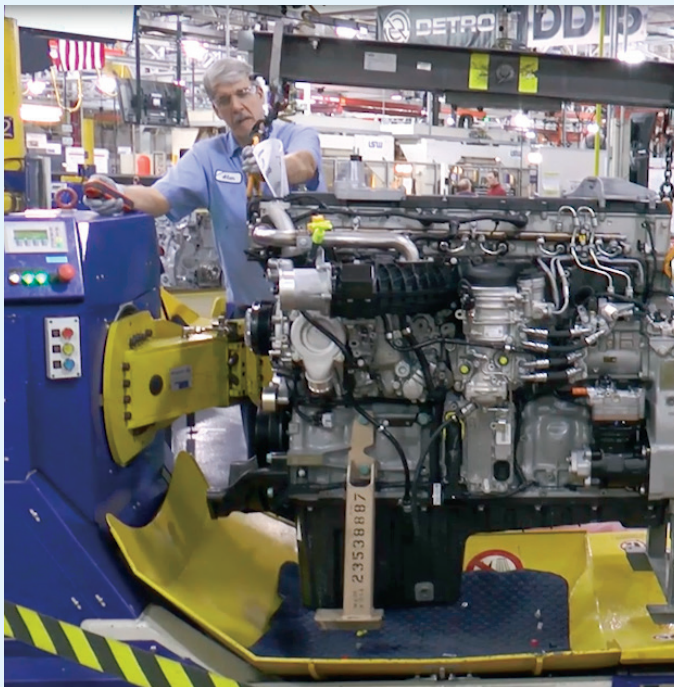
Steve Sacco, Schneider Electric
Vice President, Safety, Environment & Real Estate

Detroit Diesel leverages ISO 50001 to achieve energy and cost savings

Produces 400 engines and 1,300 axles daily

3,400 employees

\$1 million monthly energy bill



Detroit Diesel's engine manufacturing plant used ISO 50001 to improve its bottom line and meet corporate goals. The energy team established a rigorous energy management system and, upon certification, obtained third-party verification of its energy performance improvements through DOE's Superior Energy Performance program.



Auditors confirmed that even as production at the facility increased 93%, its cumulative energy performance improved 32%—saving \$37 million over 10 years. On the strength of this success, the company is reinvesting tens of millions of dollars in the facility and creating good jobs for American workers.

Watch the video: www.energy.gov/eere/amo/articles/sep-success-story-detroit-diesel

U.S. DOE Resources to Support ISO 50001

Ways to Engage



50001 Ready is a self-guided application to establish and self-attest to ISO 50001, a global voluntary best practice in energy management for industrial, commercial, and institutional facilities. DOE will recognize *50001 Ready* facilities that complete the following two steps:

- **Use the *50001 Ready Navigator*.** This online tool guides users through 25 tasks to set up a comprehensive ISO 50001-based energy management system.
- **Show energy performance.** Demonstrate improvement over time and validate savings using eligible tools, such as ENERGY STAR Portfolio Manager, DOE's EnPI Lite Tool, and other data management tools.

To learn more, visit www.energy.gov/50001Ready

DOE's ISO 50001 resources are designed to complement other Federal energy efficiency efforts, including Better Buildings, Better Plants, ENERGY STAR, and related programs.



Considering certification to ISO 50001, or already certified? U.S. DOE's Superior Energy Performance® program involves voluntary, third-party verification of energy performance improvement—and elevates the credibility of robust savings claims.

To learn more, visit www.energy.gov/isosep

Get Started with *50001 Ready* Today

U.S. DOE is looking for both multi-sector facilities and program provider partners to pursue 50001 Ready. This application can be standalone DOE recognition or can be tool to improve existing corporate commitments, such as ENERGY STAR or LEED. Regardless, partners will experience a change in culture around the management of energy that will lead to increased dollar savings, safety, competitiveness and performance. Potential implementers include:

- **Commercial and industrial organizations**
- **Energy and water utilities**
- **Campuses**
- **Manufacturers and their suppliers**
- **Federal, state, and local government**
- **Major chains** in hospitality, health care, and more

50001 Ready is built on an “open-source” platform that partners can readily co-brand and repurpose to reach customers or affiliate facilities.



Hilton Worldwide has become the first hospitality company to have hotels certified to the DOE's Superior Energy Performance. *Photos courtesy of Hilton.*

Broad adoption of ISO 50001 could save over \$30 billion in energy costs in the United States by 2030.

- Lawrence Berkeley National Laboratory analysis

U.S. DEPARTMENT OF
ENERGY

Energy Efficiency &
Renewable Energy

For more information, visit: energy.gov/eere/amo

DOE/Publication Number • March 2017