Case Study: Systems Fabrication & Machine

ACHIEVING SUSTAINABILITY GOALS

How FabricateIQ Automated Emissions Reporting & Saved $185k

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SCAN FOR
DETAILS

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THE CHALLENGE

SYSTEMS FABRICATION & MACHINE

Systems Fabrication & Machine runs three fabrication facilities across Ohio and Pennsylvania, employing 180 people. Their operations utilize a diverse mix of equipment brands including Amada, Bystronic, Mazak, and LVD, alongside dozens of MIG and TIG welding stations.

THE OEM MANDATE

A major aerospace OEM required Systems Fabrication & Machine to provide quarterly Scope 1 and 2 carbon emissions data with a 15% reduction roadmap. Manual calculations from utility bills were unreliable, leaving management with no confidence for customer audits.

EQUIPMENT MIX

1. Amada Lasers
2. Mazak CNC
3. Bystronic Lasers
4. LVD Press Brakes
5. MIG/TIG Welding Stations

THE SOLUTION

FABRICATEIQ DEPLOYMENT

FabricateIQ was deployed across all three facilities. As a brand-agnostic platform, it monitored every machine—regardless of manufacturer—from a single dashboard, providing machine-level energy and carbon data within 60 days.

01 FACILITY INTEGRATION

Implementation across three facilities in Ohio and Pennsylvania, connecting 180 employees' workflows to a centralized data hub.

02 BRAND-AGNOSTIC MONITORING

Real-time monitoring of diverse equipment including Amada, Bystronic, Mazak, and LVD, eliminating the need for brand-specific software silos.

03 MACHINE-LEVEL ANALYTICS

Captured precise energy and carbon data for every piece of equipment, identifying disproportionate emitters like older welding cells and lasers.

04 AUTOMATION & REPORTING

Generated audit-ready Scope 1 and 2 emissions reports in minutes, replacing weeks of manual spreadsheet estimation with verified machine data.

THE IMPACT

12-MONTH OUTCOMES

After one year, Systems Fabrication & Machine exceeded its sustainability targets and realized significant operational savings. The transition from manual estimates to real-time data provided the confidence needed to pass rigorous supplier audits and secure new business.

PERFORMANCE METRICS

KEY PERFORMANCE INDICATOR	12-MONTH RESULTS
Energy Savings	• Total energy spend across three facilities dropped from $820,000 to approximately $635,000 — **$185,000 annual savings (22.5%)**
Carbon Reduction	• Carbon emissions reduced by **18%** in the first year
Unplanned Downtime	• Unplanned downtime dropped by **40%** after the predictive maintenance alerts caught bearing wear on a Mazak spindle and a failing power supply on an Amada laser — both would have been multi-day outages

THE OUTCOME

STRATEGIC ADVANTAGE

Systems Fabrication & Machine kept the **aerospace contract** and passed supplier audits. By identifying that three machines were responsible for **35% of emissions,** they achieved an **18% reduction** in one year. Predictive maintenance alerts reduced downtime by **40%.** Aethel-Core is now winning n**ew automotive contracts,** turning compliance into a competitive advantage.

KEY CONTACTS

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