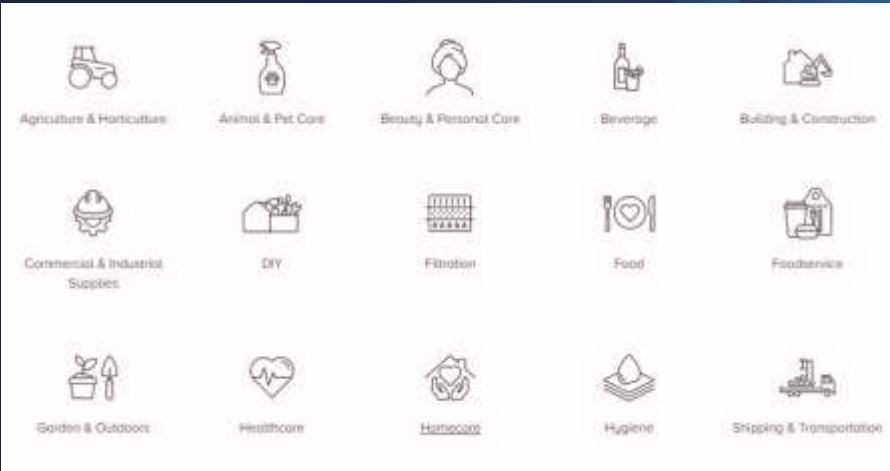




Berry Global Inc. Case Study



Plastic Industry



Over the last century, plastics have offered solutions to societies permanent evolving needs and challenges with a variety of remarkable materials developed thanks to a continuous R&D effort.

More than other industries, the plastic industry is very sensitive to the issue of power quality, since the typical machinery widely used across the sector is extremely sensitive to the disturbances produced by power electronics on the current waveform.

In addition to the needs to reduce energy consumption in an industry that is extremely energy-intensive, it is essential for this sector to address the power quality issue in order to reduce maintenance and downtime costs.



INNOVATION FOR THE WORLD
SOLUTIONS FOR YOU

The Client

Berry Global Group Inc. is a company that creates innovative packaging and engineered products and serves customers of all sizes worldwide. Founded in 1967, over the years it has become an industry leader with 46,000 employees globally in over 265 locations working directly with its customers to develop, design and implement advanced solutions for different markets with a strong focus on circular economy and sustainability.

Energia Europa, together with its partners, carried out two installations in Berry Global: one at a production site in Belgium (Berry Global - Zele) and one in Italy (Zeller Plastik - Orio Litta). Both companies are very sensitive to solutions and activities aimed at improving energy efficiency and reducing the environmental footprint, and wanted to test a solution that would guarantee a measurable energy savings and the consequent reduction of CO₂ emissions.



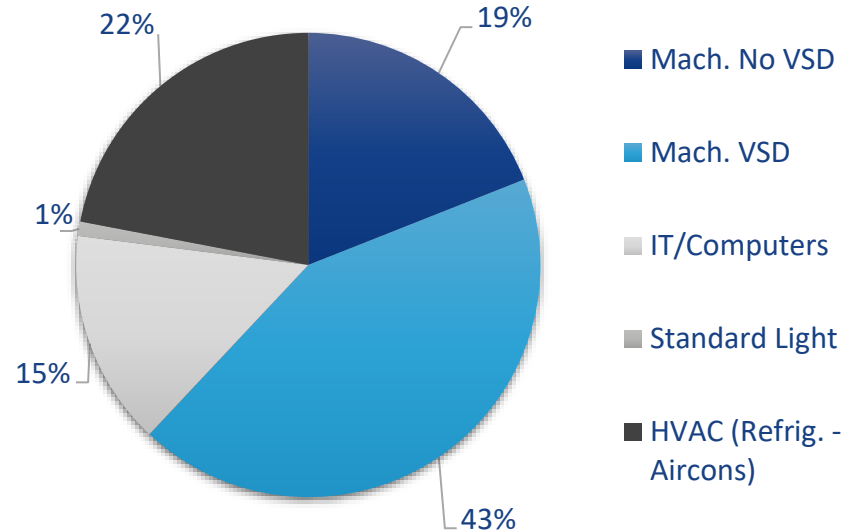
Berry Global - Belgium - Zele

The Project

At the end of December 2022, the EP-X 1250A was installed at the Berry Global plant in Zele, Belgium, producing plastic packaging. The EP-X system has been positioned close to the main electrical cabinet downstream the transformer A and the main circuit breaker, powering the printing division which absorb approximately a power equal to 800 kW, with a yearly energy consumption of about 2,739,565 kWh.

The loads powered by this transformer are mainly controlled by power electronics.

Loads Repartition



The Project

The benefits generated by E-Power can be grouped in 3 categories:

- **Energy Efficiency:**

reduction of the losses and disturbances in the line and the electrical network; improvement of the power quality on the load increasing their lifespan.

- **Emissions Reduction:**

each kWh saved corresponds approximately to 0,50 kg of lower CO₂ emissions.

- **Financial Savings:**

reduction of electrical consumption ensuring the same work output, so generating a financial saving that is variable according to the features of the electrical network. The results are scientifically measurable thanks to the patented bypass system and the data monitoring capability ensured by the E-Controller device.

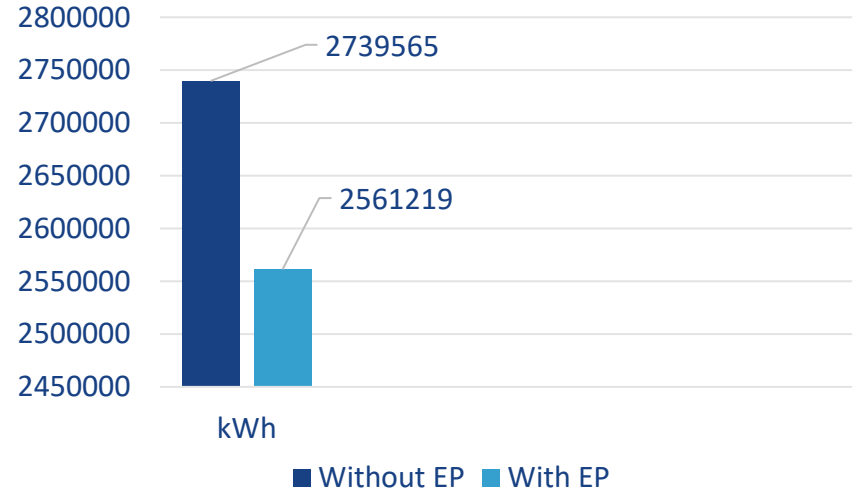


Global Results and Benefits

- Energy Saving Rate: 6.51%
- Yearly Energy Saving: 178,346 kWh
- Reduction of CO₂ emission: 89,173 kg, considering 0.5 kg of CO₂ per kWh produced
- Power Quality improvement
- Power, Current and Voltage Spikes Reduction
- Reduction of Electro-magnetic emission in compliance to the EMC standard (Electromagnetic Compatibility)
- PF Improvement
- Extension of loads expected lifetime
- Reduction of Greenhouse Gas Emissions (NO_x-SO_x)

Furthermore, the benefits in terms of improvement of Power Quality, and therefore reduction of maintenance costs, according to the academic literature and the research conducted by the Smart Energy Lab, can be estimated as at least an additional 1%-2% of the global saving.

Yearly Consumption kWh



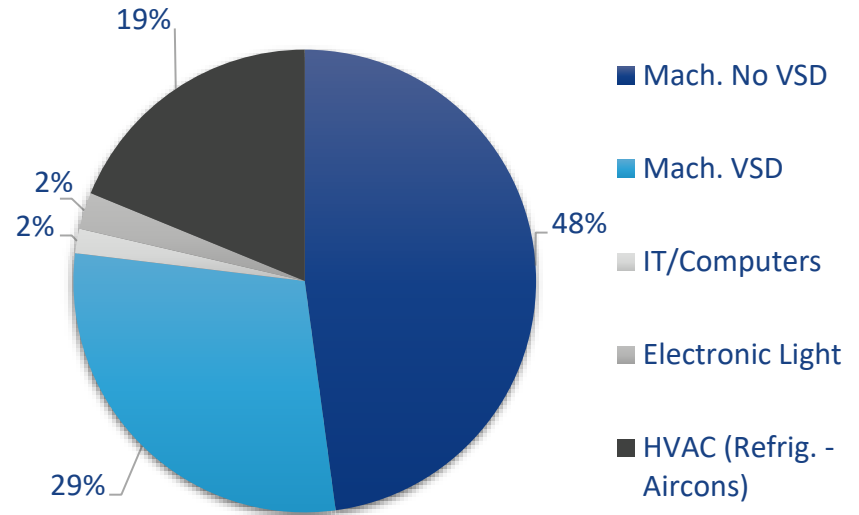
Zeller Plastik S.r.l. - Orio Litta - Italy

The Project

During December 2021, the EP 1400A was installed at the Zeller Plastik plant in Orio Litta, Italy, producing plastic items. The EP system has been positioned right after the MV/LV transformer with a proper protection relay (ABB Ekip-Up). This transformer supplies electrical loads which absorb approximately a power equal to 774 kW, with a yearly energy consumption of about 2,800,000 kWh.

The loads powered by this transformer are mainly not controlled by power electronics.

Loads Repartition

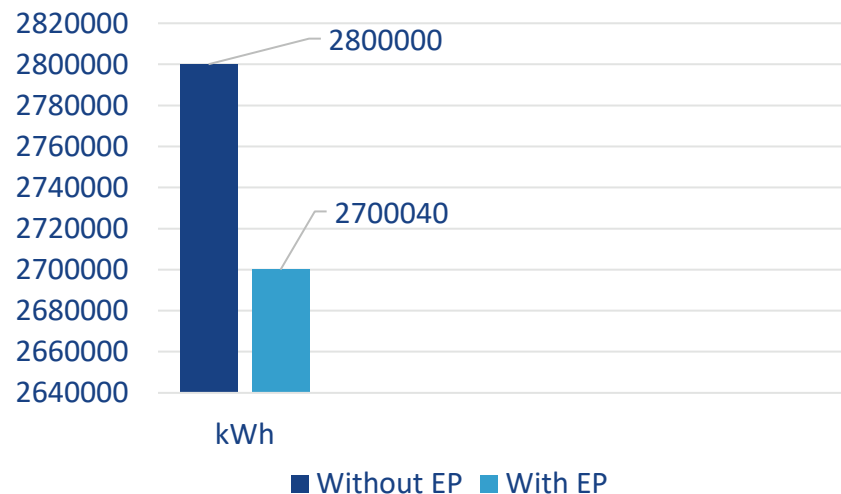


Global Results and Benefits

- Energy Saving Rate: 3.75%
- Yearly Energy Saving: 99,960 kWh
- Reduction of CO₂ emission: 44,982 kg, considering 0.5 kg of CO₂ per kWh produced
- Power Quality improvement
- Power, Current and Voltage Spikes Reduction
- Reduction of Electro-magnetic emission in compliance to the EMC standard (Electromagnetic Compatibility)
- PF Improvement
- Extension of loads expected lifetime
- Reduction of Greenhouse Gas Emissions (NO_x-SO_x)

Furthermore, the benefits in terms of improvement of Power Quality, and therefore reduction of maintenance costs, according to the academic literature and the research conducted by the Smart Energy Lab, can be estimated as at least an additional 1%-2% of the global saving.

Yearly Consumption kWh





energia | save energy
save CO₂