

XYZ Auto Manufacturing's EMS
Five Year Continuous Improvement
2019 Indiana's Governor's Awards

I. General Project Description

XYZ Auto Manufacturing in Indianapolis, Indiana is seeking a 2019 Governor's Award in the Continuous Improvement Category for its implementation of an environmental management system and associated projects. We are an automotive assembler that employs 850 individuals from around the Indianapolis metro area. In early 2013, due to rapid market share and employee growth, management tasked the health and safety department to develop and implement an environmental management system in order to minimize negative environmental impacts associated with our operations. By April of 2014, we had developed and been certified in ISO14001.

The EMS is based on the following five elements:

- Environmental Policy & Commitment
- Planning
- Implementation
- Measurement & Evaluation
- Review & Improvement

As a result of the aspects and impacts activity associated with ISO 140001, XYZ Auto Manufacturing decided to address four areas of potential environmental improvement. The areas include: energy use, water use, pollution prevention, and the amount of waste we send to the landfill. The below projects were fully implemented by March of 2017 and continue to this day. These projects protect the environment by efficiently using Indiana's water and energy resources. Our EMS has reduced the amount of pollutants emitted and solid waste sent to the landfill by our facility. All of our projects mentioned in this nomination were fully implemented by 2017 and are on-going.

Switching from solvent to water based paint:

XYZ Auto Manufacturing chose to switch from a solvent-based paint to a water-based one. We began implementing this product change in January of 2017 for all of our auto body painting operations. This pollution prevention project has allowed XYZ Auto Manufacturing to reduce its volatile organic compound emissions and conserve energy due to a minimized need of paint agitation. We were able to obtain both absolute and normalized VOC reductions. VOC data can be found in section IV (measurable benefits).

Water & Energy Savings Projects:

Air compressor audit project

After contracting a third party to do a compressed air energy audit, it was decided that we could downsize our system and switch from a water-cooled air compressor to an air-cooled air compressor. We were also able to eliminate a water cooling tower, which was associated with the water-cooled air compressor. This

allowed us to reduce our water consumption at the plant. This process began in January of 2016 and continues today. Our progress is highlighted in section IV (measurable benefits).

Warehouse lighting retrofit

Another area of improvement identified was retrofitting our 70,000 sq. ft distribution warehouse with more efficient lighting. We began studying this proposal in late 2014, and noticed 63% of our electric consumption at the warehouse was due to lighting. We received management approval to go ahead with a retrofitting project as long as the payback was within two years. In January of 2016, we replaced 152 metal halide fixtures with 103 6 lamp T5 fixtures. In 2016 we saved \$22,633 on our warehouse electric bills and achieved our payback in April of 2017. Not only were we able to save money and reduce energy consumption, but we were also able to improve the light quality of our facility. More metrics can be seen in section IV (measurable benefits). Since the success of this lighting project, we are planning to do this in other buildings on our campus, most notably the production line and office areas.

Plant Landfill Avoidance Project

Another area of potential improvement identified was implementing recycling programs for some of our various waste streams. In January of 2014, we began this initiative by contacting our waste hauler to determine recycling options for our different waste streams. We then proceeded to purchase fifty paper and plastic recycling bins that were strategically placed throughout our facility. The paper bins were focused on heavy paper use departments (accounting, human resources, IT, etc.) The plastic bins were placed in every break room and strategically on the production line and office areas. The plastics bins accept jugs and bottles coded 1, 2, 3, 4, 5, and 7. Due to the high volume of shipping at our facility, our next step was to meet with upper management to explore the idea of investing in a waste compactor to efficiently manage and store the cardboard waste, thus making it easier for our recycling transporter/processor to pick up. The cardboard compactor would allow us to recycle all of our cardboard waste and reduce the number of runs by our waste hauler. Due to the limited financial resources, it was determined that we would apply for IDEM's Recycling Market Development Grant (RMDP). In 2015, XYZ Auto Manufacturing applied for and received IDEM's RMDP grant for a \$15,000 cardboard compactor. Our waste stream and recycling figures can be seen in section IV (measurable benefits)

II. Innovation, Environmental Stewardship, and Partnerships

XYZ Auto Manufacturing's EMS projects are a result of commitment from our leadership to reduce our environmental impact in our state and community. Although other organizations have done similar projects in the past, we were able to adapt these practices to our operations. We developed a partnership with an environmental consulting firm to annually perform energy audits to find further areas of improvement. We also took advantage of IDEM's Compliance & Technical Assistance Program (CTAP) who pointed us in the direction of switching our paint formulation. One of the key elements of our EMS is measuring and evaluating our progress both in terms of environmental benefits, but also monetary savings associated with efficient use of natural resources. These can be seen on any of our progress tracking boards throughout the plant.

III. Superior Practices

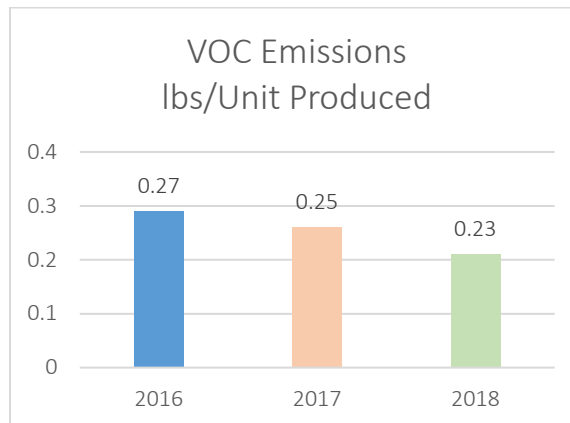
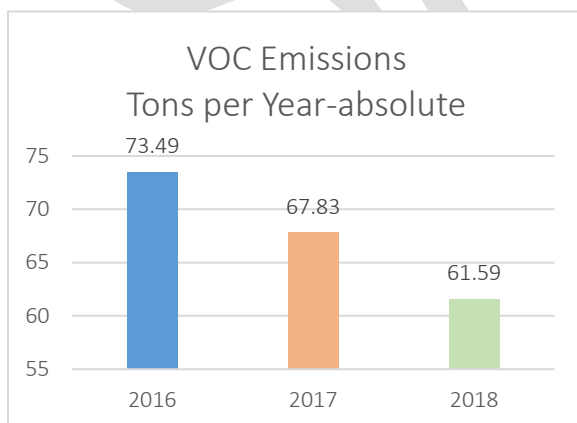
XYZ Auto Manufacturing’s implementation of an environmental management system demonstrates our desire to go above and beyond our regulatory requirements. By studying what other organizations have implemented, and consulting with our own engineers, we were able to incorporate projects that provide measurable environmental benefits. We have adopted the EMS motto of, “Plan. Do. Check. Act”, as part of our company culture. This motto helped us to formulate our five essential EMS characteristics: (policy & commitment, planning, implementation, measurement & evaluation, review & improvement.) A key factor in maintaining the Plan Do Check Act philosophy is conducting both internal & external audits on our environmental management system. This allows us to stay on track with our current projects, and identifies more areas in need of improvement.



IV. Measurable Environmental, Economic, and Social Benefits

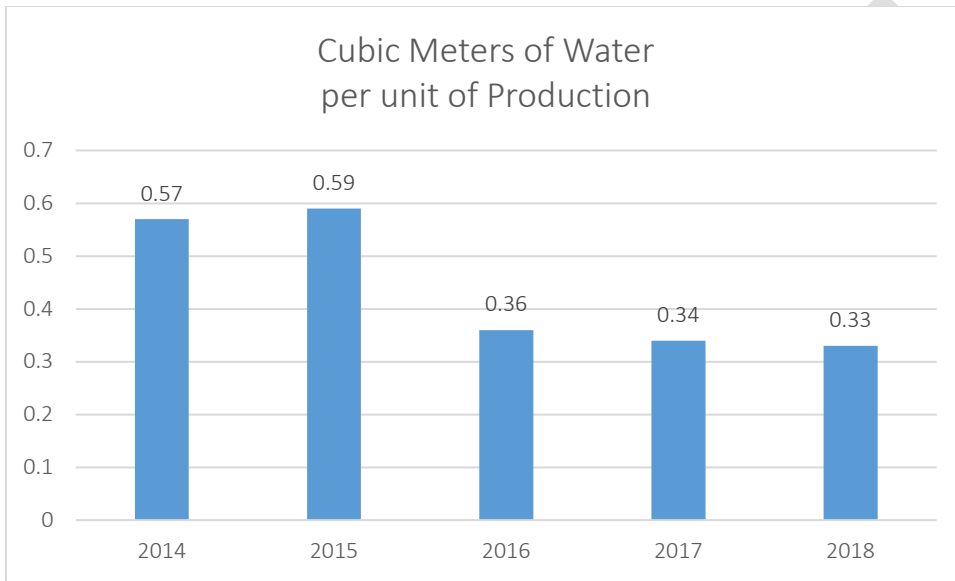
As mentioned in the project description, we have implemented several projects as a result of our environmental management system. Below we have highlighted the available data from our projects for the years 2014- 2018. Some of the projects were implemented before others due to various financial and logistical reasons.

A. Paint Project



Since switching from a solvent-based paint to a water-based one, our absolute VOC emissions have decreased by 16.2% and a normalized reduction of 14.8 % compared to our baseline year of 2016.

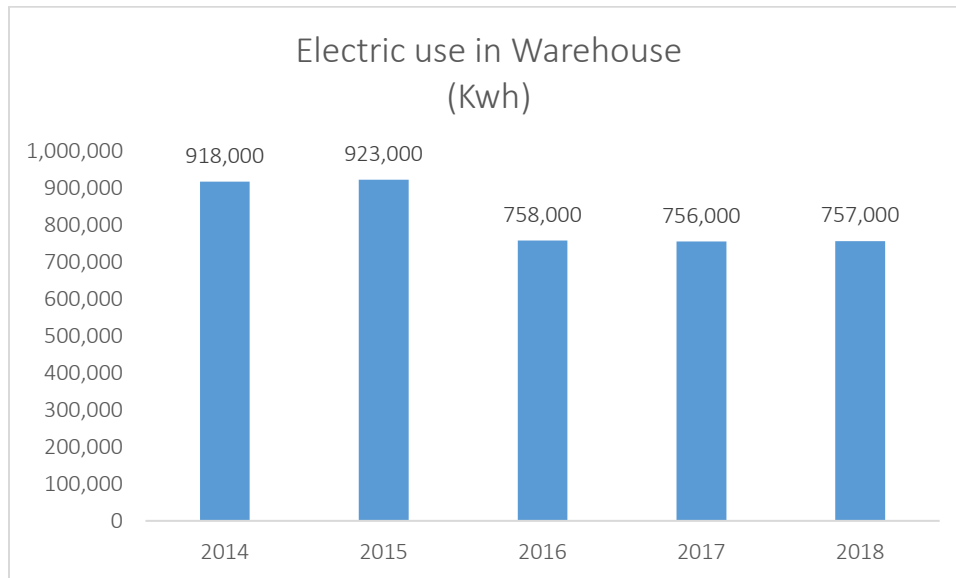
B. Air Compressor Project



Since switching to an air-cooled air compressor and eliminating a cooling tower in 2016, our water use per production unit has decreased by 42% compared to the baseline year of 2014.

C. Warehouse Lighting Retrofit

- \$22,633 energy savings in 2017 compared to baseline of 2014
- Payback achieved within 16 months
- Decreased electric consumption by 162,000 Kwh in 2017 compared to 2014.
- Light level increased 12 to 20 foot candles



Since the retrofitting our warehouse with T5 fixtures we have reduced our electric consumption by 17.5% from 2014.

D. Plant Recycling Program Figures (2014-18)

- 7200 tons of Cardboard
- 120 tons of paper
- 105 tons of plastic
- Purchased \$15,000 waste compactor
- Saved 20 % on waste hauler fees.



V. Commitment and Leadership in Pursuit of Environmental Excellence

XYZ Auto Manufacturing's environmental management system and associated projects are sustainable solutions to reducing our environmental impact. Our EMS also demonstrates our commitment to solving environmental challenges in Indiana. As part of our company culture, management has decided to track our EMS progress at various locations in the plant. We believe this engages all of our employees in the processes and procedures associated with our environmental management system. We also sought out technical assistance from IDEM for our paint project and an environmental consulting firm for our energy and lighting project.

VI. Transferability to other users

Since all of our EMS projects came about due to outside ideas and projects, we are willing and actively sharing elements of our projects with others. We recently shared our lighting retrofit project details at a local chamber of commerce meeting to inspire other manufacturing or warehousing enterprises to implement a similar type of project. Our employees are also sharing elements of our projects at speaking engagements, conferences, and networking events. We believe that our EMS and associated projects are sustainable solutions to some of the environmental challenges we face as a society and serves as a model for others.

VII. Funding Sources

As eluded to in the project description, XYZ Auto Manufacturing applied for and received the Recycle Market Development Grant for purchasing a waste compactor for our cardboard waste stream. The compactor was \$15,000 and we paid \$7500 with a \$7500 match from the RMDP grant. The remaining funding for our EMS projects came from our parent company XYZ, USA and a small loan for the warehouse lighting project. Since we experienced a quicker than expected payback on the lighting project, and continue to save money on our electric bill, we created a sustainability fund which is used to fund our current and future projects. Bi-annually our environmental health and safety personnel meet with upper management to discuss the sustainability fund, progress of current projects, and potential future projects.

VIII. Supporting Information

See attachments.