

The Impact of Energy Costs on Commercial Building Value



Case Study
Telergy Office Building
One Telergy Parkway
DeWitt, New York 13057
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Summary

The Institute for Market Transformation (IMT) has prepared this case study under contract to the New York State Energy Research and Development Authority (NYSERDA). This case study is the result of review of articles and documents as well as interviews with individuals directly connected with the events and decisions described.

This case study presents the impact of energy costs on the value of the Telergy building, a 120,000 square-foot class A office building in a suburb of Syracuse, New York. The property was owned by Telergy, Inc. (“Telergy”), a bankrupt telecom company. HSBC bank, which held the first lien on the property, commissioned a complete appraisal in preparation for a bankruptcy trustee auction.

Energy use at the Telergy building was very high – its energy usage per square foot was almost twice that of comparable buildings. At \$517,000 (\$4.46 per square foot) annually, energy accounted for more than half of all operating expenses. A draft appraisal based on historic utility bills valued the property “as is” at \$4,300,000 or \$37.13 per square foot. Rick Baker, an HSBC VP, astutely realized that a closer look at the building’s energy costs might enhance the building’s appraised value, and so he commissioned an energy billing analysis. The analysis found that much of the building’s energy costs were solely attributable to a major electricity load from Telergy’s telecom switching center and data center, and the analysis normalized the building’s projected energy costs to reflect the equipment’s removal. The appraisal was revised to reflect the energy analysis’s findings, resulting in an “as is” value of \$5,500,000 or \$47.50 per square foot – an increase of 28 percent.

Telergy occupied 55.5 percent of the building and leased the balance to CNA Insurance (CNA). After delivery of the complete appraisal, CNA made widely known its intention to vacate the building at the conclusion of its lease several months later – a development which was not factored into the appraised price and which negatively impacted the price for the building at the bankruptcy auction. Baker was therefore quite pleased with the winning bid of \$4,000,000 plus a 5% buyer’s premium (effectively \$36.27 per square foot). He guessed that the property might have sold for \$500,000 less had there been no energy billing analysis.

Based on his experience with the Telergy building, Baker says he would now consider doing an energy audit for any property with higher than average energy costs and possibly for any property over a certain value threshold -- perhaps, \$4,000,000.

Property Description: The property consists of a three-story multi-tenant office building with 115,802 square feet of net rentable area and two interior three-story atria. It was constructed in 1981 and originally served as the Carrier Corporation headquarters. A large addition (adding approximately 40,000 SF) was completed by the Telergy Corporation in early 2000. The building sits on a 9.7-acre parcel of land that has parking for 430 vehicles.¹

Construction Detail: The building employs a structural steel frame with masonry and concrete encasement. The building faces to the East. Its front, rear and south sides are a structural steel skeleton and glass curtain wall system typical to many office buildings. The glass is high-performance Tuf-Flex by Interpane. The north side of the building has a dryvit façade. Its roof is flat with a sealed membrane.ⁱⁱ

Mechanical Detail: The building's original HVAC system was all electric. Retrofits and the 2000 addition created a complex network of HVAC ductwork with a majority of the heating and air-conditioning systems fired by gas and a smaller amount of electric-fired systems. The building is master-metered and has a backup generator.ⁱⁱⁱ

Background

Telergy purchased the property in June 1998 for \$7,494,000. Telergy was previously a tenant and exercised an option to purchase the property.^{iv} HSBC provided \$5,000,000 in financing in a four-year loan amortized over 15 years at prime plus 0.50%.^v

Along with the rest of its industry, beginning in 2000 Telergy suffered from a nationwide surplus of telecommunication services capacity and resulting price declines. Telergy defaulted on the HSBC loan in August 2001, filed for Chapter 11 bankruptcy on October 26, 2001, and was finally liquidated under Chapter 7.^{vi} According to an estimate it submitted in December 2001, Telergy had total liabilities of \$559 million, including \$339 million in secured debt owed to six banks.^{vii} At the time of its bankruptcy, Telergy owed HSBC \$4,624,325, of which HSBC was eventually able to recover \$4,138,786.

Telergy spent more than \$16,000,000 in 1999 to acquire, renovate and expand the building, according to bankruptcy records.^{viii}

HSBC Commissions Appraisal and Energy Billing Analysis

In 2001, HSBC commissioned an appraisal of the Telergy building to be performed by Cushman & Wakefield, Inc. The property was inspected on November 14, 2001 and an appraisal report was prepared by Patrick T. Craig, MAI. In January 2002, Cushman & Wakefield informed HSBC that the property would be appraised at \$4,300,000 "as is" and \$6,500,000 "upon stabilization" (that is if the property were fully leased). He indicated that the historic cost of electricity was a major factor in the substantially lower value: Telergy's electricity cost in 2001 was roughly \$450,000 whereas a typical 100,000 square foot building in central New York had a total cost for *all* utilities of \$250,000.^{ix}

Rick Baker, a Vice President in HSBC's Special Credits Unit, realized that a closer look at the building's energy costs might enhance the property's appraised value and so sought to commission an energy analysis. Lacking any background in energy, Baker sought referrals to a qualified consultant and was referred to Performance Systems Development,

Inc. (PSD), an Ithaca consulting firm whose specialties include building performance and efficiency.

Mark Lorentzen of PSD analyzed the Telergy building's utility bills, compared them to U. S. Department of Energy (US DOE) data and delivered a written analysis dated May 15, 2002. He estimated that Telergy's data and switching center equipment use \$134,000 in electricity per year. This estimate was based upon data provided by Ed Fischer (Switching Center Engineer) and Marty Zofcin (Data Center Engineer). Lorentzen noted that removal of the equipment would also reduce cooling costs for the building, as would removal of Telergy's 600-1000 computers. He projected that with the equipment's removal total annual costs could be lowered to levels near \$227,000 in electricity and \$45,000 in gas for a total energy cost of \$272,000 (\$2.35 per square foot) per year -- the US DOE Commercial Building Consumption average for a building of Telergy's size and use.^x HSBC paid PSD about \$1,700 for the approximately 20 hours Lorentzen spent preparing the analysis.

HSBC provided the utility billing analysis to Cushman & Wakefield, which revised its appraisal to reflect the analysis' findings, included the analysis as an addendum and stated the following in the "Extraordinary Assumptions" paragraph of its cover letter. "Also, an energy audit was prepared by an outside consultant that exhibited significant electricity expense reductions could be realized assuming occupancy of the Telergy space by a traditional office tenant. We have incorporated their findings into our valuation analysis."

The appraisal employs the sales comparison and income capitalization approaches. A central component of its estimate of the building's value is therefore its model of the building's likely revenues and expenses. The appraisal notes that under most leases in the area the tenant pays no energy costs and so assumes in its model that the building owner will pay all energy costs. In modeling these expenses it explicitly bases its electricity cost projections on the PSD energy analysis and assumes a year-one cost of \$272,000 (\$2.35 per square foot). Gas costs are included in the operating expenses line item of \$200,000 (\$1.73 per square foot) for year one.

It also notes that CNA's rent per square foot at \$14.50 is lower than is typical for comparable buildings in the area, but tenants in comparable buildings typically do not pay energy costs and the Telergy building's energy costs are unusually high (projected in 2002 to be roughly \$3.45 per square foot). CNA's adjusted market equivalent rent for 2002 is therefore \$17.95 per square foot, which is a little higher than the market rate. The appraisal model therefore projects rent per square foot of \$17.00 with no billing back of energy costs.

Using the discounted cash flow method with a discount rate of 12 percent, the appraisal concludes that the property's value "as is" as of December 20, 2001 was \$5,500,000. The discount rate is based on two fall 2001 national investor surveys and on judgments regarding the market, the property and associated risks. No other valuation method is appropriate given the fact that the majority of the building is currently effectively vacant.

The appraisal concludes that the property's value upon stabilization as of January 1, 2003 would be \$7,530,000 using the sales comparison approach, \$7,560,000 using the discounted cash flow method, and \$8,030,000 using the direct capitalization method. In reconciling these values, the appraisal placed greatest reliance on the discounted cash flow method and concluded a value of \$7,700,000. This reliance was justified by the fact that investors are primarily concerned with their return on equity for income-producing properties and that the discounted cash flow method more precisely handles absorption of the vacant space and associated costs of leasing that space. The appraisal calculated net operating income upon stabilization for the property at \$804,412 or \$6.94 per square foot. The implied "going in" capitalization rate was 10.43 percent. The appraisal cited five comparable sales where capitalization rates ranged from 7.01 percent to 10.78 percent and averaged 9.56 percent.

By substituting energy cost projections based on the energy analysis for projections based on historic costs, the appraised "as is" value went from \$4,300,000 to \$5,500,000 – an increase of 28 percent. And, the appraised value "upon stabilization" went from \$6,500,000 to \$7,700,000 – an increase of 18.5 percent.^{xi}

CNA Makes Known its Intention to Vacate

After the complete appraisal had been delivered, CNA reportedly made widely known its intention to vacate the building at the conclusion of its lease in June 2003. CNA was paying exceptionally high energy costs based solely on its pro rata share of the building's rentable area. So, CNA was effectively subsidizing a portion of the energy costs of Telergy's equipment. Unhappiness with this situation reportedly factored into CNA's decision to vacate.^{xii}

CNA's decision was a development not factored into the appraised price and would later negatively impact the price for the building at the bankruptcy auction. HSBC therefore commissioned a limited appraisal by Mr. Craig of Cushman & Wakefield to consider the likely impact of this development on the appraised value from his earlier complete appraisal. The September 10, 2002 limited appraisal concluded that given the hypothetical assumption that CNA would vacate, then the "as is" value of the property as of September 10, 2002 was \$4,400,000.

The Auction

The bankruptcy trustee hired Michael Fox International (MFI) as the auctioneer for the liquidation. MFI marketed the property using direct mail, newspaper advertising, and its website. MFI included in the due diligence package for the auction:

- 1) Excerpts from the complete appraisal commissioned by HSBC, including basic facts about the Telergy building and historic operating statements. Following standard practice, none of the appraisal's value conclusions or revenue projections were included.

- 2) An "Energy Audit Information" section consisting of three pages excerpted from a billing analysis provided to MFI by HSBC, written by PSD and dated June 24, 2002. It shows Telergy's annual electric costs as \$470,913 (\$3.92 per SF) of which \$409,416 ((\$3.41 per SF) is "Base Energy." ("Base energy" or "base load" is all energy used for purposes other than HVAC and in this case includes the Telergy telecom equipment's electricity consumption.)^{xiii} It also provides a small comparison table showing that Telergy's electricity consumption per square foot was more than twice that of comparable buildings. Following standard practice of omitting technical and other engineering detail in the interest of brevity, MFI did not include in the package estimates of the Telergy telecom equipment's electricity consumption or PSD's projections of the building's future energy costs. However, MFI always invites potential purchasers to request further information and/or complete copies of reports.^{xiv, xv, xvi}

The Telergy building and more than 4000 other lots were sold at a bankruptcy trustee auction that took place in the building itself on September 24, 2002. In a September 19th, 2002 article a local newspaper (*The Post-Standard* of Syracuse) that had been covering Telergy extensively for years wrote that the auction "will likely be one of the most spectacular auctions ever held in Central New York."^{xvii} More than 700 attended the auction, spilling out into the parking lot and jamming into the nearby Hilton Garden Inn's 108-seat ballroom.

The building was the first item to be auctioned. "After a three-minute flurry of bids" it was sold to Dave Merola, the owner of MAPE LLC, a firm that owns and manages on behalf of other owners a handful of properties in the area.^{xviii}

The price was \$4,000,000 plus a 5-percent buyer's premium, or effectively \$4,200,000 (\$36.27 per square foot). Baker was quite pleased with the winning bid. He guessed that the property might have sold for \$500,000 less had there been no energy cost analysis.^{xix}

HSBC Commissions FlexTech Energy Audit

In the summer of 2002, HSBC commissioned PSD to produce a full energy audit of the Telergy building. Much of the work was subcontracted to Taitem Engineering, an Ithaca firm with specialties including building performance, energy audits, and HVAC systems.

The audit cost \$26,000 – half of which was paid by NYSERDA's FlexTech program. All parties moved with great dispatch to complete the audit as quickly as possible. Nevertheless, the audit was not finalized until shortly after the auction and so was not seen by potential bidders. After the auction, PSD sent a copy of the audit to the new owner.

The audit attributed the building's high energy costs to factors including energy-hungry telecom/Internet equipment, inefficient building systems (HVAC, lighting, envelope) and twenty-four-hour operation.

The study made retrofit recommendations that are collectively projected to have the potential to save \$72,000 (\$.62 per square foot) per year, a 26 percent reduction in the \$272,004 in annual energy costs projected for the building after replacement of Telergy with a traditional office tenant.

The audit recommended the following measures:

- Seal and insulate problem areas in building envelope
- Replace 230 tons of cooling capacity with high-efficiency condensers
- Install variable speed drives on air handler motors and pumps
- Perform numerous lighting retrofits and add occupancy sensors
- Replace inefficient refrigerators and vending machines
- Overhaul energy management system

In addition to producing energy savings, many of the measures would also significantly improve occupant comfort. The audit reports numerous occupant complaints regarding uncomfortable building conditions. Building maintenance had recorded winter temperatures of 35 °F directly above the interior drop ceiling within the 1st level offices (adjacent to south façade). Longley Jones Management (the company which managed the building for Telergy) had logged numerous complaints from inhabitants of this space. Physical inspection of this area revealed that the area had virtually no effective insulation and long unsealed connections between the original 1982 façade and the newer 1999 façade. Longley Jones had also reported what it termed a “dead zone” which received little or no heat. This area was located at the center of the building on the 2nd and 3rd floor. The problem was likely due to the fact that the core air handler unit did not contain a heating unit.^{xx}

Baker guesses that if there had been time to properly market the energy audit to potential bidders, then the building might have commanded an additional \$500,000 at auction (that is \$500,000 in addition to the \$500,000 of the actual sale price that Baker guesses can be attributed to the billing analysis for a total of \$1,000,000 potentially resulting from attention to energy).^{xxi}

Based on his experience with the Telergy building, Baker says that for large buildings he would recommend routinely considering commissioning energy audits just as one routinely considers commissioning appraisals or environmental assessments. He would now consider commissioning an energy audit for any property with higher than average energy costs and possibly for any property over a certain value threshold -- perhaps, \$4,000,000.^{xxii}

The Perspective of the Building's New Owner

David Merola, the owner of MAPE LLC, was the winning bidder. He had gone to the auction primarily to look at the furniture being auctioned. He thought he had only a 15% or 20% chance of submitting the winning bid; he believed that a big institution (for

example a General Motors, Ford, or Saint Joseph's hospital) would buy the building for \$5,500,000 or more and occupy the building itself. The winning bid was Merola's only bid.

Merola's expectations were based on his first-hand knowledge of what other local buildings collect in rent and pay for energy, as well as his conviction that lower tax assessments could be negotiated with local jurisdictions. (The complete appraisal notes that comparables suggest that the property is over-assessed, but assumes no tax reductions in its model.) Merola figured the building's electric bills should run around \$17,000 per month, but to be safe he budgeted \$25,000 per month.

Merola believes that others were deterred from bidding by concerns regarding the building's high vacancy rate, taxes and energy costs, which combined to produce the danger of losses in the near term.

Merola heard at the auction that an energy audit had been done, but generally attaches little importance to casual oral statements in situations like this. In any case, he reached some conclusions similar to that of the audit, including that the building's energy costs could be significantly reduced by removal of Telergy's equipment, retrofits, and improvements in operational practices.

With the goal of cutting energy costs, as of January 21, 2003 Merola had already made the following changes in operational practices :

1. Powered down Internet and telecom equipment by about 90% providing just the power that the equipment's new owner says is required to maintain the equipment's memory. The equipment's new owner has not yet decided what to do with the equipment, and MAPE is legally prohibited from completely cutting power to the equipment.
2. Turned off 10 to 15 electric heaters.
3. Turned off motors in the pond.
4. Turned off AC systems that went "nowhere."
5. Turned off lights at night.

MAPE has not yet received any energy bills. The cuts in energy consumption were so large that the property's gas and electricity provider (Niagara Mohawk) called MAPE to inform it that it was sending out a meter reader to double check the metering equipment. Niagara Mohawk informed MAPE over the phone that the property's bills for December, 2002 were roughly \$17,000 for electric and \$6,500 for gas or a total of \$23,500 (\$.20 per square foot). This compares to \$43,000 in average monthly energy costs or \$.37 per square foot in prior years.

Merola believes that he will be able to cut the buildings energy costs by another 30%, which should fully offset the increase in energy costs that will result when the building is fully occupied. Merola is trying to convince the vendor that runs CNA's cafeteria to replace its old ("1950s") and inefficient refrigerators.

MAPE is in the process of looking at ways to achieve its goal of further reducing energy costs and to improve occupant comfort. It recently engaged CS Engineering of Syracuse to conduct a full evaluation of the building's electrical systems. The evaluation should be completed in the spring of 2003.

MAPE has submitted a lease proposal to CNA that would significantly cut CNA's rent and hopes to retain CNA as a tenant. If feasible given the building's wiring (and Merola believes it is), MAPE will offer CNA and potential new tenants the option of having their spaces sub-metered.^{xxiii}

Conclusion

As the largest single operating expense in typical commercial buildings, energy costs are typically an important factor in building value. Energy costs therefore merit great attention from appraisers, lenders, commercial building owners and managers, and investments in energy efficiency can produce excellent returns in the value of a building. This is especially true in buildings which, like the Telergy building, are inefficient and have vacancy problems. Close attention to the Telergy building's energy costs (in the form of an energy analysis), resulted in an increase of \$1.2 million or \$10.37 per square foot in the building's appraised value – a 28 percent asset value increase. Energy efficiency investments under consideration by the building's new owner will likely further increase the building's value.

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ⁱ "Complete Appraisal of Real Property: Telergy/CNA Office Building," prepared for HSBC by Cushman & Wakefield Inc., December 20, 2001, C&W File ID: 01-12004-9342

ⁱⁱ "Draft Energy Audit for the NYSERDA Flextech Program," Prepared for HSBC Bank Corp. by Performance Systems Development Inc. (www.psdconsulting.com), September 17, 2002

ⁱⁱⁱ *ibid*

^{iv} "Complete Appraisal of Real Property: Telergy/CNA Office Building," prepared for HSBC by Cushman & Wakefield Inc., December 20, 2001, C&W File ID: 01-12004-9342

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- ^v Email correspondence with Rick Baker, HSBC
- ^{vi} “Telergy Asks to Liquidate,” Tim Knauss, *The Post-Standard*, December 5, 2001
- ^{vii} “Telergy Founders Share \$1.5 million,” Tim Knauss, *The Post-Standard*, December 6, 2001
- ^{viii} “Telergy Building Keeps its Name,” Tim Knauss, *The Post-Standard*, November 19, 2002
- ^{ix} Email correspondence with Rick Baker, HSBC
- ^x “Telergy Billing Analysis and Comparison to DOE Benchmarks,” memo from Mark Lorentzen, Performance Systems Development Inc. (www.psdconsulting.com), May 15, 2002
- ^{xi} *ibid*
- ^{xii} Conversation with Mark Lorentzen, Performance Systems Development Inc. (www.psdconsulting.com), October 28, 2002
- ^{xiii} The fact that base and non-base loads are broken out facilitates evaluation of the building’s energy costs by potential bidders. The building’s exceptionally high base load would tend to confirm the suspicions of a careful reader who already suspected that Telergy’s telecom equipment was significantly responsible for the building’s high energy costs and was knowledgeable about both comparable buildings and electricity terminology. In a January 21, 2003 interview, the buyer who prevailed at the auction reported that he had such knowledge and did conclude that the building’s high energy costs were largely attributable to Telergy’s equipment, but that this conclusion was not influenced by the due diligence package.
- ^{xiv} Email correspondence with David Fiegel, Michael Fox International, Inc. (www.michaelfox.com), January 31, 2003
- ^{xv} Telergy Building Due Diligence Package for Auction by order of US Bankruptcy Court for the Northern District of New York – Case nos. 01-66379 through 01-66388 to be held September 24, 2002, Michael Fox International, Inc. (www.michaelfox.com)
- ^{xvi} Email correspondence with Rick Baker, HSBC, January 31, 2003
- ^{xvii} “Last pieces of Telergy on the block,” Tim Knauss, *The Post-Standard*, September 19, 2002
- ^{xviii} “Telergy goes on the block,” Tim Knauss, *The Post-Standard*, September 25, 2002
- ^{xix} Conversation with Rick Baker, HSBC, October 22, 2002
- ^{xx} “Draft Energy Audit for the NYSERDA Flextech Program,” Prepared for HSBC Bank Corp. by Performance Systems Development Inc. (www.psdconsulting.com), September 17, 2002
- ^{xxi} Conversation with Rick Baker, HSBC, October 22, 2002
- ^{xxii} Email correspondence with Rick Baker, HSBC, January 24, 2003
- ^{xxiii} Conversations with David Merola on January 21, 2003 and with Vicki Merola on January 29, 2003.