



# Case Study: An Integrated Management System with ISO 50001



HARBEC, Inc. is a machining, tooling, and injection molding company located in Ontario, NY. Their mission is to provide tightly toleranced prototypes, tooling, machined components and quality injection molded parts in a sustainable manner with a social conscience.

## The Beginning of Management Systems at Harbec

The path to sustainability started in 1996 with their pursuit of ISO 9001 certification. This started in the typical manner of needing ISO 9001 by their customers as a requirement for doing business, but as Robert Bechtold, President at Harbec explained, “At first we hated it but it was one of the greatest things because it taught us to do what we say and say what we do. ISO 9001 had a large impact on the success we have today.” This continued in 2000 with the pursuit of ISO 14001 which came out the same time Harbec was trying to install their first wind turbine. “Knowing that [ISO]9001 made us accountable in quality systems, we anticipated that [ISO]14001 would give us similar improvement in areas of environmental impact,” Mr. Bechtold continued.

## Why ISO 50001/SEP?

In November 2013, Harbec made the decision to become carbon neutral. After witnessing the controversy between USA and Eurpoe/Asia over RoHS a decade earlier, Harbec believed that history was repeating itself with the carbon metrics/market. This was reinforced by all the effort and money that international companies like Walmart were pouring into implementing the 'sustainability index' label that will be on all products sold, by 2015. Harbec determined that there would be a differentiating advantage for a company being able to market a reduced or eliminated carbon



footprint in the products they make. That would then lead customers to offer advantages to their suppliers that are themselves concerned about the carbon content of their products.

“Our question was how do we improve or even measure our carbon footprint so that we could quantify and prove that we were improving?” said Mr. Bechtold. In the pursuit of how other countries were tackling this dilemma Harbec learned about the ISO 14064 standard in Europe, which eventually led them to the new alternative that had just been initiated called ISO 50001/SEP. This was going to require a 3<sup>rd</sup> party audit which would provide Harbec the information and the verification we needed to complete their goal of marketing carbon neutrality in every part they manufacture and to prove it.

## Overview of energy management at Harbec

Harbec made a commitment to reducing total energy usage by 15% over a three year span to achieve the Platinum Energy Performance Pathway. Areas of Significant Energy Uses (SEUs) included:

- Twenty-five 30 KW Capstone natural gas fueled microturbine generators
- 250 KW Fuhrlaender wind turbine
- 850 KW Gamesa wind turbine



## The journey to energy performance improvement

Harbec’s journey was not without hurdles as Bechtold explains, “we had trouble making the EnPI tool work for us (wind turbines, co-gen) because the tool was geared more for a traditional power plant set-up; our coaches were learning along with us because of it being a new standard and the aggressive schedule; and we were missing data that would have allowed us to use the mature pathway. Being part of a training group was great because we got to see how other companies were doing the same thing and could learn from each other’s successes and struggles, but it also meant there were no other companies out there to look to.”

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The 15% reduction in energy consumption was attained primarily through better management of Harbec's Co-Gen plant. While all employees were trained to have an awareness of energy consumption and ways to decrease usage, minimal employee participation was required initially. This was due largely to two factors. First, Harbec already had a long standing culture of doing what's right for the earth, so basics of energy reduction was already familiar to the employees. Second, Harbec had existing management systems in place that made the integration of ISO 50001/SEP much easier.



While ISO 50001 is not the same as ISO 9001 or ISO 14001, the structure to address many requirements were already in place such as:

- General management system requirements
- Management responsibility & commitment
- Planning, awareness, & training,
- Monitoring & measurement
- Internal audits, corrective actions & preventative action

These were adjusted as necessary to comply with the specifics of ISO 50001 and then standard specific requirements were added, including:

- Energy Policy
- Energy Planning (Energy Review; Energy Baseline; Energy Performance Indicators; Legal and Regulatory; Objectives, Targets and Action plans)
- Procurement of Energy Services, Products, Equipment, and Energy

Additionally, the Enerit software Harbec had purchased to track and quantify energy efficiency was scalable to manage the documentation requirements of ISO 50001. The capabilities were expanded to also encompass their ISO 9001, ISO 14001, and soon ISO 13485.

### Benefits

- **Employee Engagement:** One of Harbec's greatest pleasures is when a suggestion comes off the floor for ways of doing things more efficiently as they are the ones doing the work. People are now taking the time to think "How can we decrease energy usage!" A direct result of their training on ISO 50001/SEP
- **Systemic Approach to Achieving Energy Cost Savings:** Becoming ISO 50001/SEP certified has given Harbec the tools to measure and monitor going forward in the future.
- **Continual Energy Efficiency Improvement:** "We have a forever improving opportunity for the future of energy reduction. The nature of 50001 SEP is that it will keep fueling itself, as more people see that it is working and that they are saving significant money. They will choose to participate, which then leads to more new product development to address the needs for more energy efficiency in equipment performance. People will do it as long as it turns in to \$ for them." stated Mr Bechtold.
- **Low Implementation Costs with High ROI:** Harbec has attained a reduction of 15%. This reduction did not require costly new equipment or major changes. Harbec was able to optimize what they have by integrating their current management systems and they used the SEP framework to provide the system of measurement and understanding needed to make it work. This was done with less than the full-time effort of one employee, but had the support and encouragement of management.