



ENERGY BENCHMARKING  
CASE STUDY

## THE TERRACE

*What started with a simple effort to meet the requirements of a local energy benchmarking ordinance has saved this Austin commercial development more than \$800,000 over a seven year period - as well as decreased their carbon footprint by the equivalent of 11,455 acres of forest.\**



*“The City of Austin’s Conservation Audit and Disclosure (ECAD) ordinance offers an opportunity for commercial property owners and managers to take a look at the energy efficiency of their buildings. The ordinance doesn’t require that improvements be made. But, as The Terrace’s experience demonstrates, benchmarking a building may uncover hidden opportunities to save money as well as do the right thing for the environment.”*

– Jessica Galloway, Program Manager at Austin Energy



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### THE TERRACE



#### ECAD ORDINANCE

The City of Austin's Energy Conservation Audit and Disclosure (ECAD) ordinance requires energy audits and disclosures for commercial buildings 10,000 square feet and larger which are served by Austin Energy, and are located within Austin city limits. Energy benchmarking helps to assess the energy profile of a building, and can be used by property owners and managers to improve energy efficiency, help reduce energy cost, increase property values, and protect the environment.

The ECAD ordinance also helps meet the objectives established in the Austin Climate Protection Plan - offsetting 1200 megawatts of peak energy demand by 2030 through energy efficiency and demand response programs, and meeting 100% of customer energy needs with carbon-free generation resources by 2035. In addition to addressing the negative environmental impacts of climate change, reaching net-zero will offer positive benefits to Austin residents, such as greater affordability and improved air quality.

#### THE TERRACE

The Terrace is a four building commercial office development, totaling over 619,000 square feet, surrounded by Hill Country terrain and the protected Barton Creek greenbelt. The location, between South Mopac Expressway and Capital of Texas Highway, grants the development convenient access to southwest Austin. Close proximity to all major submarkets and the Austin-Bergstrom International Airport make The Terrace a highly desirable property.

The Terrace is owned and managed by Atlanta-based Cousins Properties, which merged with the previous property manager, TIER REIT. In 2013, they enlisted an energy management company to provide the baseline energy benchmarking that the ECAD ordinance required.

"We were pleased to find that the simple improvements in operational efficiency that Blue Ocean Energy Management recommended provided a return on investment within only six months. And in 2016, our energy costs were approximately 15% less than in 2012 - even though average occupancy of the four buildings increased from 87% to 95% within that period of time," said Leigh Ann Hendricks, Regional Property Manager for Cousins in Austin.

Energy costs for the Terrace have continued to remain low, with 2017 around 17% lower than 2012. In 2018, costs were approximately 13% below 2012 costs, even though the number of cooling degree days was 11% higher than in 2012.

The positive results stemming from the energy benchmarking have led The Terrace to become even more proactive in managing energy consumption and costs for the development. Since engaging with an energy management company, all four buildings in the campus have earned ENERGY STAR® certification for energy efficiency improvements and operations. This places the buildings in the top 12% of office buildings nationwide in terms of energy efficiency.

#### QUICK FACTS:

**Property Owner:**

Cousins Properties

**Property Management:**

Cousins Properties

**Energy Mgt. Company:**

Blue Ocean Energy

**Mechanical/Electrical/  
Plumbing:**

Trane

**Lighting Installer:**

Marcon Construction Co.

**Size:**

Approx. 619,000 square feet

**Years Built:**

Between 1999-2002

**Average Occupancy, 2012-18:**

Terrace I - 92%

Terrace II - 88%

Terrace VI - 83%

Terrace VII - 99%

#### Glossary

Building Automation System (BAS) or Energy Management System (EMS): the automatic centralized control of a building's heating, ventilation, and air conditioning, lighting and other systems.

Cooling Degree Day: a measure of how warm a location is compared to a standard temperature. A high number of degree days results in higher levels of energy use for cooling.

Energy Use Intensity (EUI):

a building's usage expressed as energy per square foot per year.

## ENERGY MANAGEMENT SERVICES

Energy management companies specialize in providing clients with consultative energy management services, such as conducting energy benchmarking, determining areas for improvement through audits, and making recommendations on solutions.

A list of qualified commercial ECAD auditors can be found on the Austin Energy website at [austinenrgy.com/go/ecadauditors](http://austinenrgy.com/go/ecadauditors).

## KEY MEASURES

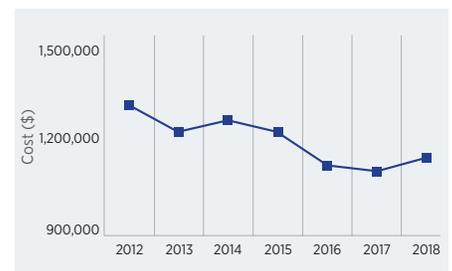
Low-cost, high-return paybacks can be often found in the operational aspects of energy management, and equipment replaced only when when absolutely necessary. Through commissioning the existing equipment employed by The Terrace, the energy management company they engaged was able to formulate a more effective and efficient energy management plan. The plan recommended that a few capital improvements be made, but achieved results primarily through increased operational efficiency.

The main improvements to The Terrace were made to the Building Automation System (BAS) and Energy Management System (EMS) control systems. Currently, only Building 1 has made this improvement, but The Terrace plans to upgrade the other three buildings. In 2016, Building 2 had a new chiller installed. In addition to these improvements, the complex installed LED lighting in the hallways and corridors, and retrofitted the lighting in the parking garage. The Terrace provides 11 hours per day of thermal comfort.

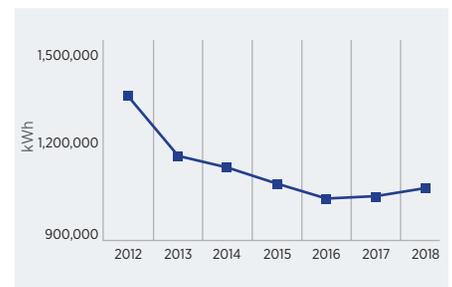
These improvements qualified The Terrace for rebate programs, as well as provided a six-month return on investment after completion. In addition, cumulative GHG emissions savings from 2012-2018 (based on year 2012) totaled 9,733 metric tons (MTs) of carbon dioxide equivalent.

This is the equivalent of the amount of carbon sequestered by 11,455 acres of forest, or by removing 2,066 passenger vehicles from the road for a year\*.

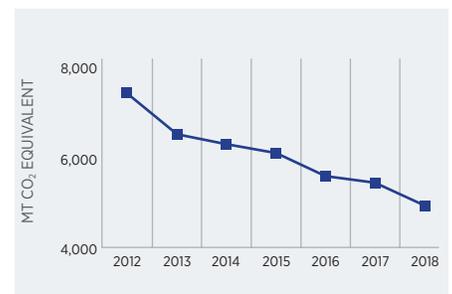
## ENERGY COST (\$) 2012-2018



## GROSS ENERGY CONSUMPTION (kWh)



## GHG EMISSIONS (MTs CO<sub>2</sub> EQUIVALENT)<sup>†</sup>



Equivalent of **11,455** Acres of Forest

**2,066** Passenger Vehicles Removed From the Road

\*epa.gov/energy/greenhouse-gas-equivalencies-calculator  
<sup>†</sup> ENERGY STAR® Portfolio Manager®



## Customer Driven. Community Focused.<sup>SM</sup>

### ENERGY STAR DESIGNATION AND THE TERRACE

The ENERGY STAR score assesses how a building performs compared to its peer group from an energy usage perspective. A building is given a percentile rating, from 0-100, based on its energy use intensity (EUI). To be eligible for ENERGY STAR certification a building must earn an ENERGY STAR score of 75 or higher out of a 1-100 scale. This score indicates that the building performs better than at least 75% of similar buildings nationwide. Factors considered in the ENERGY STAR score's algorithm include building size, location, occupancy numbers, number of computers, etc. This algorithm estimates how much energy the building would use if it were the best and worst performing. The actual energy data is then entered and the building's rank is determined.

In 2018, ENERGY STAR certification was awarded for all four buildings at The Terrace for the fifth consecutive year. All four buildings of The Terrace currently hold a rating of 83 or higher, a designation that puts The Terrace in the top 12% of buildings in the US from an energy usage perspective.

### CONCLUSION

Working with an experienced energy management company, the Terrace achieved top ENERGY STAR ratings for each of the buildings in the development. This was made possible through a sound and effective energy management plan that not only reduced energy consumption but lowered energy costs. Often, property owners and managers are reluctant to pursue energy efficiency improvements because of the perception of high initial costs. The truth, however, is that these improvements are more cost-effective than continuing to operate inefficiently. The Terrace's energy management strategy allowed them to see a return on investment after only six months.

Jessica Galloway, Program Manager at Austin Energy, says, "Austin's ECAD ordinance offers an opportunity for commercial property owners and managers to take a look at the energy efficiency of their buildings. The ordinance doesn't require that improvements be made. But, as The Terrace's experience demonstrates, benchmarking a building may uncover hidden opportunities to save money as well as do the right thing for the environment".

This case study highlights how the City of Austin's ECAD ordinance raises awareness of a property's energy efficiency. Rather than simply satisfying the ordinance's requirements, the team at The Terrace found that energy benchmarking presented an opportunity to save on operational costs. Their proactive engagement led to energy cost savings and decreases in energy usage, even as occupancy rates increased. This increased level of awareness - community-wide - is a primary goal of the ECAD ordinance.



Austin Energy is the nation's 8th largest public power utility serving more than 490,000 customers and more than 1 million residents. The utility's mission — to safely deliver clean, affordable and reliable energy along with excellent customer service — has guided Austin Energy in powering the community and supporting the region's growth since 1895.

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