

Global Energy Management System Implementation: Case Study

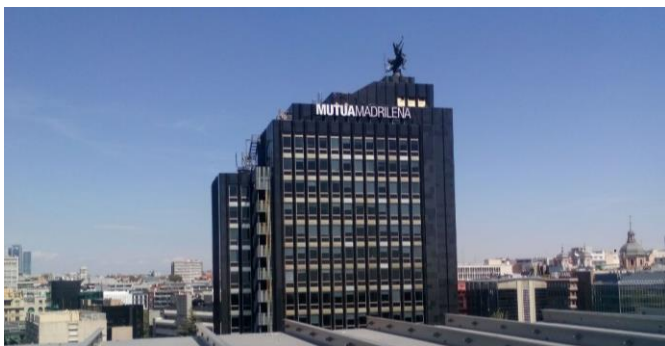
Spain

Mutua Madrileña

Low cost, high impact. Going beyond social and environmental responsibility: energy management as a commercial and business asset.



“As one of the largest property managers in Spain, energy management in Mutua Madrileña brings much more than environmental responsibility. It is a precious and valued business asset.”
—Mario Cabezos, Risk prevention and Environment



ISO 50001 has increased social corporate responsibility in this insurance and property management, strengthening its commitment to society, sustainability and respect for the environment.

Business Benefits Achieved

At Mutua Madrileña, we have always prided ourselves in being a sustainable company, working hard to reduce our waste and emissions. But implementing an ISO 50001 Energy Management System (EnMS) has brought our energy performance to a new level.

Following the company’s long-term environmental strategy, the EnMS was implemented in 14 buildings in Madrid, including our headquarters and major office buildings, key assets in our real-estate -with iconic structures such as one of the highest buildings in Spain-.

One year after the EnMS was implemented, in May 2015, we were awarded ISO 50001 certification, with no non-conformities. After 2 years in operation, we have saved 5,891,444 kWh in total for all 14 buildings, 18.4% of total energy costs. This amounted to 1418 tonnes CO₂ emissions avoided.

Focus on low zero or low investment savings kept costs down, allowing focus to be set on providing the most comfortable office premises in a competitive real-estate market.

Case Study Snapshot

Industry	Insurance
Location	14 facilities in Madrid, Spain
Energy Management System	ISO 50001
Product/Service	Large range of insurance (life, home, automotive, health, pension plans, etc.) and property management.
Energy Performance Improvement (%)	18.4 % in 2 years (total for the 14 buildings)
Annual energy cost savings	428,847 euro in 2 years, (total for the 14 buildings)
Cost to implement	71,070 euro
Payback period	4 months

Company Profile

Mutua Madrileña Group is a Spanish company operating since 1930. With two main areas of operation, insurance and property management, we cover over 10 million clients spread across several industries: automotive, healthcare, life, death, assistance, automotive, legal, home, accidents, mutual funds and pension plans. Overall, our assets are worth 6,644 million euro.



The Energy Management System in Mutua Madrileña was implemented in some of the most iconic buildings of Madrid's landscape, some of them protected as part of the city's architectural heritage.

Employing over 6,600 people, we have the distinction of being among the 15 companies with best reputation and Corporate Social Responsibility in the country.

Guided by our principles of solvency, transparency, teamwork, determination and social commitment; care for the environment and our planet's future are deeply engrained in our day to day culture, behavior and decision making.

- ✓ We were the first company in Madrid to manage and recycle 100% of our waste.
- ✓ We have developed strong campaigns pursuing energy and water saving both at a corporate level and among our clients.
- ✓ We have the first office tower building in Spain to achieve a Class A Energy Performance Certificate (in April 2012)
- ✓ We are committed to several environmental and social responsibility programs.

Most Significant Benefits

- ✓ In the first 2 years in operation, we reduced energy costs by 428,847 euro or 18.4% in total, across the 14 buildings in the scope
- ✓ CO₂ emissions were brought down by 1418 tonnes in this same period, strongly reinforcing our commitment to environmental sustainability.
- ✓ We have used the EnMS to reduce not only energy but also water, a scarce and precious resource in Spain.
- ✓ Lowered operating costs allow us to be more cost competitive in the current property market.
- ✓ Prior to adoption of our EnMS, we had focused on capital investment as a route to improving energy performance. We now make large savings without investment.
- ✓ Our team has been passionate in developing the EnMS and in making it successful.
- ✓ Focus on a simple, easy to use system has allowed all team members to understand and actively participate in all aspects of the EnMS.
- ✓ Knowledge from ISO 50001 has taught us to effectively simplify other management systems in the company.
- ✓ We know staff is the key to success. Energy management is now a key part of training, awareness and all tenders for maintenance and operation.
- ✓ Follow up and monitoring of all new projects allow us to ensure they perform as expected.
- ✓ We have turned our Non Conformities Continuous into strengths, improving the core of the EnMS.
- ✓ Our success has been reported in many articles in industry and financial publications. We have had very positive feedback from these articles and from their readers.

Business Case for Energy Management

As an insurance company, at Mutua Madrileña we know that the future is our biggest asset. Deeply conscious about our planet's welfare, our Group is aware that we must act now, rather than regret later, to ensure a sustainable tomorrow.

In a competitive property market, our buildings stand out as a safe and stable options, protected from the ups and downs of energy prices, with reduced carbon footprint and superior indoor quality for all occupants.

“Improved energy management has helped us become a reference for the most demanding clients, providing superior quality premises with low-environmental impact.”

—Juan Diego Carrasco, Property Management Director

Last, but not least, at Mutua Madrileña we share our achievements with all staff, building occupants and clients: decreasing CO₂ emissions of our operations, providing tips to save energy at home, fuel-saving driving, etc.

EnMS Development and Implementation

Over the years, Mutua Madrileña has worked to achieve excellence, responsibly and sustainably. Our company owns some of the most technologically advanced premises in the country, with the latest equipment and solutions.

Through ISO 50001, improved management and strengthening of our corporate values, we have achieved significant energy and water savings without capital investment.

Organizing the system

When ISO 50001 implementation began across all 14 sites - including our corporate headquarters – the task seemed formidable.



The Energy Management Team at Mutua Madrileña is now a key player in the company, contributing value and far from being only a technical or supporting entity. In the image, the team leader Mario Cabezos (centre), flanked by Noelia Fernández and Tomás Sánchez Barriga.

An early decision was to try to keep the system as simple and effective as possible. We did not want to add unnecessary amounts of bureaucracy.

Detailed roles and responsibilities helped each person understand their part in the system. And strong leadership from the energy manager and his team provided a focal reference for all.

“Our EnMS has helped us to become more efficient as a team, eliminating time-consuming processes with no real value to focus on our main goal: save energy and reduce CO₂ emissions.”

—Mario Cabezos, Risk prevention and Environment

An Energy Saving and Efficiency Committee was created, involving the participation of all managers with roles and responsibilities in the system. This regular forum is instrumental for keeping up support, adopting decisions and achieving continuous improvement.

In addition, ISO 50001 has become a central piece in Mutua Madrileña's 2nd Energy Efficiency and Saving Plan, which follows Spain's National strategy towards 20/20/20 goals.

Following the principles of ISO 50001, Mutua Madrileña developed an energy planning process that included all the steps from consumption data gathering, to technical solutions.

Where must we focus? Defining significant energy uses

Past and present energy trends were drafted for each building. Significant energy uses (SEUs), accounting for over 75% of consumption, were identified and quantified.



Communication is kept alive with all staff regularly, with a dedicated top spot on the internal website, personal desk calendars with saving tips, poster campaigns, an energy performance tracker, and dedicated actions all motivate employees to achieve a common goal.

From the beginning, our energy team sent out a strong message that participation is necessary to improve the system. We developed and delivered various training activities to all staff with an impact on energy consumption, from top management to maintenance workers. We implemented a simple process to allow all staff to contribute energy saving ideas.

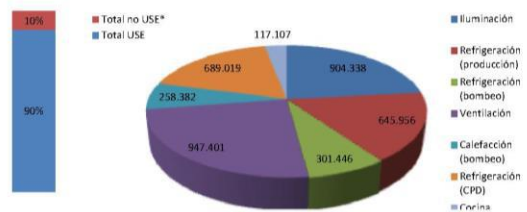
Energy review and planning

In such a large and diverse organisation, optimum energy planning was essential. A Gap Analysis identified key areas to focus our efforts.

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Lista de Usuarios Significativos de la Energía (USE)

Electricidad							
ID	Nombre del USE	¿Factores condicionantes?	¿Tiene medidores el USE? Aut/Man	kWh 2014	% uso General	¿Quién influye en el uso de la energía?	Objetivos
1	Iluminación	Clima y Ocupación	No	904.338	21%	Todos	-5,2%, 857.131
2	Refrigeración (producción)	Clima y Ocupación	No	645.956	15%	Usuarios/Mantenim	-5,2%, 612.237
3	Refrigeración (bombeo)	Clima y Ocupación	No	301.446	7%	Mantenim	-5,2%, 285.710
4	Ventilación	Clima y Ocupación	No	947.401	22%	Usuarios/Mantenim	-5,2%, 897.947
5	Calefacción (bombeo)	Clima y Ocupación	No	258.382	6%	Mantenim	-5,2%, 244.895
6	Refrigeración (CPD)	Clima y Ocupación	SI	689.019	16%	Mantenim	-5,2%, 653.052
7	Cocina	Ocupación	SI	117.107	2,7%	Personal Cocina	-5,2%, 110.994
Total USE				3.863.648	90%		
Total no USE*				442.722	10%		
Consumo Total				4.306.370	100%		

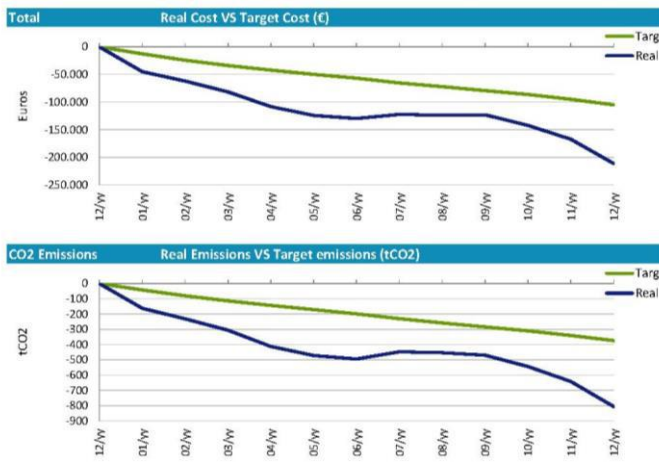


SEUs analysis showed the best EnPIs to consider, as well as mechanisms to review them on a regular basis.

Advanced data analysis and EnPIs

Following the methodology established in ISO 50006, Energy Performance Indicators (EnPIs) were set for each SEU using regression analysis. This method considers all the variables that can affect energy consumption, to see what impact they actually have.

Through the mathematical formula obtained, we were able to trace accurate baseline and forecast expected future consumptions.



Entirely developed in Microsoft Excel, the energy team can check performance and detect deviations to act swiftly.

This is an innovative aspect of the approach towards energy taken at Mutua Madrileña, and one of its key successes. Not only do we know if we are on target, but we can assess our performance taking into account factors such as office occupation or outside temperature.

“Correct definition of critical operating parameters has helped us understand our use of energy to react quickly and increase savings.”

—Tomás Sánchez-Barriga, Risk prevention and Environment

Identifying saving opportunities: operational control

The team carried out technical visits to all premises. Looking at every aspect of the facilities and working hand in hand with staff on-site, we identified saving opportunities and developed an “action plan menu”.

With a resulting list of over 300 saving opportunities (and continuously growing), our team can detail which are feasible for each period. We use this as a simple way to set strong, verifiable targets.

In addition, maintenance staff embraced this new approach, enjoying the recognition to their efforts and ideas, and wanting to contribute on a regular basis.

Overall control by the central office has improved with a common reporting template which operators update regularly. In a simple spreadsheet, staff in each building can keep updated records, track performance, receive and give feedback and suggestions. A collective platform to share daily energy saving triumphs.



Maintenance staff report to Mutua Madrileña headquarters periodically with Critical Operating Parameters (COPs) and ideas

Starting with low cost (zero investment or ROI under 1 year) opportunities, at Mutua Madrileña we set targets for electricity, fuels and water for each building, with a special focus on our headquarters. Today, we can proudly say we exceeded all three targets.

“Thanks to ISO 50001 technical training and a common reporting system, all buildings are monitored and operational improvements kept on track.”

—Diego Macías, Head of Maintenance Staff

demands must have been lower, and our target higher”, to keep the EnMS up to date and be always alert.

All deviations are noted and preventive action taken. Internal Audits of the system are programmed and carried out periodically, looking at every detail of the system and checking compliance with ISO 50001.

“Regular verification and monitoring have resulted in a strong list of completed items, which in turn have improved our risk management based on simple effective EnMS experience.”

- Noelia Fernández, Risk prevention and Environment

Verifying and validating results

Energy consumption data analysis is a keystone in our EnMS. Working with regression analysis allowed the energy team to define critical operating parameters (COPs) accurately.

Tracking of each facility was possible thanks to the cooperation from all maintenance staff, on-site and at the office. Using the common reporting system we can react to deviations quickly, identifying the cause and take corrective action.

The energy team keeps a close eye on energy performance and reports to management representatives weekly. An easy to read spreadsheet is prepared with all consumption information. Through a simple colour code, anyone in the team knows if performance is on track or decreasing.

Development and use of professional expertise, training and communications

During the whole process, Mutua Madrileña counted on the support of GEN Europe. This energy management consultancy provided guidance and assistance during the whole process.

With a clear focus on low cost energy savings, both teams worked hand in hand to raise awareness, train staff, pin down significant energy uses and carry out technical audits to all buildings.

“With Mutua Madrileña we have experienced how ISO 50001 can help maximise skill and potential, taking the best of each team.”

— Andrea López, Energy Management Specialist, GEN Europe



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Comportamiento energético. Sede (Castellana 33 + Fortuny 18)

Fecha: 09/2015

SERVICIO	OBJETIVO	REAL	AHORRO				COSTE		CO2
	último mes	último mes	2015		último mes	2015	2015		
Electricidad	431.894 kWh	458.769 kWh	-3,0%	-124060 kWh	-€ 10.074	1,3%	5751 kWh	€ 320.783	1.304 t
Gas Natural	20.436 kWh	1.419 kWh	-85,7%	-391821 kWh	-€ 16.692	-93,7%	-21023 kWh	€ 30.124	133 t
Agua	3.320 m³	6.102 m³	1,2%	184 m³	€ 300	77,3%	2661 m3	€ 24.982	96 t
Total			-6,6%		-€ 26.465	9,0%		€ 375.889	1.533 t

Tables like this show energy performance in each building. Results are given for electricity, fuel and water, in kWh, litres, euro and tonnes of CO₂.

Results are never taken for granted. Each SEU is analysed and its performance compared to the drivers affecting it. We regularly ask ourselves questions like: *“Was this winter warmer than last? Then our heating*

Today, Mutua Madrileña and GEN Europe continue working on continuous improvement of the EnMS, overcoming obstacles, sharing knowledge and success.

Lessons Learned

When Mutua Madrileña first started implementing ISO 50001, we were sure it would need deep economical investment.

Nearly 2 years later, everyone has been happily proven wrong.

Approach towards energy has radically changed. Focus on low-cost savings and good management has taken over, highlighting the power of behaviour change and teamwork to achieve enormous success.

“Our energy saving results have by far exceeded expectations and, when Mutua Madrileña was granted ISO 50001 certification with zero non-conformities, we knew we had made the right choice.”

—Mario Cabezos, Risk prevention and Environment

Keys to Success

- ✓ Strong commitment from top management provided the necessary resources and time to work on the EnMS.
- ✓ We have realized that saving energy makes strong commercial sense and this drives the support from the top.
- ✓ Our core energy team is passionate about learning and improving energy performance.
- ✓ Strong goals and targets to improve energy performance.
- ✓ Effective monitoring of energy performance taking account of relevant variables affecting energy consumption. This is aligned with regular corrective actions to unexpected variations in energy consumption.
- ✓ Training and awareness at all levels of the company.
- ✓ Continuous identification of energy saving opportunities in all our buildings. These feed into an opportunity and action plan list. Thus, targets can be sensibly set, tracked and achieved.
- ✓ Rapid detection and rectification of energy waste

Through the Energy Management Working Group (EMWG), government officials worldwide share best practices and leverage their collective knowledge and experience to create high-impact national programs that accelerate the use of energy management systems in industry and commercial buildings. The EMWG was launched in 2010 by the Clean Energy Ministerial (CEM) and International Partnership for Energy Efficiency Cooperation (IPEEC).

For more information, please visit www.cleanenergyministerial.org/energymanagement.

