



CASE STUDY

San Diego Natural History Museum

OVERVIEW

The San Diego Natural History Museum's mission is to promote an understanding of the evolution and diversity of Southern California and the peninsula of Baja California. Its facility, covering 160,000 square feet, is the definition of multi-use with space dedicated to research, education and exhibits. With a focus on reducing energy consumption and demand, the Museum turned to the San Diego Retrocommissioning (RCx) Program funded by San Diego Gas & Electric® (SDG&E®) and delivered by CLEAResult.

The Museum facility consists of four stories above ground with a basement/mezzanine, and a lower basement called the wet range. Upper floors contain administration offices, class rooms, exhibits, a movie theater, labs, a rare book library, and a large atrium. The basement area is dedicated to traveling exhibits and a carpenter shop. The lower basement is dedicated to the wet range which is for herpetology specimen storage. Specified areas, such as The Rare Book Library and wet range, require unique temperature and humidity control where other areas require typical comfort air conditioning.

A retrocommissioning assessment and investigation was of interest to the museum in order to identify deficiencies in the operation of its mechanical equipment, lighting and related controls. Through the San Diego RCx Program, both the assessment and investigation were provided at no cost to the Museum.

INVESTIGATION AND IMPLEMENTATION

Finding the Savings Opportunities

The assessment and investigation determined opportunities for corrective action as well as other operational and maintenance improvements that reduce energy consumption and demand. The specific measures implemented as a result of the investigation included:

- Mechanical linkage re-calibration and lubrication, and functional performance recheck of controls actuators
- Separate water valve control signal installation for 10 air units
- Air balancing of terminal units and Air Handling Units systems, and replacement of defective controllers
- Run time reduction of large air unit for small server room
- Replacement of air filters to reduce static pressure drop



QUICK FACTS

Building: San Diego Natural History Museum
Location: San Diego, CA
Facilities: One location (160,000 sq. ft.)
Scope: Existing building systems, including mechanical controls and HVAC systems

QUANTIFIED COSTS AND SAVINGS TO DATE

Estimated annual kWh savings: 536,400 kWh
Estimated annual cost savings: \$48,700
Total project cost: \$93,400
Total program incentive: \$39,700
Net owner cost: \$53,700
Simple payback: 1.1 years



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Implementing Energy Savings Measures

As a result of the RCx Program, the Museum improved building performance, reduced energy usage, lengthened equipment life and improved indoor air quality and occupant comfort. Implementing these measures has led to an estimated annual energy savings of 536,377 kWh and cost savings of \$48,653.

“The RCx Program was critical in identifying and implementing the retrocommissioning measures that have saved us almost \$50,000 in energy costs a year. Additionally, the program successfully kept our costs low, so this project will pay for itself in less than two years.”

George Brooks-Gonyer
Vice President, COO, CFO
San Diego Natural History Museum

In addition to those substantial initial benefits, the Museum's building staff is now well-equipped to maintain a high level of energy performance and enjoy those benefits for a long time.

FOR MORE INFORMATION

The San Diego Retrocommissioning Program is now available to help SDG&E® commercial customers retrocommission their facilities. Through the program, experienced engineers work closely with building owners and their staff to find cost-effective ways to optimize their building's performance, lower energy bills, and improve occupant comfort.

Visit the program website at www.sandiegorcx.com to learn how retrocommissioning can help you improve your bottom line, what to expect as a participant in the program, and how incentives are structured and paid. Please contact us with any questions or to obtain a program application.

San Diego Retrocommissioning Program
(866) 961-6144
sandiegorcx@clearesult.com
www.sandiegorcx.com

RETROCOMMISSIONING

A systematic process for improving an existing building's performance by identifying and implementing relatively low-cost operational and maintenance improvements.

PROJECT BENEFITS

- Repaired and calibrated Economizer for improved system operations
- Updated control set points to prevent simultaneous heating and cooling
- Reduced conditioning for areas not in use
- Conducted hands-on training for operations and maintenance staff
- Documented operation and maintenance procedures

CLEARResult