



# CASE STUDY: Commercial Building Energy Investments

**CONSCIENCE BAY COMPANY**  
BOULDER, COLORADO



Partners  
for a Clean  
Environment

ENERGY STAR®  
2008



# Introduction

**Energy efficiency upgrades for commercial buildings provide a path to energy savings, along with numerous other benefits. The rate of return on investment (ROI), realized for many energy conservation measures (ECMs), tends to be equal to or greater than the ROI for the property.**

Conscience Bay Company (CBC) is a Colorado-based real estate investment and management firm that predominantly deals in commercial office and industrial markets, as well as rural agricultural lands. CBC is a Certified B-Corporation and prides itself on achieving the highest standards of operation, from environmental and social impact to philanthropy and individual employee satisfaction.

As a forward-thinking, environmentally-driven partnership, CBC has completed numerous energy conservation measures (ECMs) across its entire portfolio. The company's extensive experience has proven that the upfront investment and implementation of energy conscious practices yields a higher rate of return.





To determine the most impactful ECMs, CBC collaborates with energy experts including:

- City of Boulder,
- Partners for a Clean Environment (PACE),
- Boulder Energy Engineers
- Rocky Mountain Association of Energy Engineers (RMAEE) and the
- Rocky Mountain Institute (RMI)

In an effort to manage upfront costs of implementing the ECMs, CBC leverages rebate and incentive programs. To date, CBC has successfully received awards for energy projects from Xcel Energy, PACE, City of Boulder EnergySmart and the Colorado Regional Air Quality Council (RAQC). Rebate programs and savings amounts are regularly changing, but assistance is available to help defray the initial upfront cost of ECMs.

In addition to being very proactive with deploying ECMs across its property portfolio, CBC also promotes improving energy impacting behavior through continued education, partnerships and a “use only what you need” mentality. At all opportunities, CBC pursues the installation of EVSE chargers, strategically located for tenants’ and public use. CBC believes in being a leader in supporting and promoting ECMs that may appear to have temporary short-term minimal financial returns but promising long term payoffs, especially once electric vehicles become the standard mode of transportation.



# Highlight Property

## 1685 38TH STREET

**Conscience Bay Company (CBC) has completed several ECMs at 1685 38th Street that have reduced energy consumption by over 1.3 million kBtUs a year.**

From 2015 – 2019 CBC has:

- Completed LED retrofits
- Installed HVAC upgrades including a HVAC Energy Management System (EMS)
- Replaced windows and updated window tinting throughout the property
- Installed smart irrigation controls
- In May 2019 energized a 119-kW Solar Photovoltaic (PV) system

Combined, CBC has invested nearly \$900k to accomplish the described sustainability efforts. Before the end of 2019, CBC plans to commit additional capital to add three dual-port electric car chargers for tenant and public use and replace exterior perimeter building fixtures with LED lights.

### BUILDING INFORMATION

|                           |                          |
|---------------------------|--------------------------|
| ➤ 2018 ENERGY STAR® score | 79                       |
| ➤ Gross floor area        | 100,000 sq ft            |
| ➤ 2018 site EUI           | 86.1 kBtu / sq ft / year |

### INSTALLED MEASURES

- 119kW-DC solar array
- Lighting & HVAC EMS
- New 15 ton high efficiency RTU
- Window tinting to reduce solar load
- Lobby window replacement
- Smart irrigation controls







■ The overall result of the noted upgrades have reduced maintenance, reduced hot/cold calls and lowered the buildings operating costs. **Average annual energy savings are 14.3% with a payback of 4.4 years** for LED and HVAC upgrades.

■ The 2019 119-kW **PV installation is estimated to provide 566,723 kBTU per year**, which is 6.43% of the building's electric demand in 2018. The estimated **simple payback for the solar project is 9.9 years**.

■ The solar project and **all ECMs combined should reduce the building's carbon footprint for electricity by 1,897,248 kBTU per year, which is 18.7% less** than the building's carbon footprint for electricity used in 2014.



# Results

## EFFICIENCY

- 2018 Energy Savings compared to 2014 Energy Used: **1,330,525 kBTU**
  - 2014 Electric Used (prior to ECMs): **10,145,312 kBTU**
  - 2018 Electric Used: **8,814,787 kBTU**
- Average annual energy savings percent since 2014: **14.3%**
- Average annual cost savings since 2014: **\$54,383**
- 1685 LED/HVAC ECM cost: **\$240,191**
  - Simple payback of LED/HVAC upgrades: **4.4 years**

## SOLAR

- Projected annual PV production: **566,723 kBTU**
- 119 kW solar project cost: **\$312,894**
- Solar tax credits and PACE rebate: **\$108,868**
- Projected annual energy savings: **\$13,454**
- Projected annual Xcel renewable energy credit: **\$7,059**
- Estimated Simple Payback of Solar: **9.9 Years**

## Benefits of Investing in Energy Conservation

**Sustainable investments increase net operating income**

**LED Lighting upgrades reduce maintenance**

**Building automation system upgrades reduce hot/cold calls**

**BOTTOM LINE: LOWER OPERATING COSTS**