Smart Motor System™

CUSTOMER CASE STUDY

MACERICH®

A leading owner, operator, and developer of retail real estate

HVAC retrofits increase profitability and prove pivotal to Macerich's ESG strategy.

Founded in 1964, Macerich is a leading owner, operator, and developer of high-quality retail and mixed-use real estate in the United States, developing the best shopping experiences in the most desirable markets. The company operates over 40 retail environments that are thriving destinations for businesses and shoppers alike. Macerich has set aggressive ESG targets to be carbon neutral by 2030, 20 years ahead of the goals set by the Paris Agreement.

To get there, the company has implemented many energy conservation measures across its properties, such as LED lighting and on-site solar power. For its efforts, Macerich has been regularly recognized as a leader in the sustainability movement, showcased on the CDP A List, and listed as Top 30 for On-Site Generation in EPA's Green Power Partnership.

Ryan Knudson, VP of Corporate Responsibility and Sustainability at Macerich, is responsible for Macerich's success in implementing sustainability initiatives. He and his team continuously look for novel ways to reduce energy use without impacting business operations, by evaluating, testing, and deploying the latest energy innovations across its properties.

35% of the energy used in buildings is consumed by HVAC

30% of energy used by HVAC is wasted by inefficient equipment[1]

1: US Department of Energy:
"Quadrennial Technology Review: An Assessment of Energy Technologies and Research Opportunities"
"About the Commercial Buildings Integration Program"

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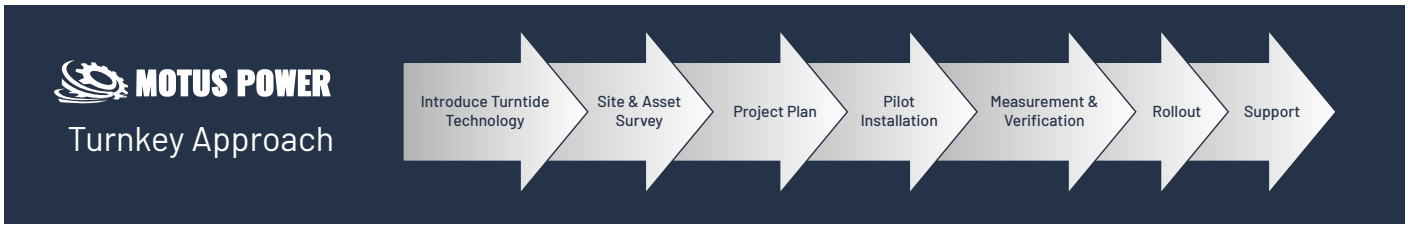
Business Challenge

Reduce energy usage while ensuring a comfortable shopping experience.

After addressing lighting and solar, Ryan focused his attention next on Macerich's HVAC equipment. With a wide range of properties, each uniquely designed to fit its environment and location, Macerich's HVAC systems require custom heating and cooling sequences to ensure shoppers have a comfortable shopping experience. Therefore, any HVAC energy conservation measure (ECM) Macerich would consider needed to be scalable across building types and geographies to provide meaningful business and ESG impact.

Solution

Macerich engaged Motus Power, a leading nationwide installer of energy-saving solutions specializing in HVAC efficiency projects, to help find a scalable solution. In their initial conversations, Ryan learned about HVAC motor retrofit technologies as well as Motus Power's turnkey project approach to deploy these solutions across Macerich's diverse range of properties.



Technology

Motus Power introduced Macerich to the Turntide Smart Motor System™, a drop-in HVAC retrofit solution perfectly suited to replace the AC induction motors in the rooftop units (RTUs) located on Macerich's diverse range of properties.

To validate that Turntide smart motors provide an attractive rate of return, Macerich and Motus Power agreed to a pilot project at Los Cerritos Center in Cerritos, CA. Ryan sought to evaluate whether Turntide Smart Motors could meet Macerich's threshold of 18% internal rate of return (IRR), a key performance indicator (KPI) measuring the effectiveness of financial investments.

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On the Los Cerritos Center rooftop, Motus Power retrofitted four RTU supply fan motors with Turntide Smart Motors and completed a stringent measurement and verification (M&V) process to obtain accurate baseline and post-installation readings.

Business Outcomes

Motor retrofit pilot exceeded expectations with 21% internal rate of return

The Turntide Smart Motor pilot at Los Cerritos Center demonstrated its effectiveness as an ECM that reduced energy consumption without compromising shopper comfort.

Pilot

LOCATION: Los Cerritos Shopping Center

- Located in Cerritos, CA
- 1.3M square feet of retail space for shopping, dining, and entertainment
- 160+ shops in the shopping center
- Supply fan motors were replaced in 4 rooftop HVAC units

Results

56%
Average power reduction/ energy savings

21.2%
Internal Rate of Return (IRR)

12.1 metric tons
CO2 reduced annually

17,100 kWh
estimated savings in annual energy usage

Turntide motors demonstrated an average rate of return of 21.2% in the pilot, exceeding the initial 18% threshold set by Macerich. In addition, Turntide motors demonstrated 56% energy savings compared to baseline, proving the technology's ability to accelerate Macerich's path toward carbon neutrality.

Future Impact

Macerich is working with Motus Power to complete a national rollout of Turntide motors

21-24%
Average Internal Rate of Return (IRR)

350+ motors
in scope for retrofit through 2023

1.5 million kWh
annual energy savings

Upon completion of the Turntide Smart Motor rollout, Macerich is expected to save up to 1.5 million kWh per year on a nationwide portfolio level, which equates to a carbon reduction of over 1,000 metric tons of CO2. That's the same environmental impact as saving 120,000 gallons of gasoline.

As the successful results indicate, Motus Power is the ideal partner for large REITs like Macerich to scale HVAC ECM solutions across a broad array of properties. With Motus Power managing and executing the motor rollout, Macerich can stay focused on doing what it does best: delivering the best shopping experiences in the most desirable markets.

MOTUS POWER

Motus Power brings the advancement of next-generation, energy-saving technology to enterprises and businesses. Leveraging Motus Power's turnkey implementation, customers can easily streamline and scale HVAC energy conservation and decarbonization across many sites.

Learn more about Motus Power
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TURNTIDE®

Turntide helps decarbonize energy-intensive industries with the Smart Motor System, a highly efficient switched reluctance motor designed to reduce energy usage in HVAC systems through superior device physics, intelligence, and controls.

Learn more about Turntide
www.turntide.com
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