

ISO 50001 Energy Management System – Case Study

2024

Chile

Watt's S.A.



Osorno Watt's Plant

Case Study Snapshot

Industry	Food processing
Product/Service	Processing of milk, dairy products and derivatives.
Location	Panamericana, Ruta 5 Km 921
Energy performance improvement percentage (over the improvement period)	8,8 % improvement over 1 years
Total energy cost savings (over the improvement period)	USD 363,801.00
Cost to implement Energy Management System (EnMS)	USD 59,115
Total energy savings (over the improvement period)	4997 MWh
Total CO₂-e emission reduction (over the improvement period)	3204 Metric Tons

Organization Profile / Business Case

Watt's S.A. is one of the main food companies in Chile, with prestigious brands and a wide variety of products. Since 1930, the company has been growing, diversifying and innovating to achieve a solid position in the market.

For Watt's, energy efficiency is of great importance, it makes up a large part of the transformation cost of our products and is aligned with our sustainability policy. Within this policy, energy efficiency supports the fulfillment of objectives to reduce energy intensity, reduce emissions and indirectly to reduce water consumption. It is for all of the above that Watt's reaffirms its commitment to develop the business following the aspects of economic, social and environmental sustainability. Additionally, it seeks to ensure that all our activities are aligned with our purpose and create value for all our stakeholders. In addition, our work allows us to contribute to the global goals proposed in the UN Sustainable Development Goals (SDGs).

In 2023 Watt's obtained the Energy Excellence Seal in Gold Category for 2 of its production plants, and also obtained the award for the outstanding energy measure for consumers with consumption over 10 Tcal.

The EnMS at Watt's was born from the need to carry out an effective management of the energy resource, understanding its strategic importance for the business. In addition, the new and increasingly demanding environmental legislations were also an impulse, which added to the governmental strategies of decarbonization leveraged the development of the system. The EnMS, based on the ISO 50001 standard, provides us with the tools to

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address our decarbonization and sustainability goals, which are fundamental to reinforcing Watt's commitment to climate change.

The Calo Osorno plant, which is presented in this report, is one of the company's largest in terms of both production and consumption, so its management has a major impact on the overall result. We decided to participate with the Calo plant because it has generated good efficiencies in previous years and even more so with this project, which without investment reduced our consumption from 123,000 tons of steam per year to 102,000.

“The implementation of an energy management system based on the ISO 50001 standard has improved Watt's competitiveness while contributing to the development of a sustainable industry.”

—Claudio Vergara, Energy Manager

Business Benefits

The implementation of the ISO 50001 standard has provided a structure on which we can develop the pillars of energy management, in terms of organization, culture, competencies, governance, etc. This had a cost of 59,115 USD and an implementation time of approximately 1 year, in which, through multidisciplinary teams, we were able to lay the foundations on which we operate and maintain our EMs today.

Translated with DeepL.com (free version)Watt's, even before implementing the EnMS, had set itself the target of a 3% annual improvement in energy efficiency. Since the implementation of the energy management system, these targets have been met and exceeded, the first year with 4.5% and the second year with 8%, resulting in higher demands to achieve the results. The project mentioned in this report alone generated savings of US\$360,000, which boosted and helped to generate new investments.

We have also generated a culture of energy efficiency through communication activities, trained talent for effective management, generated synergies between the different areas of the company and increased our exposure to the public as an industry concerned about the environment. In addition, we have driven innovation processes, searching for new technologies in the market to solve the industry's problems, this has generated great value, since the energy market is outside the core of the company. We have had contact and evaluations with technologies such as green hydrogen, solar thermal energy and other non-conventional energies, in the search to change our energy matrix for a cleaner one. Some implemented measures, identified thanks to the EMs, such as renewable electric energy certificates, change from coal to biomass for steam generation, energy efficiency projects, among others, have resulted in a 50% reduction in emissions compared to 2021, avoiding the emission of some 54,043 TonCO₂ eq.

Translated with DeepL.com (free version)Another benefit, especially having a multi-site certificate, is that benchmarking can be done more easily, it is more common to find good practices and to be able to adapt them to a new context. In this context, we have been able to transfer ideas and projects from one plant to another, such as boiler management, the automatic oxygen system, etc., to other plants.

Plan

For the company, energy management has been fundamental to achieve efficient processes and an adequate use of resources, so energy efficiency projects have been promoted for several years as part of the improvement of production processes. In this context, EnMS was able to easily obtain the commitment of senior management, where

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the COO led the implementation of this system. In order to standardize energy management in the company's 6 production plants, it was very important to have a system that would allow to gather all the information on significant energy use, operational controls and manage all the projects in the same way. The commitment of all those involved and the financial resources necessary for the implementation were obtained by presenting the benefits of having an EnMS, such as an optimization of process costs by a reduction of energy use, improvement in energy efficiency, regulatory compliance, better reputation and competitiveness for the Company, reduction of greenhouse gas emissions, among others.

For a proper understanding of energy consumption and use, energy audits were conducted at all facilities to collect and measure energy consumption by equipment and use by type of energy (electrical or thermal), building a baseline for each facility.

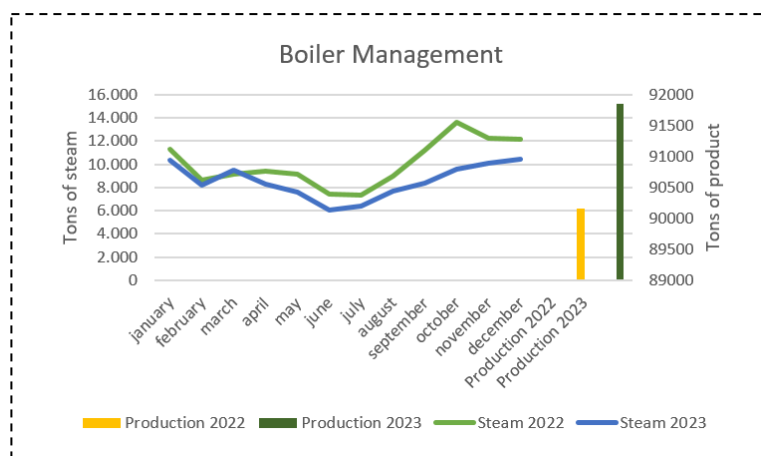
The process of reviewing and analyzing energy use is performed monthly, and efficiency or inefficiency is measured with respect to the baseline energy use.

We ensure that the EnMS supports the organization's strategy and objectives, replicating the goals and objectives set out in the company's annual strategic planning to the EnMS. Within these objectives, it was proposed to reduce direct and indirect emissions in scopes 1 and 2 by 50% by 2025 (baseline 2021), with the following action plans: 100% electricity contract from renewable sources, self-generation of electricity through the installation of photovoltaic panels in all production facilities, replacement of fossil fuel to renewable (biomass) and energy efficiency measures. These plans, and all energy action plans at Watt's, are selected and prioritized according to criteria such as, cultural impact, difficulty of implementation, level of investment, impact on energy efficiency.

The EnMs is for several sites and was developed through a multidisciplinary implementation team with representatives from each site, through weekly follow-up meetings the stages were implemented according to the defined planning

“The ISO 50001 standard has been a fundamental guide for the standardization of energy management in the Company and the SGE has allowed us to concretely materialize management actions.”

—Omara Monardez, Head of sustainability and operational culture

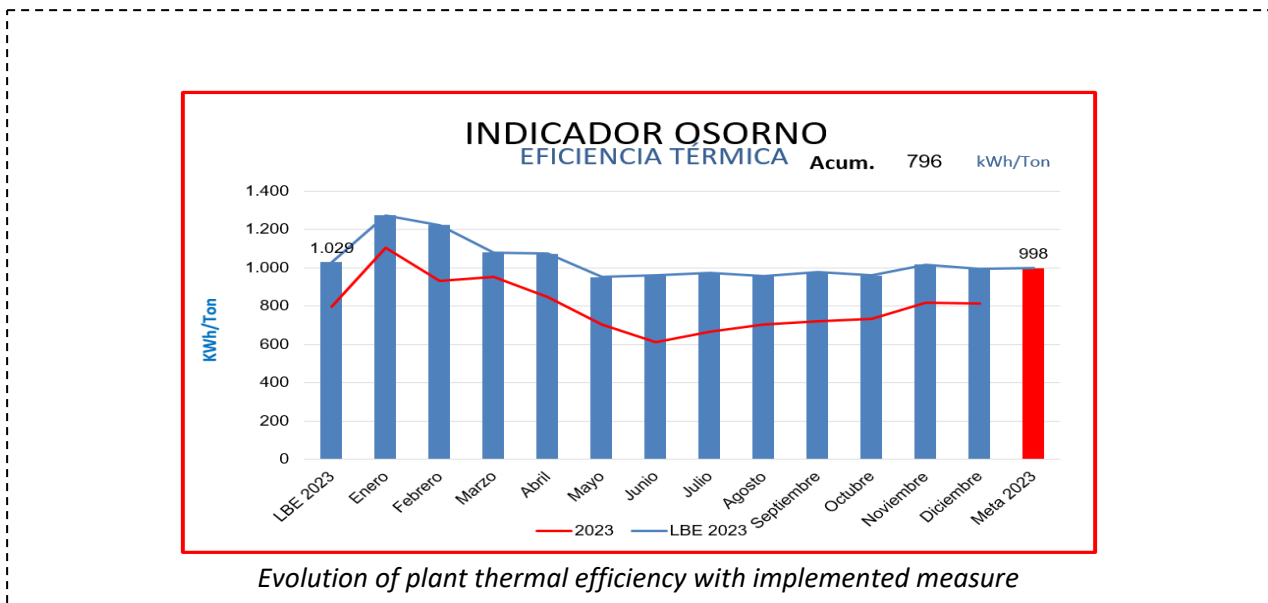


Consumption evolution by boiler management

Do, Check, and Act

The implementation was coordinated through the transversal areas, headed by the Operations and Planning Manager who leads the operation of all Watt's plants. All relevant areas were identified, in terms of people, operation and maintenance, communication, procurement, etc., which collaborated, together with a consulting firm, for the successful implementation of a complete and robust system.

The objectives have been effectively achieved, the efficiency improvement is measured by comparing the EDI [kWh/Ton] with respect to that projected by the energy baseline, which takes as reference a period of normal operation (12 months), this indicator can be kWh/ton for total energy, for electrical energy or for thermal energy, the latter being the one used in this measure of energy efficiency. The Energy Baseline is calculated by means of a linear regression, with an equation of the type $y = Ax + B$, where y is the energy and x the production. The Excel Linear Regression tool is used and validated for R2 values greater than 0.75 and critical value of F and probability less than 0.05. For the verification of savings in energy efficiency projects, the IPMVP protocol is mostly used. The relevant variables for our company are generally the productions, however, as the analysis has become more complex, we have discovered that some specific products have more impact and are more relevant, also other variables such as temperature, seasonality have been the focus of study for the understanding of our energy behavior. In general, parameters are only adjusted or normalized when changes in static factors are evidenced, such as changes in installed power, operation shifts, efficiency measures that generate a great permanent impact, among others.



Transparency

Once we were certified to ISO 50001, it was announced, along with our improvements, through our integrated annual report. In addition, the Chilean Ministry of Energy and the Superintendency of Electricity and Fuel were informed. Internally, all employees were informed of our certification and the formation of the energy management team through the company's website.

What We Can Do Differently

First, give greater emphasis to IT tools, currently there are many platforms, methodologies and programs that, together with artificial intelligence, can be a great contribution, especially when they are multipoint certified and with many processes of varying complexity.

Secondly, generate a strategy to control personnel turnover, although all relevant areas have been recognized and trained, we could get more out of these trained people if they remain in the company and acquire the experience that time provides. This has created an opportunity for us to improve our professional training plans and improve our document control to meet these challenges.

Finally, while we have an energy management team, most of the team shares tasks with plant work. It would be beneficial to establish from the outset, especially for companies with many plants or processes, a specific energy management area, with specific responsibility for improving plant energy performance. For the time being, the company has increased the availability of people dedicated to energy issues, and it is expected that in the future, as certification cycles continue to be completed, the energy management area will have a specific responsibility for improving the energy performance of the plants. For the future, the first thing is to prepare our recertification. In 2025 we will complete a full cycle that has given us many benefits and the idea is to continue on this path. Also, we continue to seek and identify opportunities for improvement, in terms of management and investment, to achieve the goals proposed, both for our company and at the national level. We currently have a person dedicated to the energy management of all plants, the idea is that in the future this area will continue to grow and integrate with the other standards we have (ISO 14001). Finally, continue the evaluation of new energy sources, in the search to make Watt's a carbon neutral company in a few more years.