

Creating a Cost-Effective and Energy-Efficient Douglas County and Lawrence, Kansas, with EPA's ENERGY STAR®

The simple choice for energy efficiency.



November 2016

This case study, presented by the International City/County Management Association, highlights the work Douglas County and the city of Lawrence, Kansas, have done in partnership with EPA's ENERGY STAR program over the last several years to improve the energy efficiency of their municipal buildings. Local governments can use these approaches and best practices to drive savings in their buildings and enhance their ability to invest in services for their communities.



Innovative and cost-effective energy programs make Douglas County, Kansas, and its county seat, Lawrence, leaders in sustainability. Together, the county and city have used EPA's ENERGY STAR program tools and resources to establish energy efficiency best practices as the new status quo. Their efforts include:

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Encouraging Citizen Input and Establishing a Shared Sustainability Coordinator

To assist in their sustainability goal of creating citizen engagement and outreach opportunities wherever possible, the city of Lawrence created a Sustainability Advisory Board in 2007. The Board, made up of elected citizen volunteers, is responsible for advocating for policies that promote sustainability through energy efficiency, natural resource conservation, waste reduction, and sound building standards. The Sustainability Advisory Board is also working with the city and county planning department to add sustainability language into the new Comprehensive Plan. To further develop a proactive sustainability practice, after a greenhouse gas emissions inventory was completed in 2008, the mayor appointed a Climate Protection Task Force to create a climate protection plan that outlined greenhouse gas emission reduction goals and how they would monitor energy and costs.

In 2010, Lawrence received a grant to fund a shared sustainability coordinator position with Douglas County. The county covered the second year salary, and since 2012, the cost has been split 60 percent by the county and 40 percent by the city. The shared position ensures consistent and optimal program implementation in both the city and county, and has proven that energy efficiency best practices learned in one local government can be shared with and applied to another local government. For example, both entities began a retrofit to replace traditional lighting with LED lighting in parking lots and garages throughout the community. By sharing research and information about products, performance, and savings, the city and county reduced the upfront costs associated with undergoing a retrofit and streamlined the implementation process.

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Tracking Energy and Water Use of Municipal Facilities

The citizen-run Sustainability Advisory Board and the sustainability coordinator have both helped to advance environmental policy for the city and county. To build on that progress and understand where energy is being expended within county buildings, Douglas County utilizes ENERGY STAR Portfolio Manager to track energy and water consumption at seven of their major facilities. The energy and cost metrics output by Portfolio Manager are used to track the effects of energy-saving initiatives implemented in county buildings, and each eligible facility is evaluated using the ENERGY STAR 1—100 score. An annual report generated in Portfolio Manager is presented to the County Commission, allowing the commission to compare energy costs and usage to make informed decisions about where to focus future energy-saving initiatives.



In 2009, Lawrence began using [EnergyCAP Enterprise Software](#), energy management software that has assisted the city with inputting almost 10 years of utility data for 400 city meters into Portfolio Manager. EnergyCAP's software interfaces directly with EPA's [ENERGY STAR® Portfolio Manager®](#), and streamlines the data input process, reducing the level of effort required by city staff members. Tracking in Portfolio Manager allows the city to set energy use reduction targets, compare buildings' energy use against similar buildings nationwide, identify trends and anomalies in consumption and cost data, and better manage the city's energy use overall.

Allocating Energy Cost Savings to a Sustainability Fund

The County Commission has worked hard to make improvements in energy efficiency and minimize consumption to reduce their environmental footprint, lower operating costs, and create healthier indoor and outdoor environments for its residents. The county controls two funds to continue implementation of energy efficiency improvements: a capital improvements project fund and a Sustainability and Energy Savings Reinvestment Fund with \$300,000 in seed money. Larger projects, such as major boiler retrofits, are paid for by set-aside funding from the capital improvements projects fund. But smaller projects, such as the incremental cost of purchasing new administration cars in a hybrid model over a conventional model, can be paid for by the Sustainability and Energy Savings Reinvestment Fund.

The cost savings that result from these smaller projects are then reinvested into the Sustainability and Energy Savings Reinvestment Fund. This reinvestment provides a reliable and ongoing reserve for sustainability and energy efficiency projects, and eliminates up-front costs to individual departments for sustainable technology, programs, and initiatives. Together, these two funds help ensure the consistent prioritization of energy efficiency-related funding for both large projects, as well as smaller, department-led initiatives.

Implementing Energy Efficiency Improvements

The city of Lawrence realizes that new construction projects are perfect opportunities to implement energy efficiency policies. Recently, they have completed several major renovations, including the Lawrence Public Library, which was built to Leadership in Energy and Environment Design (LEED) Building Design and Construction: New Construction and Major Renovation Gold Certification. This rating system incorporates ENERGY STAR Portfolio Manager to ensure the building will use 30% less water and energy compared to a conventional building. In addition, more than 90% of the construction waste was recycled and prevented from ending up in the landfill.

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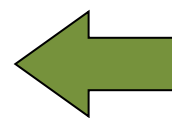
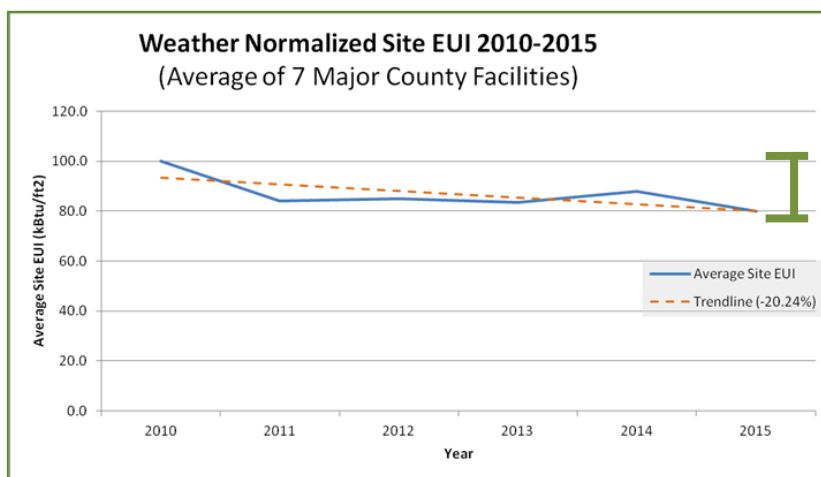
Douglas County just completed the construction on a new public works facility, and they incorporated many sustainable systems and designs, such as efficient heating and cooling systems, light-colored roofs, large roof overhangs to minimize summer sun, translucent glazing to bring in natural light, efficient lighting, and maximizing insulation and reducing infiltration in the building envelope. They also installed a 14-kilowatt (kW) solar photovoltaic system to their administrative building, resulting in an annual savings of 19,548 kilowatt hours (kWh) and a potential for savings of more than \$106,000 over the 25-year life of the system. The county anticipates the building will be eligible for ENERGY STAR certification!



Figure 1: Lawrence Public Library

Setting Energy Reduction Goals in the County

In 2011, Douglas County adopted a series of sustainability goals, including “reducing energy consumption by 30% by 2015” in county buildings.¹ Although inefficient design of the existing building was a major barrier, four out of seven buildings managed to surpass the 30% reduction goal! On average, the county reduced energy consumption by 20.24% in all seven major county facilities between 2010 and 2015, and the county's efforts resulted in avoiding \$162,823 in energy costs in 2015 alone. Using the reporting features of Portfolio Manager to track and compare important metrics such as weather normalized energy use intensity (EUI), energy use reduction, and avoided energy use costs, energy managers identified facilities that were underperforming and were able to make well-informed energy management decisions to reduce consumption and cost.



Energy use reduction:
20.24%

Avoided costs in 2015 alone:
\$162,832

Figure 2: Between 2010 and 2015, Douglas County reduced energy use in 7 major county facilities by 20.24%.

¹ [Energy Efficiency Progress Report](#).

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Looking Forward to an Energy-Efficient Future

Through making strategic decisions such as community engagement in sustainability, the hiring of a shared sustainability coordinator, and tracking their energy consumption in Portfolio Manager, both Douglas County and the city of Lawrence have been very successful in creating more energy-efficient communities by increasing the flow of knowledge, resources, and opportunities all while keeping costs low. As the county looks to expand the jail in the coming years, and the city enters a multi-year contract to identify and upgrade energy technologies in their buildings, they will both continue to incorporate energy efficiency best practices. Douglas County and the city of Lawrence prove to other municipalities that by taking a well-informed and strong approach to energy management and sustainability, it is possible to create more financially stable, engaged, and healthy communities.

ENERGY STAR Local Government Tools & Resources

[ENERGY STAR Partnership](#)

Provides local governments with access to promotional materials and co-branding opportunities for increased recognition.

[Portfolio Manager](#)

Energy measurement and tracking tool that enables strategic energy management and use of key performance indicators, all at no cost.

[ENERGY STAR Energy Efficiency Competition Guide](#)

Helps local governments understand how to plan, implement, and market their own energy efficiency competition.

[ENERGY STAR certification](#)

Can be earned by more than 20 types of properties that score in the top 25% most efficient for that property type.

[EPA's National Building Competition](#)

Nationwide competition among commercial buildings to reduce energy and/or water use.

[ENERGY STAR Top Cities](#)

Showcases the cities with the highest numbers of ENERGY STAR certified buildings making impressive strides in energy efficiency.

For more information, visit www.energystar.gov.

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