

GLOBAL GOAL | LOCAL COMMITMENT

For 6 years, ESFM has supported an international manufacturing client's Mahwah, NJ location, in addition to other sites across the United States. Understanding the organization's goal to reduce carbon emissions 20% by 2024 (from 2019 baseline), ESFM created a comprehensive sustainability roadmap outlining strategic projects to support the client's global goal.

SUSTAINABILITY ROADMAP

Informed by a comprehensive energy audit, ESFM's sustainability roadmap outlined energy optimization projects that also accounted for the local client's interests in return on investment (ROI) of capital spend, and cost savings from reduced utility use and service delivery innovation.

To avoid production interruption, ESFM focused on the major energy consumers outside of process equipment (pumps, lighting, compressed air, cooling, fans, and heating). For example, the site's six air compressors accounted for 14% of the building's electric load. Compressed air optimization was then prioritized as an early project.

ESFM utilizes an energy monitoring and modeling system that captures trending data and anomalies. Outliers are addressed with results captured alongside monthly utility bills and reported savings information produced by a gating system attached to chillers and the compressed air system.

To ensure success over time, the ESFM team continuously monitors energy consumption across building systems, evaluating utility bills, and capturing carbon emission equivalents. ESFM's sustainability roadmap is a living document that evolves as new opportunities arise and as projects are completed in real-time. Realized energy savings are compared with the 2019 baseline, measured against projections, and reported to stakeholders monthly.

RESULTS

In just one year, ESFM reduced carbon emissions by **11%** and delivered **nearly \$500,000 in cost savings** from service delivery innovation, reduced energy use and required maintenance across the 530,000 sq. ft. medical device & equipment manufacturing facility. These results, and the sustainability roadmap used to report these initiatives, are now the standard for the client's corporate real estate portfolio.

Below is a high-level overview of the most significant projects credited for helping the client **fulfill their 2024 goal an entire year early**, contributing at least **30%** of the total metric tons of CO2 saved since 2019 from projects across 30 sites.

- Chiller Replacement: 4.43% reduction in carbon emissions and \$211,000 in annual cost savings.
- Compressed Air System Optimization: 6 compressors were using 14% of the building's electric load before a multi-phased project was completed. This initiative included an innovative process of controlling the system by demand, rather than air pressure, and addressing compressed air leaks, which increased the usable air capacity by 25%. This project reduced overall energy usage by more than 2.5 million kWh.
- LED Lighting Conversion: Considered "low-hanging fruit" in energy optimization and one of the first projects initiated, the lighting conversion project was executed in three phases. Phase 3 yielded \$4,000 in energy savings and \$11,000 in maintenance savings annually. All 3 phases collectively reduced carbon emissions by 3.21%.

"The cohesiveness between ESFM and [client] is a huge part of the success," explained [client] Facilities Engineering Manager. "We are technically from two different entities, but you cannot tell when ESFM interacts with our stakeholders. We work toward the same goals."