

L'Oréal Argentina

L'Oréal For The Future



L'Oréal Argentina Distribution Center

Case Study Snapshot

Industry	Cosmetic/ Distribution Center
Product/Service	Distribution Center
Location	Buenos Aires, Argentina
Energy performance improvement percentage (over the improvement period)	5.68 % improvement over 1 years
Total energy cost savings (over the improvement period)	USD 12757
Cost to implement Energy Management System (EnMS)	USD 65380
Total energy savings (over the improvement period)	41.177 MWh
Total CO₂-e emission reduction (over the improvement period)	22 Metric Tons

Organization Profile / Business Case

At L'Oréal, we are committed to responsibility to work towards a more sustainable business. Through this profound transformation, We hope to be a catalyst for change and inspire our customers and all people to act with us. To do so, we must train ourselves in aspects key factors that will allow us to prepare for the world of tomorrow and anticipating the future of the future. challenges that will come with it.

L'Oréal Argentina operates a distribution center located in the Norlog Logistics Center in Benavidez, Buenos Aires. Here, we conduct the distribution activities for the products that L'Oréal offers to its customers. L'Oréal Paris has a corporate sustainability policy called "L'Oréal for the Future" where we acknowledge our duty to be a sustainable leader. That's why we act at all levels to halve our CO2 emissions per product compared to 2016. Therefore, every year, the company encourages us to propose actions to reduce our emissions. These actions are evaluated, and resources are allocated to achieve continuous improvement in the energy performance of all L'Oréal assets. To enable comparison among the different assets of L'Oréal Paris, the group has carried out the "Energy Scan" project, where Norlog stood out for our accuracy in identifying consumption patterns.

Since the beginning of the construction of the L'Oréal Norlog Distribution Center, the team focused on design to achieve LEED certification, obtaining the "PLATINUM" grade, the highest level awarded by the certification, thus turning the distribution center into a benchmark for best practices in energy-efficient design. The achievement of LEED certification sets a high standard for L'Oréal Norlog in identifying improvement opportunities to further reduce our energy consumption and emissions. In 2022, our Energy Management system won the CEM awards, reminding us constantly that our efforts for a better future are visible and appreciated.

Through our policy, we commit to:

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- Comply with applicable legislation and other requirements.
- Prevent pollution related to our activities, working with the permanent objective of reducing emissions and waste generation, seeking alternatives for reduction, reuse, and recycling.
- Ensure safe working conditions to prevent injuries and preserve health by eliminating hazards and reducing physical, chemical, and ergonomic risks.
- Promote consultation and involvement of our collaborators, making the prevention of occupational risks and responsible environmental care everyone's task.
- Optimize the consumption of natural resources, water, and hydrocarbons.
- Use energy efficiently in facilities and activities to contribute to reducing global warming.
- Establish criteria for improving energy performance in the design of facilities and the acquisition of equipment and services.
- Ensure the availability of information and resources necessary to achieve energy objectives.
- Maintain objectives and goals, which will be periodically reviewed as part of a continuous improvement process of the Integrated Management System.



“Energy efficiency is a path that can be achieved with a lot of tools. There is increasingly more accessible technology, but above all, it is very important to train the teams that work day by day, so they can understand why we do what we do and the impact it has.”

- María del Mar Plaza, Manager of Environment, Health, Safety, and Asset Security

Business Benefits

At L'Oréal Argentina, we work constantly to improve our management system. We have a certified energy management system ISO 50.001. The working methodology involves constant communication with the resources of the management system: the management system team, the operation and maintenance team, energy efficiency, and sustainability consultants. We hold weekly meetings with an energy efficiency and sustainability consultant who assists us in identifying efficiency opportunities and tracking indicators. The conclusions drawn are shared in working sessions with the operation and maintenance team. These regular meetings of expert groups have allowed us to form a team with high technical knowledge in improving energy performance, which can interpret and enhance the brain of our distribution, our BMS (Building Management System).

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The following table shows the annual expenses we must sustain the management system and continuous improvement in energy performance.

Cost to implement	Cost to implement (\$USD)
Internal Staff time to develop and implement the EnMS	\$ 13.600,00
Internal staff time to prepare for external audit	\$ 10.570,00
Additional monitoring and metering equipment installed to meet EnMS requirements	\$ 7.500,00
Third party audit costs	\$ 3.450,00
Technical assistance (e.g., hired consultants to assist with EnMS implementation)	\$ 30.260,00
Other (e.g., internal communications)	
Total	\$ 65.380,00

The team has managed to identify operational patterns to detect in advance: failure events, increases in energy consumption due to lack of maintenance (for example: proper ventilation system filter changes), optimization of control parameters for major equipment and lighting.

The lesson learned is that consistency is the main factor for achieving success in the management system. Success in the energy management system means measurable benefits for us compared to 2022 (our current Baseline):

- Improvement in energy performance by USEs:
 - Lighting in Warehouse 2
 - Lighting in Distribution Center Docks
 - Kitchen and Dining Power Points
 - Office HVAC System
- Results not related to consumption:
 - Thorough monitoring of BMS maintenance and operation. Reduction in failure rates.
 - Continuous project management training for the team leading the management system.
 - Contribution to L'Oréal's corporate plan. International Integration.

The decrease in energy consumption and monitoring of demanded power allows us to reduce our power and energy contracts in the MEM (Wholesale Electricity Market) year by year because we are part of the energy futures market, purchasing 100% of our energy from renewable sources. In the following table and graph, you can see the decrease in energy purchase contracts with our supplier, PAMPA ENERGÍA. These improvements allow us to improve our costs by reducing power demand and energy consumption. In 2022, 974 MWh of renewable energy from PAMPA ENERGÍA were purchased in the futures market. Due to the improvements in energy performance and the information obtained on demanded power and energy consumed, for 2023 we renegotiated contracts estimating a consumption for 2023 of 897 MWh. This difference in contracted energy and a decrease in energy prices allowed us to save \$9875/year during 2023 through active study and tracking of data generated by the Energy Management System (SGEn).

The purchased energy reported in Figure 1 refers to the energy that the supplier agrees to guarantee to L'Oréal through a contract. This is not the energy consumed but rather a projection of energy to be consumed expressed in a contract and reserved.

The experience gained in the energy management system at the L'Oréal Norlog Distribution Center enables us to develop a non-certified management system in the company's administrative offices in Argentina. The same methodology is repeated, including meetings with the consultant and the site's management system team. We also engage in purchasing energy in the futures market and achieve similar results by optimizing renewable energy purchase contracts.

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In 2023, the LOREAL Group selected the Distribution Center in Argentina to represent LATAM for the development and testing of a new energy analysis tool: the Energy Scan Tool. The aim is to detect potential gains and improvement opportunities to develop action plans for 2030.

The constant monitoring and commitment of the team are what generate results that not only signify improved performance but also efficient energy management from multiple perspectives.

Figure 1
Energy Report for the Energy Scan project of Lorea. Year 2023.

AÑO		2023													
Introduction		23-01	23-02	23-03	23-04	23-05	23-06	23-07	23-08	23-09	23-10	23-11	23-12	TOTAL	
Compressed Air	Energy usage: Compressed Air (kWh)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Heating Ventilation Air Condition	Energy usage: Ventilation (kWh)	9.124	8.652	9.835	2.077	658	585	609	618	621	647	3.626	5.321	42.373	166.796
	Energy usage: Building Heating (kWh)	0	0	0	5.554	3.854	9.522	10.828	10.005	3.801	0	0	0	43.564	
	Energy usage: Building Cooling (kWh)	13.815	11.872	14.717	5.554	3.854	0	0	0	3.801	6.870	8.915	11.463	80.860	
Process refrigeration and heating u	Energy usage: Process refrigeration units (kWh)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Energy usage: Process heating units (kWh)	0	0	0	0	0	0	0	0	0	0	0	0	0	
Lighting	Energy usage: Lighting (kWh)	13.463	12.520	14.587	15.311	14.680	15.057	14.908	15.286	17.120	14.909	16.416	14.765	179.023	
Energy for the electric vehicles charging	Energy usage: Electricity for the electric vehicles char	1.721	1.654	1.897	1.821	1.544	1.298	1.661	1.661	1.663	1.365	1.429	1.099	18.813	
Waper Heating	Energy usage: Waper Heating (kWh)	1.666	1.209	1.287	1.529	1.822	2.007	2.144	2.111	2.042	1.814	1.597	1.513	20.742	
Waper Pump	Energy usage: Waper Pump (kWh)	195	71	68	160	71	99	64	85	76	86	94	79	1.148	
Plug socket / Wall outlet	Energy usage: Plug socket / Wall outlet (kWh)	4.668	4.177	4.459	4.493	5.137	5.401	5.574	5.582	5.585	5.035	4.558	4.638	59.306	
Information Technology (IT)	Energy usage: Information Technology (kWh)	5.020	4.589	5.057	4.830	5.027	4.930	5.080	5.096	4.803	5.106	5.123	5.313	59.975	
Kitchen	Energy usage: Kitchen (kWh)	825	640	648	421	376	420	395	458	436	360	536	536	6.050	
Operational processes	Energy usage: Operational processes (kWh)	2.707	2.391	2.648	2.441	2.391	2.373	2.400	2.451	2.342	2.412	2.415	2.365	29.335	
Building	Total energy usage (kWh)	53.205	47.774	55.203	44.190	39.414	41.692	43.662	43.354	42.290	38.604	44.709	47.092	541.188	
	Electric meter TGBT	61.584	56.101	64.587	53.996	47.649	49.857	52.531	52.781	53.426	48.817	56.136	56.688		
		86%	85%	85%	82%	83%	84%	83%	82%	79%	79%	80%	83%		
	Unaccounted Energy	8.380	8.327	9.383	9.807	8.235	8.165	8.869	9.427	11.137	10.214	11.427	9.596		

The measures implemented in the following section explain our improvement in energy performance. Compared to our baseline, we achieved a nominal reduction (differences between measured consumptions) of 5,27%. This means that in 2022, 721.164 kWh/year were consumed, while in 2023, 683.138 kWh/year were consumed. Due to the improved purchase in the futures market (negotiating better prices per MWh) and the reduction in consumption, a real economic benefit of \$12.757 USD/year is obtained.

The calculation of the baseline with the variables described in the Do, Act, and Check section yields an energy saving of 41.177 kWh, which translates to a 5.68% reduction compared to the baseline. This saving also translates to 22.000 kgCO2/year not emitted into the atmosphere compared to the baseline.

Plan

At L'Oréal, we have been committed to sustainability for a long time. That's why we launched L'Oréal For The Future, transforming our activities to respect planetary boundaries. The objectives and goals of the management system are aligned with the organization's strategy.

With commitments for 2030, our goal is to ensure that our activities are respectful of the planet's limits. We are working to reduce CO2 emissions linked to our industrial activity. In 2020, we reduced our absolute carbon emissions by over 80% compared to 2005, with more than 50 carbon-neutral sites worldwide.

L'Oréal has been participating in the Science Based Target Initiative (SBTI) since 2015. SBTi is a framework founded by the World Wildlife Fund, providing a methodology for setting greenhouse gas emissions reduction targets for companies aligned with the global 1.5°C goal.

SBTi measures a company's carbon footprint as follows:

- Scopes 1 and 2 cover greenhouse gas emissions directly related to the company's production and transportation (1% for L'Oréal).
- Scope 3 covers indirect emissions from our consumers and suppliers (99% for L'Oréal).

At L'Oréal, by 2025, we will commit to achieving carbon neutrality at 100% of our sites. By 2030, we will reduce greenhouse gas emissions linked to the transportation of our products by an average of 50% compared to 2016. Also, by 2030, we will innovate to enable our consumers to reduce greenhouse gas emissions resulting from the use of our products by an average of 25% per finished product.

At Loreal Norlog, we have our own sustainability policy integrated with the group's objectives. Leading the change in our division is María del Mar Plaza, the manager of environmental and asset security.

As part of the "L'Oréal for the Future", Company Global Project, we must report the update of resources committed to the project annually and quarterly. This document is evaluated by the group's commission, which approves budgets for improving energy performance and reducing L'Oréal's activities' impact. Senior management is committed at all levels to achieving the L4FT project's objective.

The data acquisition process to feed the energy management system and make evidence-based decisions has been designed since the asset's inception.

When Electrical Engineering plans for the asset were developed, consumption was grouped by estimated significant uses. This allowed us to incorporate electricity meters that report consumption data in real-time to the BMS system. Currently, we have 25 meters installed, allowing us to identify 90% of the total consumption of the asset separated by uses.

The energy efficiency consultant, with data reported by the meters, creates a report analyzing variations in consumption for each significant use. This study is shared in energy efficiency committee meetings. This systematic approach to indicator control allows us to demonstrate improvement in energy performance.

With measured and analyzed data on the distribution of significant uses, the committee proposes actions. These actions are technically evaluated by the consultant, who provides a recommendation on whether it is technically feasible to turn the idea into a project. After this initial filter, the consultant develops technical specifications to obtain improvement project budgets.

With costs defined through formal budgets, projects are described in the L4FT integrator project, which submits budgets to management for approval or postponement.

This methodology allows us to continuously evaluate and propose improvements in the system, which have translated into 4 years of continuous improvement in energy performance at NORLOG.

Do, Check, and Act

During the years 2022 and 2023, the objective was to sustain continuous improvement in energy performance. It's a task that requires integration meetings involving every party involved, from operations and maintenance to procurement.

We have an energy efficiency committee that meets weekly to track the progress of various improvement projects. To ensure optimal functioning, we've found that the participation of senior management in these meetings is crucial. Generally, the involved parties are:

- Senior Management
- Sustainability
- Operations and Maintenance
- Energy Efficiency Consultant

Throughout the month, our measurement system integrated into the BMS reports consumption information to us, which is then processed by the consultant, loaded into the energy matrix, and tracked for significant uses.

In 2021, our variables included Cooling Degree Days and the quantity of units dispatched. However, for 2022, we conducted a new energy review and established the following key variables:

- Cooling Degree Days
- Heating Degree Days
- Cloudiness Index

This change was made because, as a distribution center where the charging of forklift batteries is not a significant use, we found no mathematical or empirical correlation with energy consumption. Instead, cloudiness turned out to be a relevant variable because our entire lighting system is controlled by natural light sensors. Being a logistics center (without a manufacturing process), our consumption is due to daily operations, and there's no use where consumption is determined by the quantity of units dispatched.

Our approach to ensure normalization in the evaluation of our energy performance is based on the detailed analysis of key variables and the use of an adjusted baseline model to account for external factors that may influence our energy consumption. The baseline model was developed using variables such as Cooling Degree Days (HDD), Heating Degree Days (CDD), and Cloudiness Index, which were considered representative of the environmental and operational conditions impacting our energy consumption. These variables provide a solid foundation for comparing our energy performance against expected conditions, allowing us to identify deviations and take corrective actions as necessary. Additional normalization methods were not used due to the specific nature of our operations as a logistics center and the availability of detailed data on key variables influencing our energy consumption.

The achieved projects taken during 2022 and 2023 were as follows:

- Lighting
 - Calibration of natural light sensors.
 - Calendar adjustments for lighting control.
- Battery Chargers
 - Replaced 4 conventional battery chargers with inverters.
- Sanitary Hot Water
 - Purchased a self-contained heat pump for heating hot water.
- Ventilation
 - Replaced filters throughout the ventilation system.
 - Control of all system fans through BMS (including circulation fans).
- Air Conditioning
 - Changed operating hours: increased remote workdays.
 - Cleaning of equipment filters.

Additionally, for 2024, we have the following projects initiated:

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- Total Automation of the Ventilation System (CAPEX \$30,000): This project is in the implementation stage. It involves incorporating mini contactors for the operation of all ventilation devices in the warehouse. These will be controlled by presence and temperature sensors.
- Improvements in Warehouse Lighting Control (CAPEX \$25,000): This project is in the implementation stage. It involves incorporating 140 current transducers to measure consumption and regulate each lighting circuit in the warehouse (our main USE).
- Photovoltaic Generation Center 140 kWp (CAPEX \$250,000): The approved project to generate 30% of the energy consumed by the entire facility onsite. This is the most important project for the division and is currently in the bidding stage.
- Purchase of Missing Meters (CAPEX \$7,500): The project aims to identify the remaining 10% of unmeasured energy in the various electrical circuits of the facility. It is currently in the implementation stage.

Figure 2

Baseline model and energy measured during 2022 and 2023.

Period	HDD 15,5	CDD 22	Cloudiness	Measured total		
22-01	0	109,45	114	68.571		
22-02	0	33,1	92	60.621		
22-03	3,45	16,5	98	51.168		
22-04	8,25	0,6	88	56.377		
22-05	68,55	0	107	61.435		
22-06	145,45	0	126	68.881		
22-07	109,25	0	133	65.840		
22-08	86,85	0	102	63.821		
22-09	29,65	0	91	56.991		
22-10	17,65	6,5	121	53.720		
22-11	0,9	41,85	91	56.360		
22-12	0	81,65	86	57.379	Baseline	Savings
23-01	0	130,7	88	64.462	67.473	-4,67%
23-02	3,4	104,55	78	62.344	64.836	-4,00%
23-03	0	133,1	106	59.741	67.885	-13,63%
23-04	3,2	2,35	112	59.985	53.542	10,74%
23-05	18,85	0	126	48.075	55.195	-14,81%
23-06	85,45	0	132	54.328	62.941	-15,85%
23-07	96,55	0,3	162	56.039	64.492	-15,08%
23-08	70,1	1,25	131	53.554	61.299	-14,46%
23-09	45,75	0	148	58.500	58.476	0,04%
23-10	14,9	0,85	96	52.420	54.600	-4,16%
23-11	3,15	19,25	96	57.162	55.319	3,22%
23-12	0	45,6	138	56.528	58.257	-3,06%
Total				683.138	724.315	-5,68%

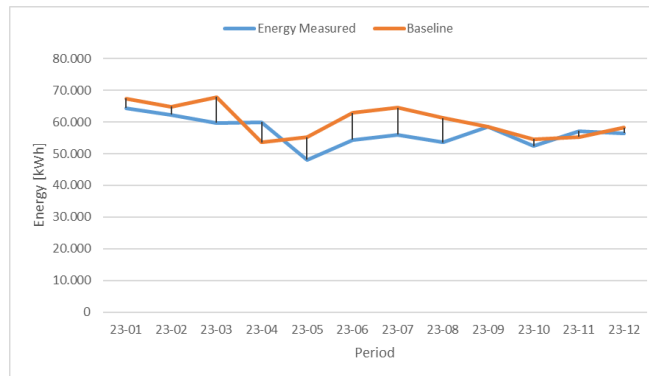
The baseline equation with the selected variables has a coefficient R2=0.78. It is as follows:

$$LB2022 = HDD(15),5 * 115.6 + CDD(22) * 112.9 + Cl * 7.81 + 52031.47$$

The savings obtained, compared to the 2022 baseline, are 5.68%, which equates to \$2882 USD saved in energy expenses.

Figure 3

Consume Energy vs Baseline Energy



The operation of the logistics center is centralized in a BMS (Building Management System). The BMS system is operated by maintenance, which provides monthly reports to the energy efficiency consultant to evaluate and explain variations in consumption. Our formula is simple yet effective: the consultant monitors consumption and tries to explain variations through maintenance reports. With monthly meetings, building control is fully planned, and the effect of measures is evaluated in real-time. The committee trains staff not only through direct spending on training but also through regular meetings where improvements are discussed, and technical arguments are heard by all at the working table.

Transparency

At L'Oréal, internal and external communication about our sustainability initiatives is essential to our commitment to the environment. Internally, we use various tools such as digital billboards, emails, and physical displays, like a flag with our certification in the main warehouse, to keep our team informed and engaged. Our sustainability policy is displayed in meeting rooms, reminding all our employees of our values and commitments. Externally, we communicate through our Corporate Affairs, Engagement, and Sustainability department, using press releases and participation in community events to share our story and commitment to sustainability with the world.

What We Can Do Differently

The changes we would make involve shifting the decision-making focus from the outset.

- At the beginning of certification, CAPEX and Payback were very important for project selection. This decision-making approach is correct if we are in countries where energy costs are high. In Argentina, the cost of energy is low, so these decision variables were not suitable. With L4FT, this changed, and we were able to implement more and better projects.
- The integration of the energy committee was something that took a long time. Only in 2023 could we form a robust committee that meets systematically to discuss performance improvement projects. The improvements are evident, and projects now flow more naturally.
- The renewable energy generation project aims to supply energy to L'Oréal's offices in CEL, the administrative headquarters. This project should have come earlier to integrate both sites into a single management system.



The Energy Management Leadership Awards is an international competition that recognizes leading organizations for sharing high-quality, replicable descriptions of their ISO 50001 implementation and certification experiences. The Clean Energy Ministerial (CEM) began offering these Awards in 2016. For more information, please visit www.cleanenergyministerial.org/EMAWards.