

 CLARION PARTNERS

 CUSHMAN &  
WAKEFIELD

 DEPARTMENT  
OF ENERGY &  
ENVIRONMENT



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INSTITUTE  
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TRANSFORMATION



## SMART INVESTMENTS IN ENERGY EFFICIENCY

### The Portrait Building in Washington, D.C.

#### BUILDING INFORMATION

**Name:** The Portrait Building

**Owner:** A client of Clarion Partners

**Third-party manager:**  
Cushman & Wakefield

**Address:** 701 8<sup>th</sup> Street NW

**Type:** Class A office

**Size:** 134,240 square feet

**Year built:** 2005

How can energy upgrades enable forward-thinking building managers to provide considerable value to both owners and tenants? Recent energy improvements to The Portrait Building in downtown Washington, D.C.—including lighting upgrades and the installation of variable frequency drives (VFDs) on HVAC equipment—are a real-world example of the potential gains. Three efficiency measures, completed for a total cost of \$169,946, or \$1.27 per square foot, will pay back in a little over two years and highlight the financial value of investing in building energy efficiency. Over an assumed 10-year useful life, the efficiency measures have a cumulative net present value (NPV) of \$578,248 and a 49 percent internal rate of return (IRR).<sup>1</sup> Their total return on investment (ROI) is estimated to be 440 percent, equivalent to a 44 percent annual ROI.<sup>2</sup>

The retrofits improved the comfort of the building's occupants. For example, new garage lighting made tenants feel safer. In addition, the efficiency measures were projected to collectively reduce The Portrait Building's annual greenhouse gas (GHG) emissions by 358 metric tons. With projected annual cost savings of \$75,252, this project shows how modest investments in energy efficiency will have large impacts on a property's bottom line, while benefitting tenants and the environment.

#### BACKGROUND

Located within the bustling Chinatown neighborhood of Washington, D.C., The Portrait Building is named after the iconic National Portrait Gallery located directly across the street. The Portrait Building is an eight-story, 134,240-square-foot Class A office

<sup>1</sup> IRR is the discount rate that sets the NPV = 0. In other words, it's the discount rate associated with the break-even point of the investment.

<sup>2</sup> Annual ROI is equal to the average annual savings (present value/useful life) divided by the upfront investment cost.

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*“Our goal for this retrofit was to reduce the building’s operating costs and environmental footprint, while meeting our client’s requirements for a financially viable project. DCSEU’s incentives were vital to helping us make the case.”*

*—Allison Porter, Vice President of Sustainability Services, Cushman & Wakefield*

building. Initially constructed in 2005, the building was acquired in February 2013 by a client of Clarion Partners, LLC (Clarion), a leading real estate investment manager. The Clarion client paid \$98.5 million, or \$734 per square foot, for the property.

Clarion and third-party manager Cushman & Wakefield, one of the world’s largest commercial real estate services firms, are committed to exceeding tenant expectations by creating sustainable and productive work spaces. While The Portrait Building is LEED Gold certified for Existing Buildings and ENERGY STAR labeled with a current score of 92, management continues to pursue reductions in energy usage.

In addition to management’s focus on energy reduction, the building’s location also contributes to its overall sustainability. With easy access to the Washington, D.C. metro system as well as shops, restaurants, and entertainment venues, The Portrait Building’s occupants are incentivized to adopt a walkable lifestyle and use cleaner modes of transportation.

### EFFICIENCY MEASURES

Over the past two years, Clarion and Cushman & Wakefield undertook three distinct energy efficiency projects (as shown in Table 1) to make The Portrait Building more sustainable. First, in early 2014, parking garage and restroom lighting was upgraded to LED fixtures and occupancy sensors were installed throughout these areas. Then, in December 2014 and January 2015, VFDs were installed on condenser water pumps and the building’s cooling tower fan to reduce unnecessary energy use. Finally, in April 2015, common areas on multi-tenant floors had their lighting upgraded to LEDs. The DC Sustainable Energy Utility (DCSEU) provided various incentives for all three efficiency measures.

**TABLE 1.** Costs associated with The Portrait Building’s three energy efficiency measures

Measure	Date Implemented	Gross Cost	DCSEU Incentives	Net Cost
Garage and restroom lighting upgrade	January and April 2014 <sup>1</sup>	\$133,670 <sup>2</sup>	\$9,750	\$123,920
VFD installation	December 2014–January 2015	\$49,892	\$12,000	\$37,892
Common area lighting retrofit	April 2015	\$11,094	\$2,960	\$8,134

<sup>1</sup> Lighting upgrade for garage and restrooms occurred in January and April, respectively.

<sup>2</sup> Gross cost for garage = \$43,102; restrooms = \$90,568.

### RESULTS

#### Financial Benefits

The above efficiency measures yielded financial, social, and environment benefits. The financial benefits can be measured by calculating the retrofits’ impact on the owner’s net operating income (NOI), which can be increased either by increasing revenue or decreasing operating expenses. One way the efficiency measures increased NOI was by decreasing operating expenses via electricity cost savings. Table 2 highlights the

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*“In addition to achieving the cost savings we hoped for, this project also improved tenant comfort and satisfaction. Successful projects like this are spurring us to look for other similar opportunities throughout our portfolio.”*

**—Craig Tagen, Managing Director and Head of Asset Management, Clarion Partners**

financial benefits of the individual efficiency measures based on their respective annual cost savings, which were projected by the DCSEU as part of its incentive agreement. For each measure, projected savings over an assumed 10-year useful life exceed the initial project cost, and the VFD installation was by far the most cost-effective upgrade.

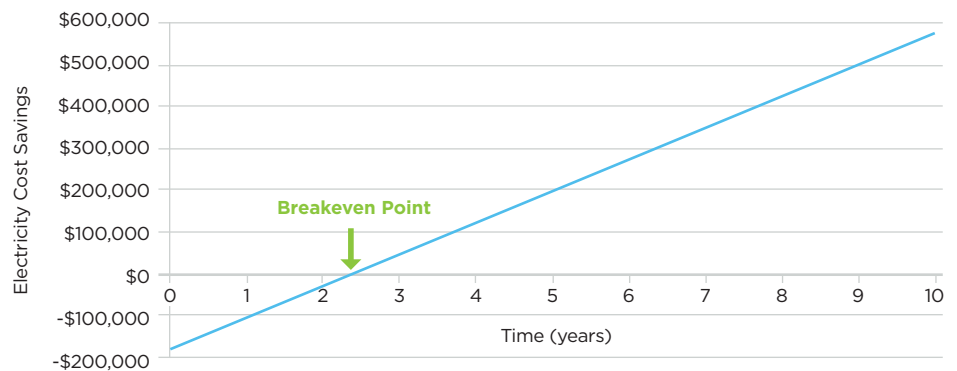
**TABLE 2.** Metrics highlighting the financial benefits of the electricity cost savings

Measure	Projected Annual Cost Savings	NPV <sup>1</sup>	IRR	Annual ROI
Garage and restroom lighting upgrade	\$34,619	\$220,280	30%	28%
VFD installation	\$39,435	\$354,191	110%	103%
Common area lighting retrofit	\$1,198	\$3,777	13%	15%

<sup>1</sup> NPV, IRR, and ROI calculations assume a 10-year useful life for the installed upgrades, a 6 percent electricity price escalation rate (based on historical D.C. electricity price data from the Energy Information Administration (EIA)), and a 5 percent discount rate.

Considering the collective financial performance of the three efficiency measures, Figure 1 shows how the estimated electricity cost savings accrue throughout the assumed 10-year useful life of the installed technologies. Cumulative savings are projected to surpass the total initial investment cost in just over two years.

**FIGURE 1.** Projection of accrued electricity cost savings from the three efficiency measures over a 10-year useful life of the installed technologies



It is too soon to say how the efficiency measures will affect the revenue portion of the owner’s NOI. The Portrait Building currently has no vacant space, and no leases have expired since the retrofits were completed. Therefore, there has not yet been an opportunity for changes to the building’s rental or occupancy rates. As leases expire and are renewed in the future, it may be possible to assess how the energy measures influenced building rents and occupancy.

By employing the income capitalization approach, a method appraisers use to value income producing real estate, the increase to the owner’s NOI can be translated to added property value. Clarion acquired The Portrait Building in 2013 at a 5 percent

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## DISCLAIMER

The views and opinions expressed in this report are the responsibility of IMT and do not necessarily represent the views and opinions of any individual, government agency, or organization mentioned in this case study.



## About the Institute for Market Transformation (IMT)

The Institute for Market Transformation (IMT) is a Washington, D.C.-based nonprofit organization promoting energy efficiency, green building, and environmental protection in the United States and abroad. IMT's work addresses market failures that inhibit investment in energy efficiency and sustainability in the building sector. For more information, visit [imt.org](http://imt.org).

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capitalization rate (cap rate), and by applying the same cap rate to this analysis, the efficiency measures conceptually added approximately \$11.6 million to the value of the property.<sup>3</sup>

### Social Benefits

In addition to the financial benefits afforded to the owner, an unexpected benefit of the upgrades was positive tenant feedback on the appearance of the retrofitted spaces. The lighting upgrade in the garage was of particular importance to tenants because the new lighting made the garage brighter and feel safer. The retrofits were also significant in that they made tenants aware that new ownership and management were in place and committed to high standards of building performance.

### Environmental Benefits

Furthermore, the VFD installation and lighting upgrades are projected to reduce The Portrait Building's GHG emissions by 358 metric tons (as shown in Table 3), which is approximately equivalent to the quantity of GHGs emitted by 75 cars each year.<sup>4</sup> Cushman & Wakefield's efforts to minimize the carbon footprint of The Portrait Building are emblematic of the company's broader vision to adopt environmentally friendly management practices across its portfolio of properties.

**TABLE 3.** Projected GHG emission reductions associated with each efficiency measure

Measure	Projected Annual GHG Emission Reductions
Garage and restroom lighting upgrade	184 metric tons
VFD installation	164 metric tons
Common area lighting retrofit	10 metric tons

## LESSONS LEARNED

Clarion decided to undertake the efficiency projects, some of which were unbudgeted, because an analysis showed that these efforts would increase the property's NOI and value. The NOI increase was made possible by the fact that capital expenses that reduce operating costs are recoverable through tenant leases. Project costs are amortized and passed through to tenants, and the owner and tenants share in the benefits of the project. This existing lease language, which facilitated the efficiency retrofits, is an example of the growing practice known as green leasing, which improves the financial incentives for sustainability and energy measures in lease documents.<sup>5</sup>

While The Portrait Building already had a market advantage due to its prime location in downtown Washington, D.C., Clarion and Cushman & Wakefield further improved its market position by investing in cost-effective energy efficiency measures. These measures have benefited tenants, the environment, and the bottom line, adding significant value to the property. Cushman & Wakefield will continue to monitor how these benefits accrue over time and will seek to identify new, cost-effective efficiency opportunities.

<sup>3</sup>  $\Delta(\text{NOI})/\text{cap rate} = \Delta(\text{Property Value})$ . Since the efficiency measures' impact on the owner's revenue is not yet apparent, only the NPV of the energy savings (\$578,248) was used as the change in NOI.

<sup>4</sup> <http://www.epa.gov/cleanenergy/energy-resources/calculator.html>.

<sup>5</sup> For information on green leasing, please see [www.greenleaselibrary.com](http://www.greenleaselibrary.com).