

Hamilton County 2014 Energy Management and Utility Usage Report



DEPARTMENT OF COUNTY FACILITIES

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Mission Statement

The Hamilton County Facility Department is committed to providing strategies, equipment, guidelines and methodologies to achieve tenant comfort in all buildings managed by the Facility Department while aggressively minimizing taxpayer costs and benchmarking the energy efficiency of the facilities managed in the process.

Commissioned by:
Hamilton County Department of Facilities
Issued April 2015

Executive Summary

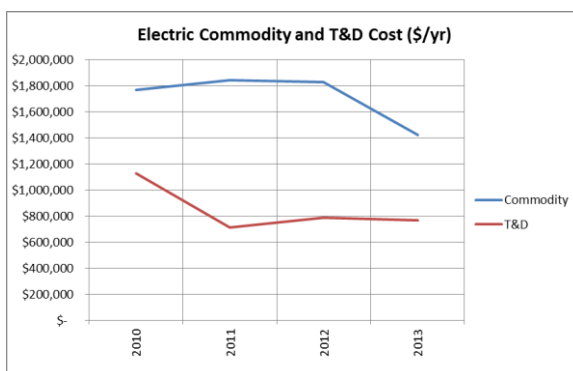
Calendar Year 2014 was another successful year for the Hamilton County Facility Department in regards to managing the electrical, natural gas and water/sewer cost and usage in the 2.75 million square feet of managed space. This year yielded some of the most efficient energy usages since 1998 when the Energy Conservation Efforts began.

- In the last ten years the Energy Conservation Program has accumulated a total savings including avoided cost and grant participation of \$12,286,000 dollars.
- Electric usage decreased 3,178 megawatt-hours (MWH) in 2014 compared to 2013. This is a new 10 year low for the buildings under the management of the Facilities Department.
- Natural Gas usage increased 3 million cubic feet (MCF) in 2014 compared to 2013 but still remained the third lowest usage since tracking began in 2006.
- Water usage was down 1,589 kilogallons (kgal) in 2014 posting a new six year low.
- Performance Contracting was completed in third quarter of 2014 for the Phase 1 buildings (230 East Ninth, 222 East Central Parkway and the County Administration Building). We are beginning to see the impact of these upgrades in our usage declining but the full impact of this project will be seen in 2015 and the future years.
- Performance Contracting for the Phase 1A (800 Broadway, Courthouse and Justice Center) and Phase 2 (Sheriff Patrol, Records Center and Comm Center) buildings is scheduled to be completed in late 2015 with the full impact of these energy efficiency projects being realized in 2016.
- Four buildings received the Energy Star Award in 2014 as a result of the Performance Contracting Work, changes in building operations, and energy efficiency training for building managers and maintenance staff. This was our best year since we started benchmarking to this standard. Also we have been informed that the A&D building will qualify for the Energy Star award in 2015.
- This year the Building Managers along with key staff completed Certification Level 1 from the Midwest Energy Efficiency Alliance (MEEA) which included a total of 56 hours of training in the field of energy efficient programs, products and practices.
- 800 Broadway was the first County level government building to be LEED-EB:O&M certified.
- In 2015 the following is occurring:
 - Facilities will be issuing an ITB for the provision of electric power for the calendar years 2016-2018 for county owned facilities.
 - Ralph Linne, Facilities Director, will continue in 2015 to represent Hamilton County as a member of the CCAOSC Energy Executive Committee.
 - Facilities will finalize implementation of the energy module within Archibus which will allow for detailed tracking of energy usage on a monthly basis. This upgraded tracking allows the Facility Department to
 - Ensure targeted reductions are being met per agreement with Ameresco.
 - Find and rectify billing errors within the fiscal year.
 - Eliminate or greatly reduce estimated bills from Duke Energy and brokers.
 - Pinpoint meter and meter reading errors within 30 days of occurrence.

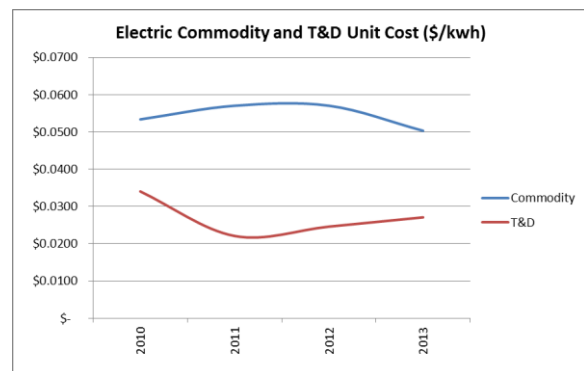
2015 Energy Outlook

There are several main factors shaping Ohio's Energy Outlook in 2015. Based on research, seminars and learnings from the 2015 Ohio Energy Conference the following key market influences should be watched:

- The current Electricity Deregulation contracts expire December 31, 2015. The Facility Department is currently assembling the ITB to solicit prices for calendar years 2016-2018. Based on historical data, the goal is to open the bid in early July 2015 taking service January 1, 2016 for all accounts. This ITB was extended to other County departments with the Stadia and Parking Operations, County Engineer, DDS (MRDD) and Communication Center joining the bid process.
- New EPA regulations are set to "retire" up to 30% of Ohio's coal burning electricity plants in the next 5 to 10 years. The consensus from the Ohio Energy Conference is that this will drive up electrical generation prices and decrease reliability in the Midwest region.
- Hydraulic fracturing "fracking" for Natural gas in the Utica and Marcellus shale deposits continue to deliver higher than expected natural gas and oil reserves. This may prompt Investor Owner Utilities to build natural gas generating plants to produce electricity in the future. The theory is that natural gas may be a "bridge" fuel between coal and renewable energy futures. Even with the recent cold winter in the Midwest, the natural gas reserves are expected to be high heading into spring.
- The Public Utilities Commission of Ohio (PUCO) on April 2, 2015 modified and approved an electric security plan (ESP) for Duke Energy Ohio (Duke) that will ultimately determine its standard service offer (SSO) rates from June 1, 2015 through May 31, 2018. In the new ESP several tariffs are changing again and this could cost or save the County over \$100,000 annually as they did 3 years ago.
- Commodity and Transportation & Delivery Cost continue to rise.
 - Electrical Deregulation has decoupled electric bills into two main components. Commodity (the actual energy) and Transportation & Deliver (the cost to transport the energy). See Appendix "E" for a complete Duke Energy Electric rate tariff worksheet with itemized tariffs, riders and customer charges. The Commodity is currently being publicly bid out through an ITB process to reduce cost; however the T&D portion is regulated and cannot be bid out. This cost is paid directly to the local utility and is regulated by PUCO. We have little control over the T&D portion of the bill.

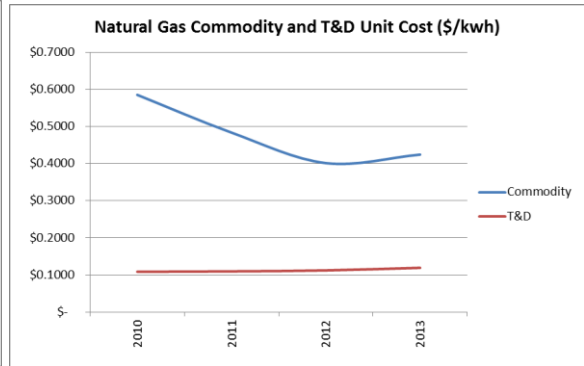
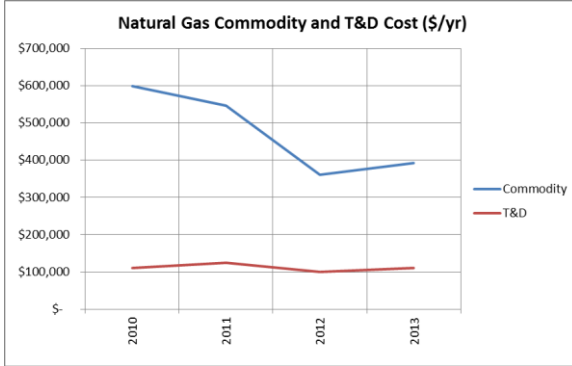


Through aggressive energy policies and buying we have reduced the annual cost of electricity and flattened out the annual cost of T&D.

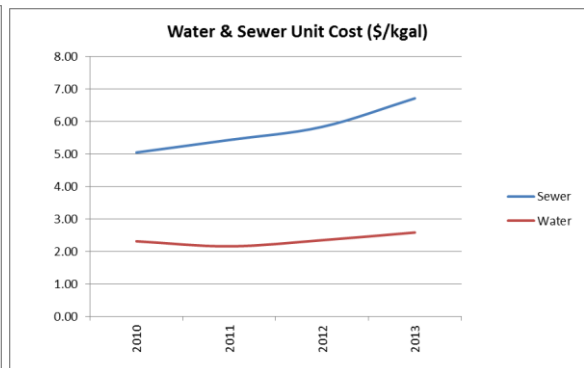
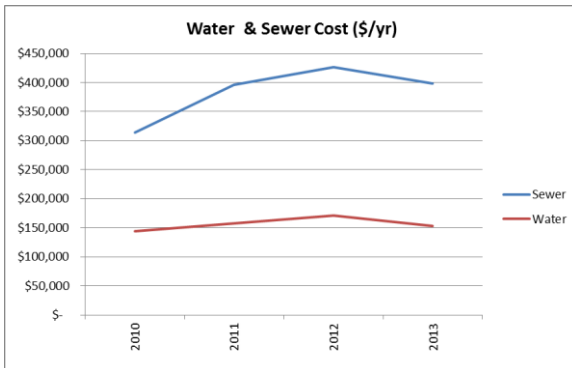


This chart indicates even with annual savings on total cost the unit cost is increasing for T&D. Commodity cost is expected to increase in 2016 and eventually the unit cost will outpace our annual savings.

- Natural Gas is also a deregulated market similar to electric. The natural gas costs had been on the decrease since the beginning of the "fracking" boom but for the last two years these cost has been on a slight increase even with higher than expected production. It may be the pressure from lower oil prices across the globe or market pressure to recover lost earnings but the commodity and total cost are both higher in 2013 and 2014 as shown below.

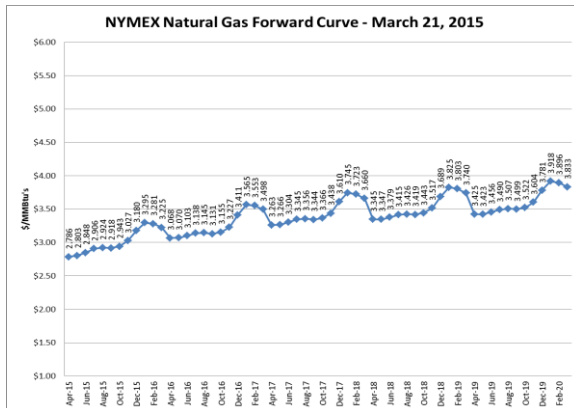


- Water and Sewer costs declined in 2014 due to water efficiency projects implemented in 2013 and 2014 at all buildings. However the associated base cost of these utilities is on the rise and eventually the usage savings will be outpaced by unit cost escalations. The total cost of water and sewer will require additional funds in the near future even at the reduced usages.



2015 Energy Challenges

- The County faces many energy challenges at the present time even with the Facilities Department proactively pursuing deregulation, lower utility tariffs, enhanced building schedules, night setback, equipment replacements, low flush water fixtures, and low wattage lighting replacements. Our forward looking energy policy includes;
 - Electric Power - The next time to bid out deregulated electricity is mid-2015. Electric prices have been on the rise annually since the last contract "locked in" a three year fixed price. Given the projected retirement of coal fired base load electric generation plants, the commodity for electricity is expected to be higher than 2010.
 - Electric T&D - The cost for electric transportation and distribution is expected to continue to increase, but is not known until their rate plans are submitted and approved by the PUCO. This appears to be happening on annual basis. The rider LFA in the current Duke Rate Tariff has cost the County over \$100,000 annually.
 - Water/Sewer Usage - Water/Sewer Usage - The County continues to be challenged to reduce water usage to offset the increase in both water and sewer rates per from the Consent Decree agreement. Sewer cost continues to increase at a rate of 8% annually. The CWW 2015 budget includes a recommendation for a water rate increase of 7.5%.
 - Adverse Weather - The Public Utilities Commission of Ohio (PUCO) filed comments and recommendations with the Federal Energy Regulatory Commission (FERC) addressing the impacts of the recent winter weather events on grid reliability and electricity market prices. The PUCO recommends the establishment of a generation auditing process and a further review of capacity price suppression, including the role demand response resources. The PUCO also requested the FERC examine the causes and actual costs of "uplift" charges, and seeks further exploration on the impact that firm transmission and on-site fuel storage could have in responding to winter weather conditions.
 - Nature Gas Procurement - Natural gas prices continue to increase even though they remain historically much lower than 2005-2007. Retirement of coal powered electric generation plants will continue to put more demand on natural gas generating plants and this will mostly likely drive the cost up of natural gas going forward.



Vision Statement And Objectives

The Hamilton County Facility Department envisions a continued aggressive energy savings plan by utilizing the following strategies:

- Continue the energy management consulting services which consists of the following:
 - Monthly review of electric, gas and water usage
 - Conducting an annual review of electrical pulse meter data for large accounts
 - Entering and monitoring each building's energy usage and cost through energy usage tracking software and Energy Star Portfolio
 - Document and submit data to US EPA to receive Energy Star Awards.
 - All major buildings under Facility control will continue to be entered into the EPA Energy Star program. As buildings reach the 75% passing criteria they will be submitted for the award.
 - For the buildings that do not qualify in this calendar year, the cost and advantages of ECM projects for these buildings to meet the EPA Energy Star minimum guideline will be evaluated.
- Pursue shared services in the area of procurement of energy
 - Purchase deregulated natural gas and deregulated electricity through a block managed by an outside firm through the County Commissioner's Association of Ohio Service Corp. (CCAOSC)
 - The County has renewed its commitment to the CCAOSC Natural Gas Program with extending the agreement thru 2019.
 - The County is committed to First Energy Resources Services for its deregulated electricity commodity through 12/31/2015. This contract will be rebid in 2015.
 - Director of County Facilities will continue to be a member of the CCAOSC Executive Committee and will be directly involved in approval of the purchase of natural gas.
- Performance Contracting with Ameresco, Inc will be completed in 2015 and M&V verification shall begin and continue for at least the next ten years;
 - Phase 1 projects shall begin their Measurement and Verification (M&V) phase.
 - Phase 1A shall have construction completed and start the M&V process mid to late 2015.
 - Phase 2 projects shall be completed and start the M&V process late 2015.
 - Quarterly M&V reports shall begin from which management can be provided performance of the HVAC and Building Systems.
 - Completion of these projects in 2015 should further reduce the total County expenditures in electric, water and natural gas costs with the annual savings set aside to pay for the bonds financing the projects.
- Update the Energy Conservation Master Plan (ECM) in 2015 as a result of the IGA Projects approved and implemented.
- Eliminate inefficient use of energy systems wherever possible by:
 - Purchasing efficient major mechanical equipment (boilers, chillers, cooling towers) per County Life Cycle Cost Analysis Resolution

- Use the Duke Energy Smart \$aver energy efficiency program wherever possible to enjoy Duke rebates energy efficient equipment and light fixtures.
- Fully integrate and finalize the Energy Management Module inside the Archibus framework. This scope shall include;
 - Providing County Administration and Budget Departments with data showing the results of the Performance Contracting Initiative.
 - Monthly reports on targets, goals and usage once the final targets and baselines are established.
 - Projecting increases in cost and usage due to rate changes in the commodity and transportation and delivery cost as rate structures change.
 - Begin weekly monitoring of electric, water and natural gas bills via the online bill entry module inside Archibus. Find and correct improper billing immediately (estimated bills, incorrect bills, missing bills).
- Involve building managers in tracking and saving energy use and cost in County owned buildings to ensure that the required reduction in usage per the agreement with Ameresco occurs over the next 12 years.
 - Continuous monitoring of electric, gas and water usages on major equipment to ensure systems are running efficiently and as designed.
 - Pursing energy efficient building operation, including scheduling night and weekend setback in all buildings where tenants are not using the spaces, practicing demand curtailing, turning off non-essential equipment when not in use, setting outdoor air dampers to minimum positions, and reducing lighting and other electrical loads as agreed in the IGA with Ameresco.
- Secure a full-time Energy Manager position to manage energy usage/contracts.
- Stay on the leading edge of energy saving techniques and implementable solutions for public governments
 - Director continues to maintain his Building Operations Certification (BOC)
 - Attending annual energy conferences and energy saving workshops. Including attendance at the Annual Ohio Energy Conference in Columbus, OH as a means of improving our energy savings strategies, understandings and techniques are in effect.
 - Look into the certification of additional County buildings to the USGBC LEED-EB:O&M Silver Level standard where applicable per County Policy Directive.
 - Train and certify new building mangers through the Midwest Energy Efficiency Alliance Building Operator Certification program.

Benchmarking & Program Results

Energy Star Certifications

Four buildings received the US EPA Energy Star Awards in 2014 which is the highest single year accomplishment to date.

- All major buildings were updated in the Energy Star portfolio last year which includes the updating of all electric, natural gas and water bills, verifying square footage use, people counts and computer counts in the EPA Energy Star Portfolio.
- The County Administration Building, 230 East Ninth, 250 William Howard Taft and 800 Broadway all reached the minimum score of 75 or better to qualify.
- Alms & Doepke Building reached qualification level in late December 2014 after the submission deadline but is currently beginning its validation process for 2015.
- The Alms & Doepke Building and the 250 William Howard Taft Building will be submitted for Energy Star Recognition awards given their vast improvement in Energy Star scores from their baseline scored.
- 800 Broadway continues to show strong Energy Star scores with a County leading 87 posted in 2014. 800 Broadway was also a finalist in the USGBC and Business Courier Green Building Awards held March 5, 2015 at the Sharonville Convention Center.

Energy Star Ratings for Major County Buildings for Last 5 Years

<i>Buildings</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>	<i>Notes</i>
222 (A & D)	48	44	57	67	80	Qualified January 2015
230 East Ninth	74	75	71	87	84	Energy Star Award 2013, 2014 (1)
800 Broadway	88	86	88	86	87	Energy Star Awards 2009 thru 2014
2020 Auburn (Jail)	78	81	79	74	76	Jails do not qualify for award.
Administration	90	93	97	74	79	Energy Star Award 2011, 2012, 2014
Courthouse	46	41	48	46	50	Working with EPA on approval (2)
Justice Center	86	85	85	90	94	Jails do not qualify for award.

(1) All ratings in **BOLD** are above the 75 rating required to certify for the Energy Star Award.

(2) The Courthouse currently provides all the steam for the Justice thus giving the Justice Center an artificially high score and the Courthouse an artificially low score. Negotiations are currently underway with the EPA to build a district steam plant to better represent the operations of these two buildings.

USGBC LEED Certifications

LEED, or Leadership in Energy & Environmental Design, is a green building certification program that recognizes best-in-class building strategies and practices. To receive LEED certification, building projects satisfy prerequisites and earn points to achieve different levels of certification.

- In 2014 the 800 Broadway qualified as first County Level Government Building LEED Certified for Existing Buildings: Operations and Maintenance (LEED-EB:O+M) in Ohio. The 800 Broadway qualified at the LEED Certified Level of 42 points.
- 800 Broadway has shown a 28.1% reduction in potable water usage. This reduction has resulted from reducing the buildings water usage to a level 21.16% below the LEED-EB:O&M baseline. The Energy Use Index (EUI) for this building has decreased from 149.6 kBtu/sf to 141.7 kBtu/sf (201-2014). The Green House Gas (GHG) Emissions have reduced from 3445.6 Metric Tons of CO₂e to 3051.2 CO₂e.
- A major ASHRAE Level II Energy Audit was performed, during the latest round of Energy Conservation measures, for the baseline energy use for the natural gas, electrical and water systems. This audit resulted in implementations of low, or no cost, energy efficiency measures including consolidation of server rooms, replacement of old HVAC equipment, lighting retrofits,

new variable frequency drives, air balance retro-commissioning and a direct digital controls retro-commissioning.

- This Hamilton County building has also been awarded three exemplary credits while demonstrating Innovations in their Building Operations. Sustainable purchasing forms show that 96.15% of the ongoing consumables purchased during the performance period were Sustainable. 100% of the cleaning products and 100% of the cleaning equipment used in this building have successfully qualified under the required sustainable criteria.
- As part of the standard LEED-EBOM required practice an "Enhanced Refrigerant Management and Emissions" procedure has been implemented and all Chlorofluorocarbons (CFC) are planned to be phased out of this building within 5 years.

Energy Conservation Results

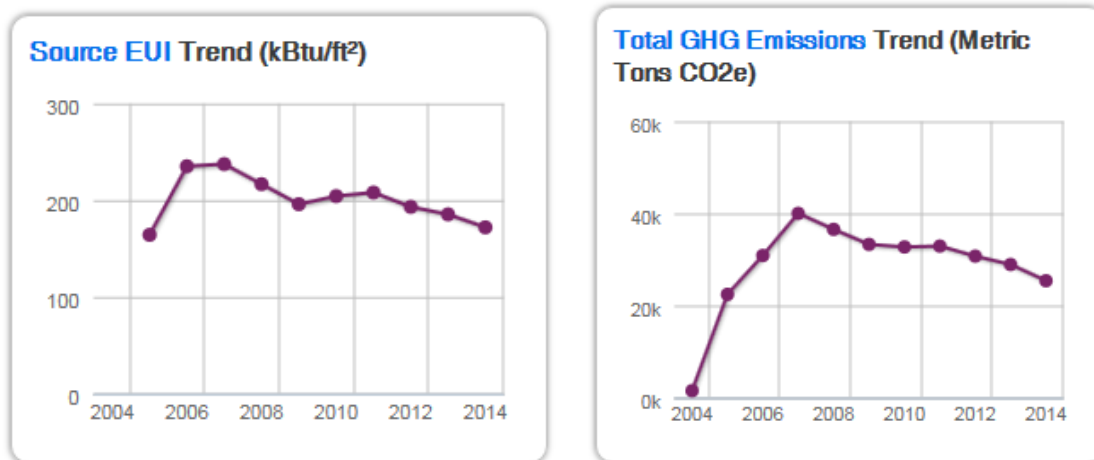
Since the beginning of the Energy Conservation Master Plan in 1997 the County has saved or avoided cost in the following amounts;

- Direct Expenditure Savings - \$4,192,000. These savings include energy efficiency equipment replacements, schedule modifications, interruptible gas tariff savings, deregulated gas and electric savings, and usage reductions throughout this time period for electricity, natural gas and most recently water and sewer.
- Avoided Cost - \$9,072,000. These monies also include the savings accumulated from the deregulated electricity and gas compared to the standard service offer from Duke Energy Ohio (the local utility). These are cost savings had the County not participated in any competitive bidding markets for utilities.
- To date the avoided electric savings are \$3.26 million, the avoided gas savings are \$1.61 million, the interruptible gas savings are \$676,000, direct deregulated electricity savings are \$2.37 million, direct deregulated natural gas savings are \$846,000, and water/sewer savings are \$297,792.

Since implementation in 1998 this program has been one of the cornerstones of the department's ability to reduced its budget and still achieve an acceptable service levels.

Greenhouse Gas Emissions and Energy Use Index Results

Energy Star tracks the Greenhouse Gas Emissions and Energy Use index charts automatically. The following charts indicate decreasing trends in both charts as is desired by the County.



Electric – These two charts demonstrate that usage per square foot is decreasing while the cost per kWh continues to increase as a general rule. The outlook is that electricity will cost more in the next three year strip even with decreased usage. The forthcoming prices from the electric bid will mostly likely be higher than the 2010 prices.

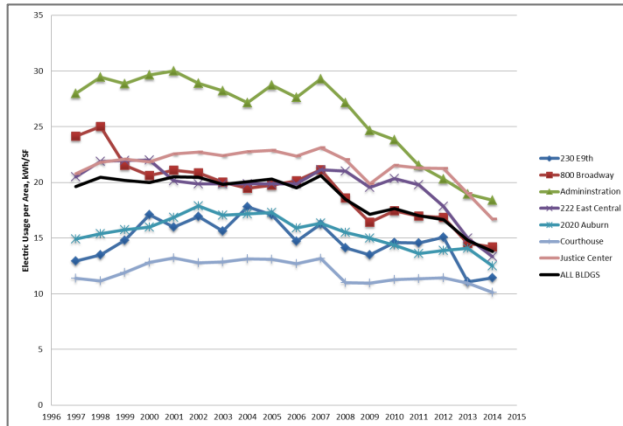


Figure 1 - Electric Usage per Square Foot

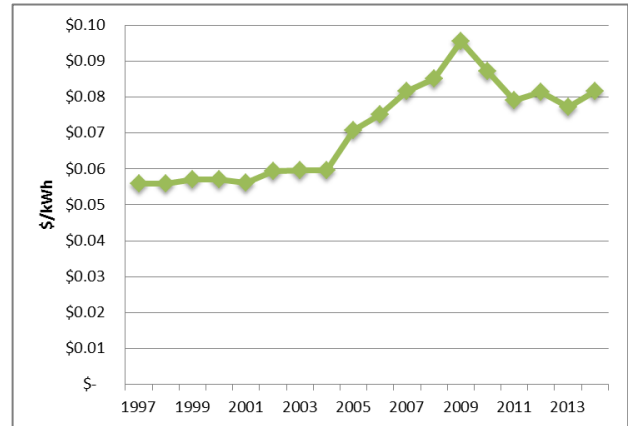
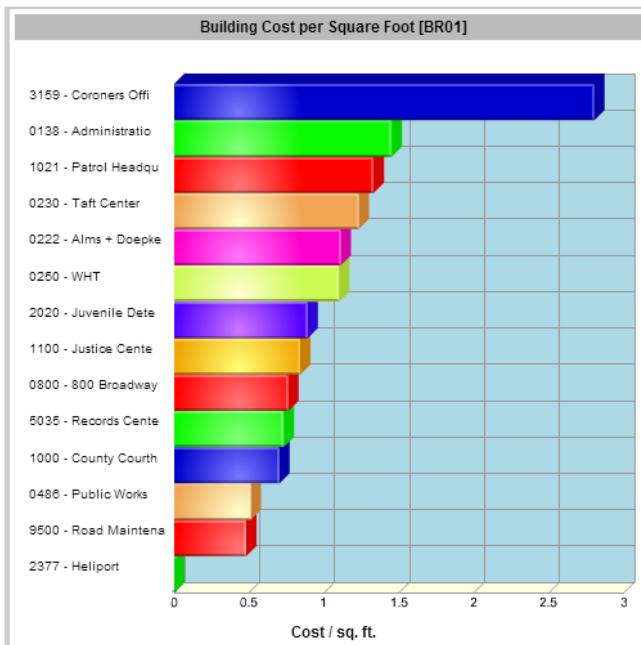


Figure 2 - Electric Cost per kilowatt hour



This bar chart to the left indicates that some of the smaller buildings are the largest users of electricity per square foot. But this can be explained due to the uses of these particular buildings. For instance,

- The Coroner's Office is a laboratory space with 24/7 use in some areas.
- The Administration building hosts a Data Center which are high electrical load usages.
- The Patrol Headquarters is also a 24/7 operated building.

Natural Gas – As demonstrated below the gas usage per square foot is on an overall downward slope although several buildings showed a slight increase in gas usage in 2014. Facilities is addressing those increased usages and monitoring gas bills monthly to bring these accounts back down to previous year's usages. This is part of the Ameresco M&V services as well. Natural gas cost is up after seeing extremely low prices back to 2000. It can be expected that overall gas budgets will increase in the next three years (see next page).

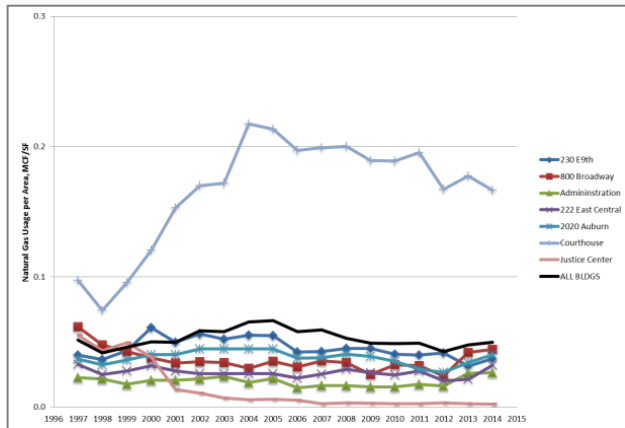


Figure 3 - Natural Gas Usage per Square Foot

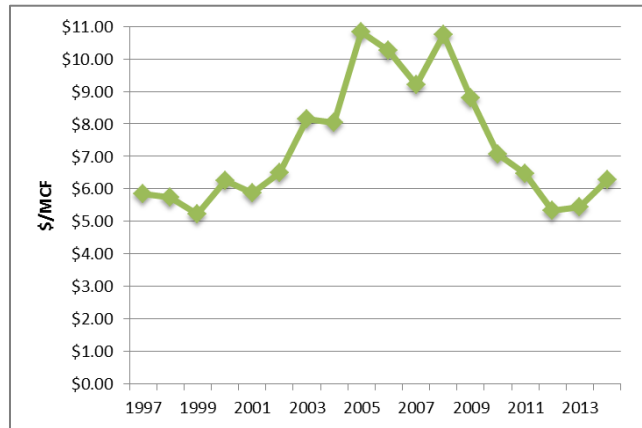
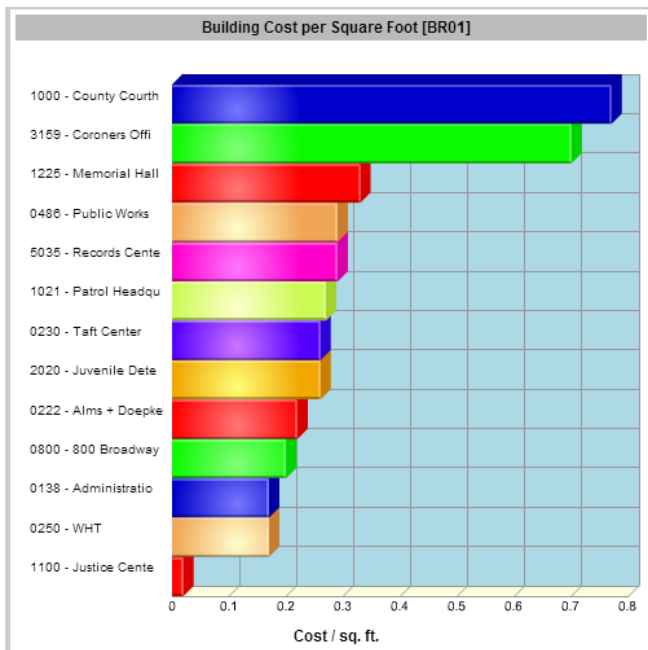


Figure 4 - Natural Gas Cost per 1000 cubic feet



This bar chart to the left indicates that the Courthouse clearly is the largest user of natural gas per square foot. These usages can be explain as follows;

- The Courthouse provides all heat for the Justice Center in order to qualify for the IT rate savings.
- The Coroner's Office is a laboratory space with 24/7 use in some areas.
- Memorial Hall is an older building with older boilers that has not been upgraded to new heating technologies yet
- Public Works and Records center are warehouse and garage type space requiring a lot of heating.

Water and Sewer – The usage per square foot is generally on a downward with a slight leveling in 2014 evidence by the solid black line. The cost of water/sewer is on the rise most likely due to increased sewer rates after coming off a four year drop in unit cost. It is expected that water and sewer rates will continue to required increased budgets until the Consent Decree work is complete and sewer rates level off.

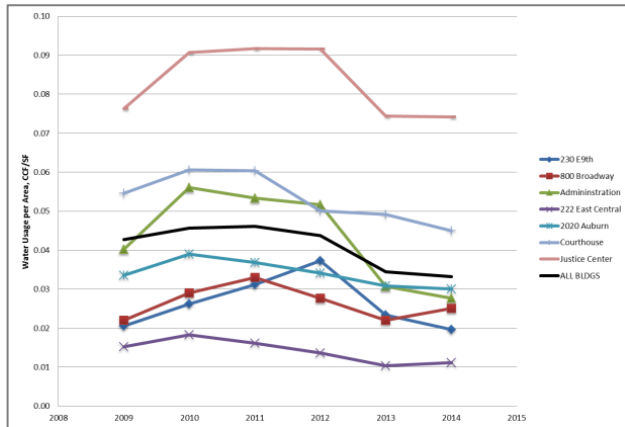


Figure 5 - Water Usage per Square Foot

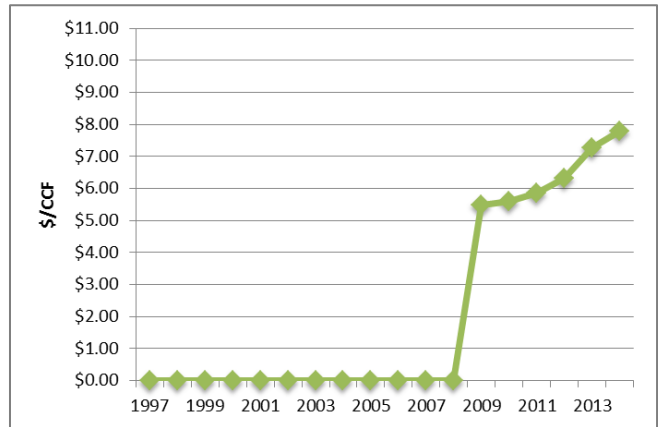
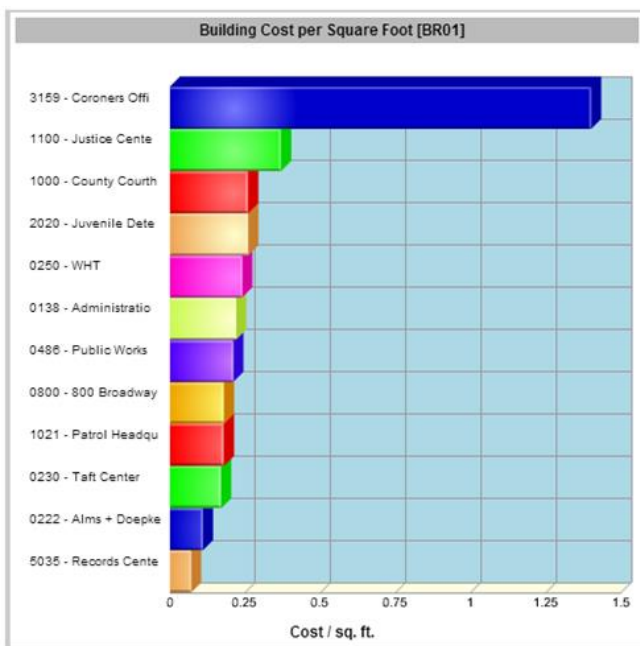


Figure 6 - Water Cost per 1000 cubic feet

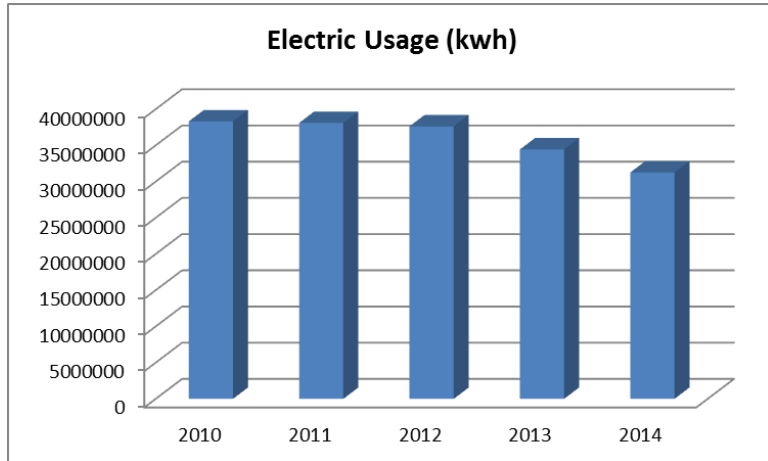


This bar chart above indicates that the Coroner's Office is clearly the largest user of water per square foot. These usages can be explained as follows;

- At the Coroner's Office the morgue coolers are water cooled equipment thus they use a tremendous amount of water to provide the cooling required for a morgue facility.
- The showers and kitchen at the Justice Center required a lot of water to provide required sanitation and food.
- The Courthouse hosts the Sheriff's garage where Sheriff's cars are washed and serviced.

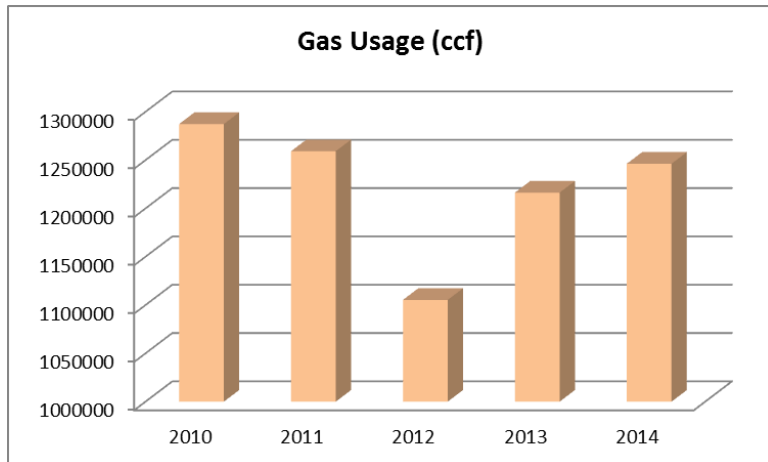
5 Year Utility Comparisons Charts (electric, gas and water)

Electric Usage



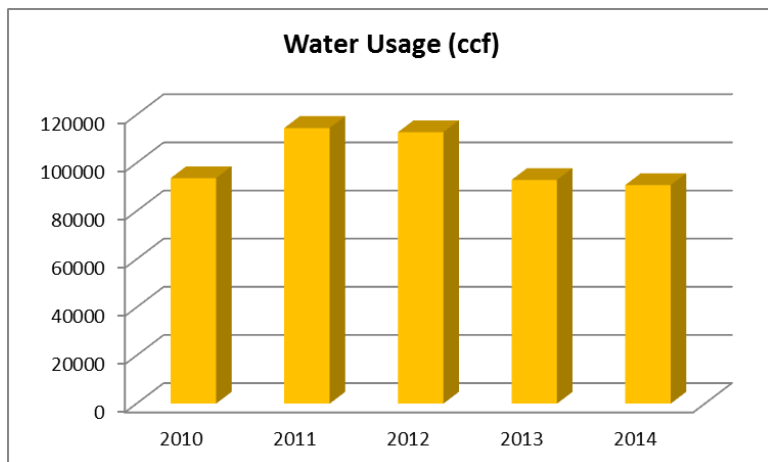
The 5-year electric usage analysis shows a steady decline in electric usage resulting in an overall decrease of 7,055,175 kwh since 2010 which is a 19% drop in usage in the last 5 years. Includes All Buildings independent of weather conditions.

Natural Gas Usage



The 5-year natural gas usage shows a drop and rise in natural gas usage mostly attributed to very cold winters in 2013 and 2014. Irrespective of the winter cold the natural gas usage has dropped 41,091 ccf or 4% since 2010. Includes All Buildings independent of weather conditions.

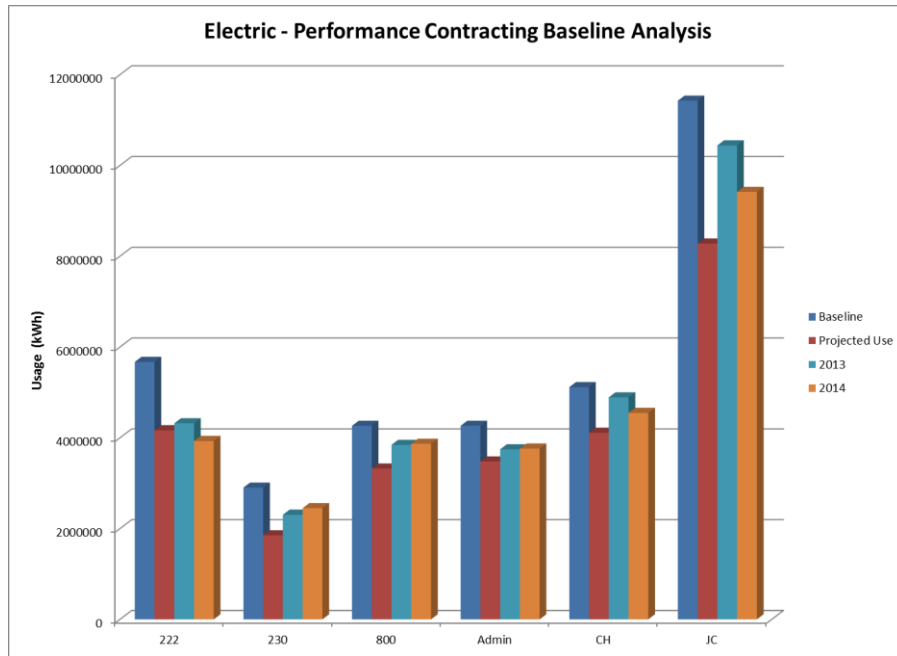
Water Usage



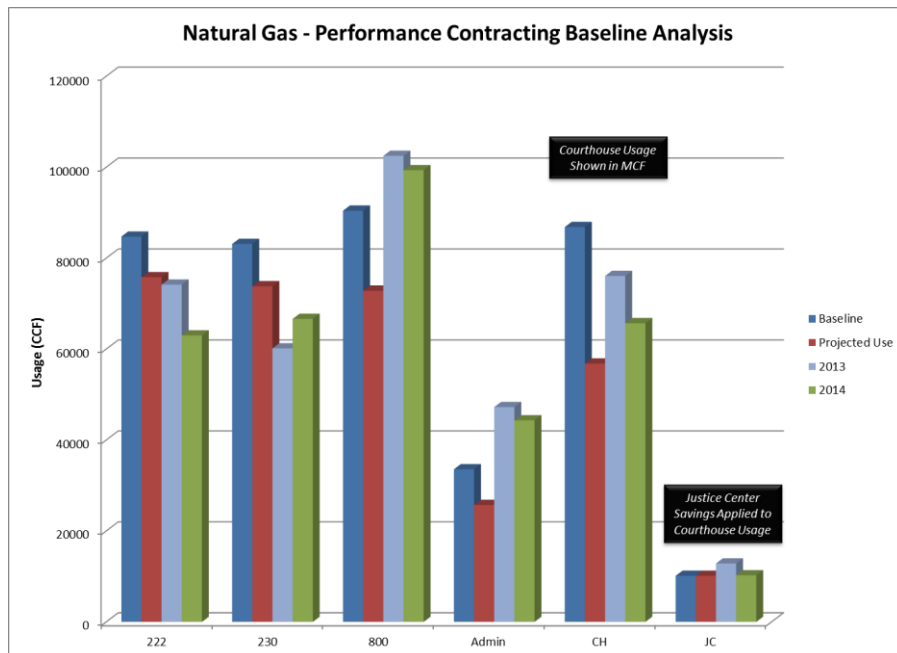
The 5-year water usage shows an increase initially but has been on a steady decrease since 2011. In 2014 the water usage dropped 2154 kgals or 4% compared to 2010 readings. Includes All Buildings independent of weather conditions.

Performance Contracting Baseline Review

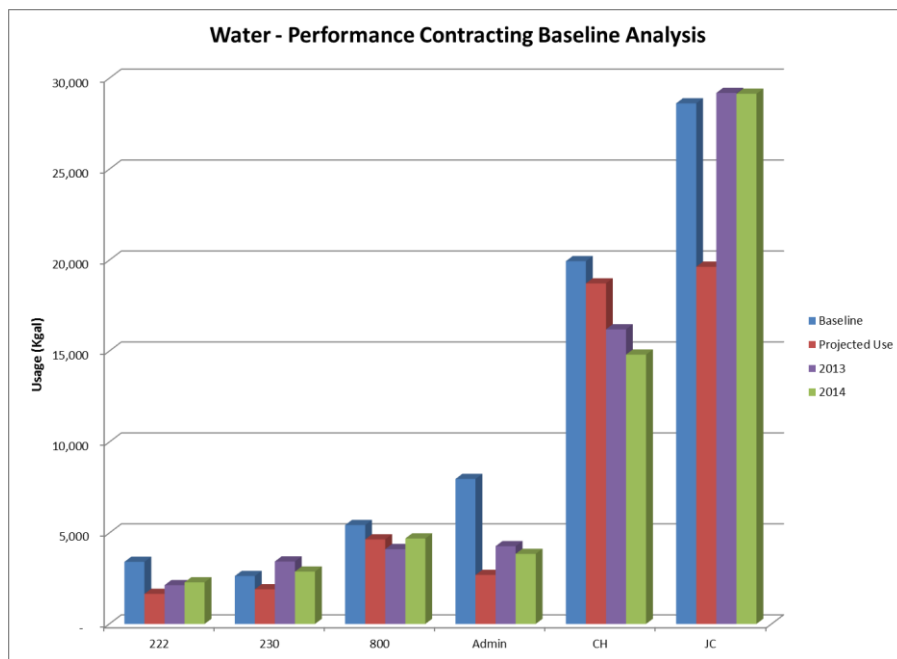
The following charts are a summary review of the in the Performance Contracting projects. Baselines were set in 2010-2012. Performance Targets are shown in Red. Phase 1 buildings M&V performance starts in 2015. Phase 1A and 2 are scheduled to be online in late 2015/early 2016.



All buildings are showing vast improvements compared to the baseline year with 222 East Central Parkway already meeting target goals in 2014. Justice Center is still over predicted savings target.



Most buildings show a sharp decrease in natural gas usage except for 800 Broadway and the County Administration Building. Changes in schedule and use are currently underway to bring these buildings back in line with their project savings goals.



Most buildings are down compared to the baseline year with the Courthouse doing a particular nice job in saving water usage. The 230 Building and Justice Center are both using more water which will require attention in 2015 to rectify these issues.

Building Utility Tracking Graphics


The following tables and figures are visualization and tracking tools used to study, verify and predict usage in the County Facilities Portfolio of buildings.

These sections provide a more detailed review of the findings earlier in this report.

Each building section is comprised of the following data:

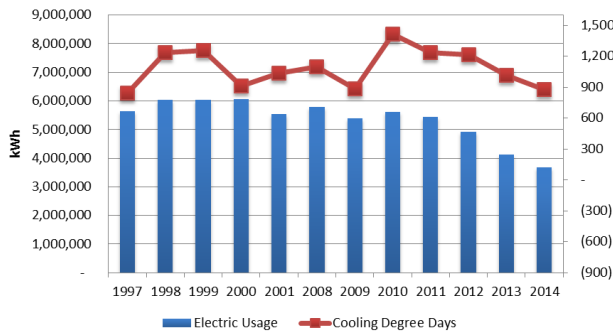
- Building Profile from Archibus showing the building footprint, square footage, construction and year built.
- Annual Electric Usage with corresponding Cooling Degree Days chart.
- Annual Natural Gas Usage with corresponding Heating Degree Days chart.
- Annual Water Usage Summary.
- General Summary for the utility usage for all three utilities.
- Historical Monthly Electric and Natural Gas Usage Spreadsheet.
- Three-year review of Hourly Electric Usage with comments.
- Electrical profile review for demand curve, load duration and daily trends.
- Current Energy Star score and review and metrics.
- Summary of Energy Savings Projects (ECM's).

222 Central Parkway

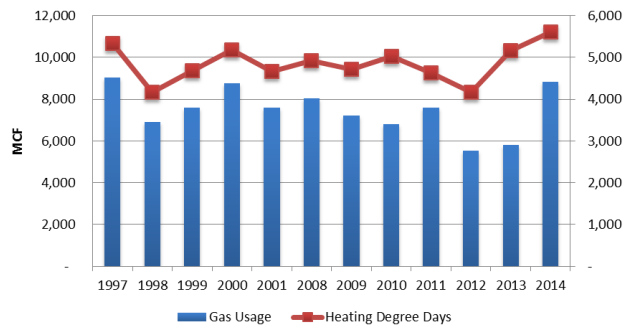
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				City:	CINCINNATI		
				State:	OH		
				Postal Code:	45202		
				Site Code:	COUNTYCAMPUS		
				Agency:	Job/Family Services		
				Use:	Office		
				Const Type:	Brick		
Date Built:	1878						
Ext Gross Area:	278,611.88 sf						
Int Gross Area:	260,361.49 sf						
Rentable Area:	249,800.68 sf						
Estimated Area:	0.00 sf						
Total Roof Area:	0.00 sf						
Leased/Owned:	Owned						
Floor Count:	8						
Sprinklered? :	Yes						
Property:	075-0004-0240-00						

Fl Code	Int Gross	Ext Gross	Vert Pen	Service	Rentable	Usable	Room Area
01	37,349 sf	39,398 sf	1,432 sf	5,301 sf	35,917 sf	30,616 sf	24,610 sf
02	37,707 sf	40,218 sf	1,467 sf	3,183 sf	36,240 sf	33,056 sf	24,001 sf
03	37,766 sf	40,236 sf	1,406 sf	3,502 sf	36,360 sf	32,857 sf	27,015 sf
04	37,835 sf	40,218 sf	1,457 sf	3,158 sf	36,378 sf	33,220 sf	24,916 sf
05	37,981 sf	40,932 sf	1,355 sf	3,412 sf	36,626 sf	33,214 sf	24,096 sf
06	29,458 sf	31,598 sf	1,694 sf	3,118 sf	27,764 sf	24,646 sf	22,437 sf
07	4,950 sf	5,460 sf	376 sf	475 sf	4,574 sf	4,098 sf	3,704 sf
08	37,315 sf	40,552 sf	1,372 sf	6,602 sf	35,943 sf	29,341 sf	31,443 sf
OUT	0 sf	0 sf	0 sf	0 sf	0 sf	0 sf	0 sf
SB	0 sf	0 sf	0 sf	0 sf	0 sf	0 sf	0 sf

222 East Central Annual Electric Usage

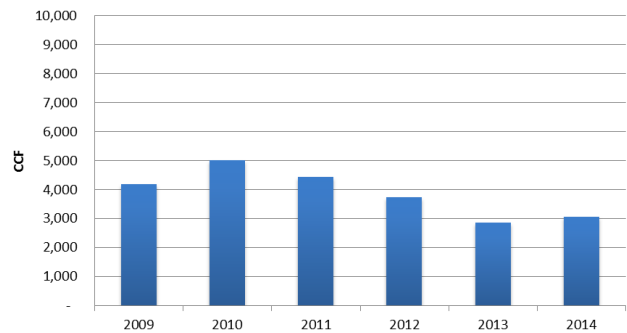


222 East Central Annual Gas Usage



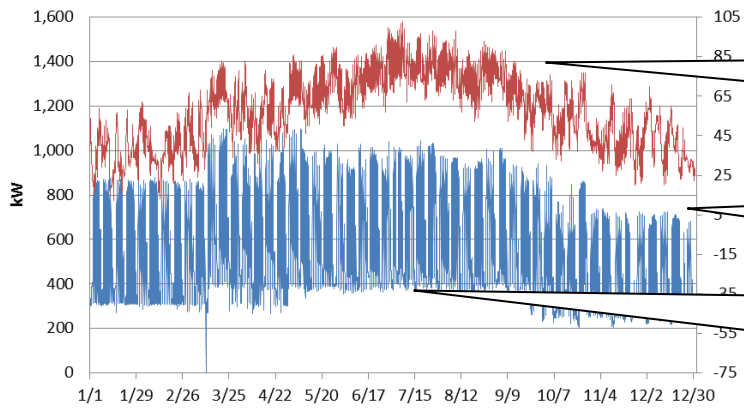
The 222 East Central Parkway has been trended over the last several years, with historical data collected for comparison. The Facilities Department took over building operation at this facility in 2008. The building continues to become more energy efficient in electric utilities but has seen it's water and natural gas usage go up mostly due to the harsh weather Cincinnati had in 2014. Water consumption is lower and in 2015 this building will qualify for the Energy Star rating.

222 East Central Annual Water Usage



222-Three Year Electrical Review

222 E Central Annual Electric Profile (2012)

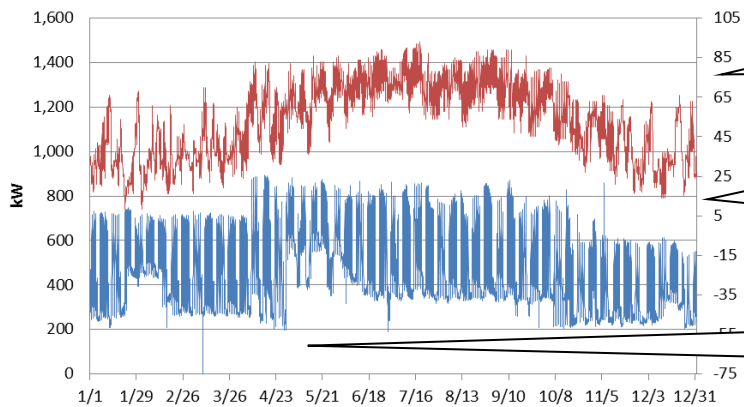


Not only has consumption decreased by 10%, but the summertime peak demand decreased by 10% as well.

The recorded winter peak demand is significantly lower after a lighting retrofit.

The significant decrease in electricity consumption (10%) is partly contributable to a lower summer base demand. Less cooling equipment is running constantly during the season.

222 E Central Annual Electric Profile (2013)

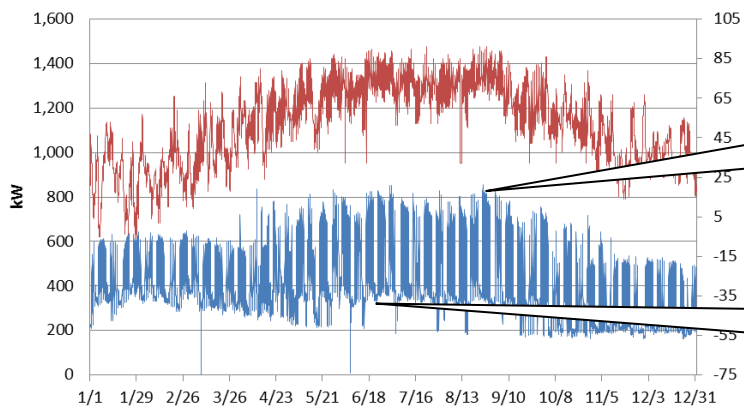


The peak demand has reduced by 170 kW.

Demand has reduced throughout the year. The peak is lower but the base demand is also lower than previous years.

In Jan/Feb and May, the base demand was disrupted, indicating equipment operating at night atypically.

222 E Central Annual Electric Profile (2014)



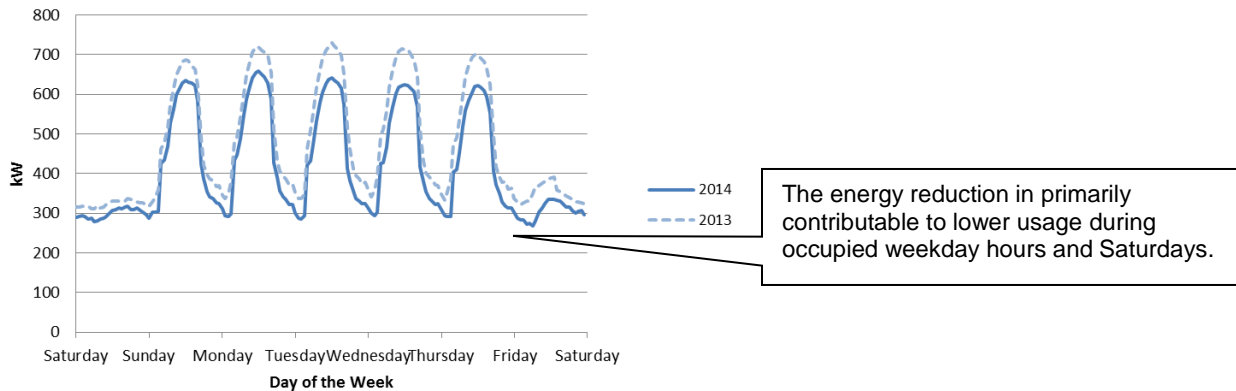
The peak demand has reduced in frequency with fewer spikes over 800 KW

Overnight setback is working perfectly. A&D has decrease amount of electric being used overnight consistently.

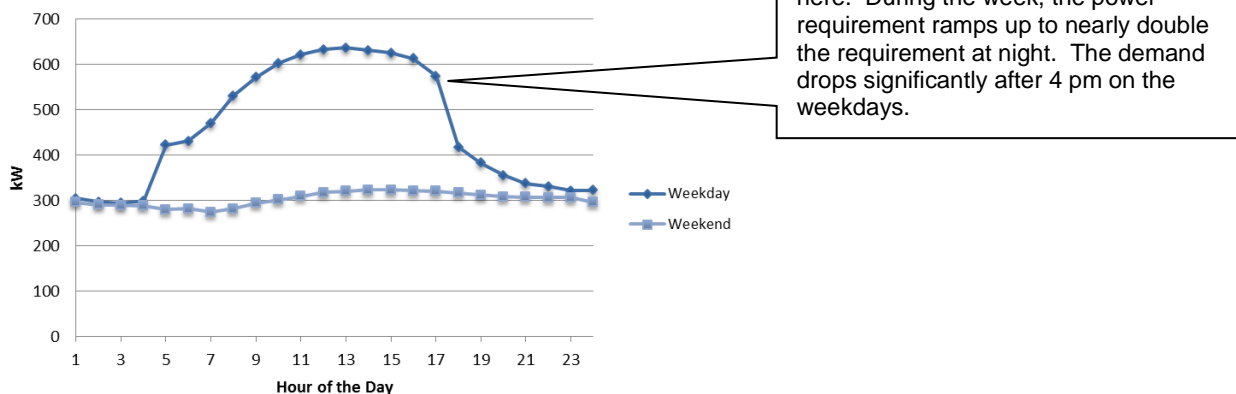
222-Electric Profile Review

The graphs below illustrate the power requirements of the facility throughout a typical week, typical day and the year. The typical week and typical day profiles are averaged throughout the year in order to view how the electric demand varies during the day and across the week. The load duration curve represents the demand as a function of cumulative time for the year.

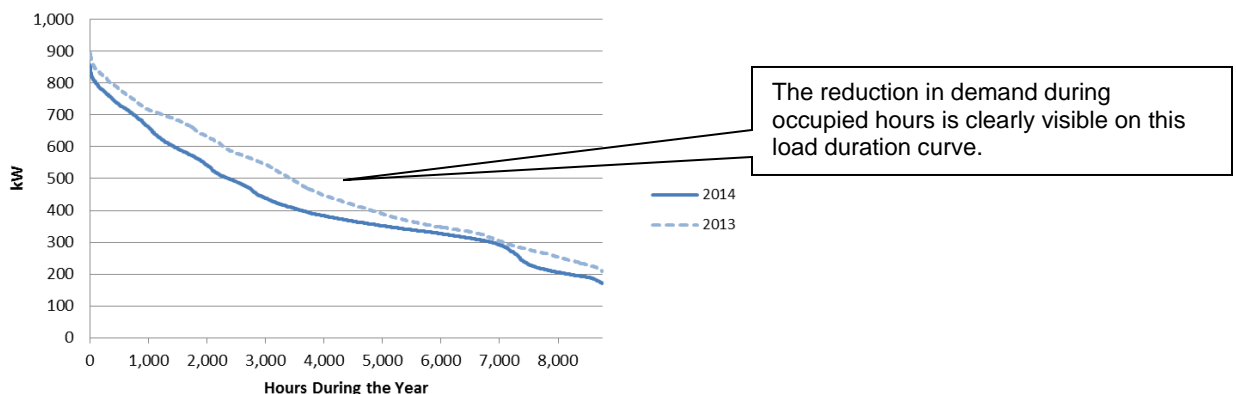
222 E Central Typical Week Profile



222 E Central Typical Day Profile (2014)



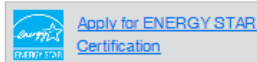
222 E Central Load Duration Curve



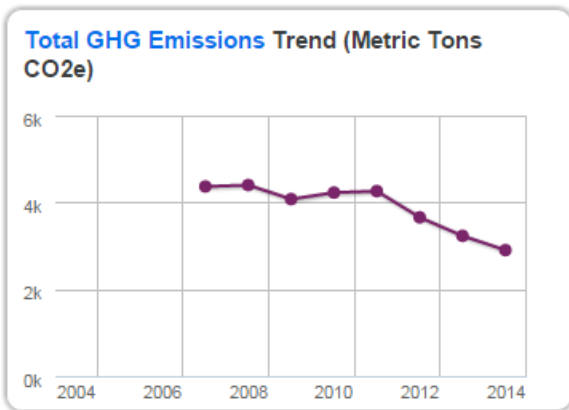
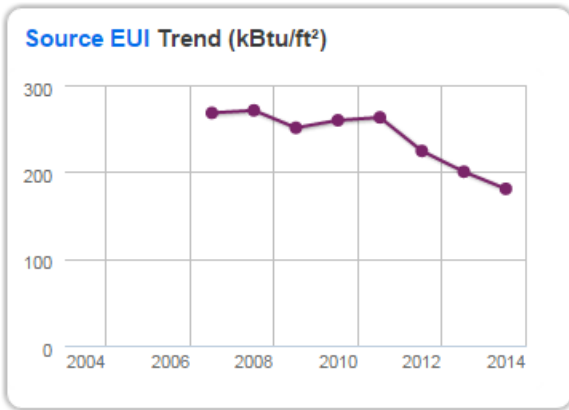
222 East Central Parkway - Alms & Doepke -Energy Star Review

Alms & Doepke Building

222 East Central Parkway, Cincinnati, OH 45202 | [Map It](#)
 Portfolio Manager Property ID: 1647872 | Primarily: Office
 Year Built: 1878



ENERGY STAR Score (1-100)	
Current Score:	80
Baseline Score:	53



Energy Star Charts:

The EPA's Energy Star website tracks the Energy Use Index EUI and the Green House Gas GHG emissions annually for a building based on the electricity, natural gas and water usage. These charts demonstrate the history of this building based on that data.

Energy Star Score:

The Alms & Doepke building has a current Energy Star score is 80 which is an all-time high from its baseline score of 53 when Facilities took over the building. This building qualified for Energy Star Certification in January 2015.

EUI Trend:

The downward trend for 2014 shows that the energy conservation projects are working. The EUI dropped from 271 in 2008 to 180 in 2014 in kBtu/sf.

GHG Trend:

The downward trend for 2014 shows the current energy conservation projects are working. GHG emissions dropped from 4399 in 2008 to 2899 in 2014 in MtCO2e.

Energy Star Metrics Using the latest metrics it can be seen that the ECM's in this building has pushed the building to a qualifying level for Energy Star.

Metric	Baseline (Dec 2008)	Current (Dec 2014)	Target*	Median Property*
ENERGY STAR score (1-100)	40	75	75	50
Source EUI (kBtu/ft²)	271.0	180.6	183.0	247.5
Site EUI (kBtu/ft²)	107.4	77.3	78.4	106.0
Source Energy Use (kBtu)	70,563,831.1	47,013,450.3	47,658,924.6	64,436,326.9
Site Energy Use (kBtu)	27,961,111.8	20,134,436.6	20,410,873.3	27,596,126.4
Energy Cost (\$)	497,220.12	356,177.22	361,245.63	488,174.01
Total GHG Emissions (Metric Tons CO2e)	4,399.0	2,899.0	2,940.3	3,973.4