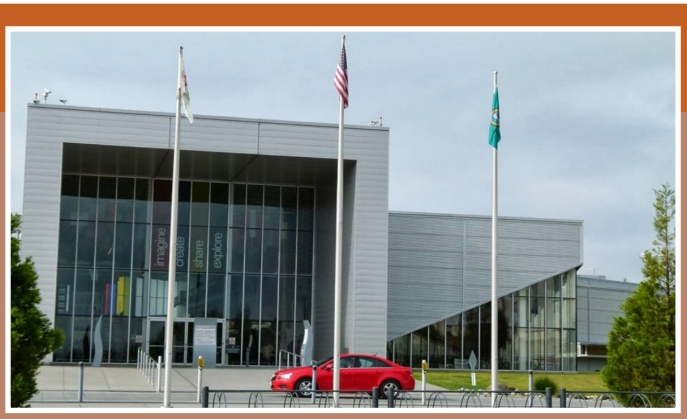
# Snohomish County Energy Benchmarking Report 2010-2014



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# GLOSSARY

**Energy Use Intensity (EUI):** Energy use intensity or EUI is expressed in energy use per square foot per year (e.g kBTU/sq ft). It is calculated by dividing the total energy consumed by the building in one year (typically measured in kBtu) by the total gross floor area of the building. Calculating energy use intensity is a means of standardizing a building's energy use as a function of its size or other characteristics. EUI is a useful measurement to determine energy efficiency performance of two different sized buildings, and generally a low EUI signifies good energy performance.

**Heating, Ventilation, and Air Conditioning (HVAC):** HVAC is an acronym that is used to describe the mechanical systems used to heat, cool, and ventilate buildings. The National Renewable Energy Laboratory estimates that about 47% of the energy use in the average American office space is consumed by heating, cooling, or ventilating the building.

**kBTU:** This unit of measure is equal to 1,000 British Thermal Units, and is roughly equivalent to 293 watt hours or the amount of energy needed to power five 60 watt light bulbs for one hour.

**Weather Normalized:** Weather normalized energy is the energy a building would have used under average conditions (also referred to as climate normals). The weather in a given year may be much hotter or colder than a building's normal climate; weather normalized energy accounts for this difference. Energy Star Portfolio Manager, a free energy analysis tool developed by the Department of Energy and EPA, provides data outputs in both weather normalized and raw data format.

All of the 2014 building energy data and 2010 data used in this report is weather normalized. There are several methods to normalize weather data, and the method used in this report was developed by Energy Star. In this methodology, each buildings is individually tagged to the nearest U.S. weather station. Each year is indexed to a 30 year rolling average of heating and cooling degree deays from that weather station. The energy data is weather normalized using an algorithm that expresses energy use for the average weather during the index period.

**Benchmark Pace:** For the purposes of this report, Benchmark Pace is a specific 2014 energy conservation target that illustrates whether a building or set of buildings is on track to meet the 30% reduction target by 2020. The Benchmark Pace is calculated as an annual average energy use reduction of approximately 3% per year between 2010-2020 based on a 30% reduction from a 2010 baseline. The 2014 Benchmark Pace for all facilities is 12% below total 2010 energy consumption.

**Benchmark Goal:** For the purposes of this report, the Benchmark Goal is represents a 30% reduction in energy use in 2020 compared to a 2010 baseline.

# 01 Introduction

## Snohomish County Energy Conservation Goals

Snohomish County owns and operates a large portfolio of facilities that support a wide range of public services. County buildings consume energy to meet a variety of needs, such as heating, ventilation, and air-conditioning (HVAC), water heating, indoor and outdoor lighting, office and work equipment, and much more. The *Office of Energy and Sustainability* (OES) prepared this Report to assess how County government facilities are performing with respect to the energy conservation goal established in the *Sustainable Operations Action Plan (SOAP)*.

The SOAP was unanimously adopted by County Council on September 3, 2013 and Executive Lovick issued Executive Order 13-48A, calling for the full assistance of all departments and offices to achieve the SOAP goals. SOAP Objective 3K sets a goal of reducing energy consumption in 30 specific County buildings by 30% by 2020. These 30 facilities were initially chosen based on a combination of size and energy consumption. Since the SOAP adoption, OES has doubled the number of buildings monitored under the energy conservation program, with a total of 59 analyzed for the purposes of this report. These 59 facilities were selected and included in this report because they are the County's primary energy consuming facilities that are County owned and operated.

This report benchmarks 2014 weather normalized energy data for 59 of the County's primary energy consuming facilities to assess whether they are, both individually and in aggregate, on track to meet the 30% reduction goal by 2020. For the purposes of this report, a 2010 weather normalized baseline was used to assess building performance with respect to the 30% SOAP energy reduction goal. All data was weather-normalized using a 30 year index.

## Investing in Energy Efficiency

Snohomish County started ramping-up efforts to promote energy and resource conservation in its buildings in 2010. In 2010, the County received a $4.8 million federal Energy Efficiency and Conservation Block Grant (EECBG) to make energy efficiency upgrades, and the County created a new Office of Energy and Sustainability (OES) to help develop and lead resource conservation efforts. Since then, OES has worked across departments to help identify opportunities to save energy, water, and other resources in County government facilities. These improvements include capital retrofit projects, operational and maintenance changes, behavior change campaigns, and other organizational strategies.

OES enrolled Snohomish County in two local utility Resource Conservation Management (RCM) programs, first with Puget Sound Energy (PSE) in 2012 and then with Snohomish County Public Utility District (PUD) in 2013. Both utilities offer cash incentives for reducing energy consumption through behavioral, operational, and maintenance changes across the County's building portfolio. OES, in partnership with other County departments, has achieved significant success in reducing County energy consumption and costs through the RCM programs. In 2014, the County conserved 12,973,288 kBtu (weather normalized) compared to 2010 for 23 of the primary energy consuming buildings. The County's 2014 energy savings is enough energy to power approximately 144 homes and resulted in approximately $336,000 in energy cost savings. More information on the County's progress in conservation resources since 2010 can be found in the *Sustainable Operations Action Plan: 2014 Progress Update*.

## Energy Management and Benchmarking Tools

The Office of Energy and Sustainability uses a combination of tools to track, analyze, and benchmark

building energy data, including but not limited to:

- The Environmental Protection Agency's free Energy Star Portfolio Manager tool;
- Puget Sound Energy's free data management tool MyData Manager, available to RCM program customers;
- WegoWise's online energy management software; and
- Energy interval service (EIS) data available through both PSE and PUD, where available. Energy interval service data provides real time data in fifteen minute increments and valuable insight into whether building HVAC scheduling is aligned with occupancy. These are just a few of the combination of tools, that OES and other County departments use to better track, manage, and conserve energy use on a daily basis and over the long-term.

## The Importance of Conservation and Benchmarking

Tracking, monitoring, and benchmarking utility data for County-owned buildings are important for several reasons, namely:

- Demonstrating progress in meeting the County's SOAP energy conservation goals;
- Identifying potential opportunities for conservation in facilities with a higher than average rate of consumption;
- Reducing energy consumption and costs through operational, maintenance, and behavioral changes, as well as rate schedule changes and other low or no cost adjustments; and
- Highlighting future funding needs for building investments to reduce energy consumption and costs.

Energy conservation also affords opportunity for financial benefits, and the County has the potential to save money through continued benchmarking and conservation efforts. While not discussed in depth in this report, the following are important to consider in the context of conservation:

- *Electricity costs continue to rise.* In 2015, Snohomish County Public Utility District (PUD) electric rates increased by 5.3%, which is significantly higher than normal electric utility escalation rates that the County has seen in past years. While future utility escalation rates are not anticipated to be as high as in 2015, a 1-3% annual escalation rate is typical. As such, the value of energy conservation increases as energy costs escalate.
- *There is significant opportunity for no-cost and low-cost energy saving measures.* OES works with maintenance staff across departments to identify free and cost effective conservation measures, namely optimization of HVAC scheduling, energy billing optimization, and delamping. For example, operational and maintenance changes implemented in 2014 are expected to save the County approximately $60,000 in annual avoided costs.
- *Local utility RCM incentive programs increase the return on conservation.* Since enrolling in the PSE and PUD RCM programs, the County was awarded more than $40,000 in incentives for reducing energy consumption. The Office of Energy and Sustainability reinvests these incentive dollars into conservation projects.

# 01 Introduction

## Report Organization

Snohomish County's Energy Benchmarking Report is organized as follows:

***1. Introduction***. This section provides the policy context for the Energy Benchmarking Report and the importance of building benchmarking.

***2. Executive Summary***. This section highlights the key findings from this report, summarizes the County's overall progress in energy conservation, addresses areas for improvement in the future, and identifies next steps to help meet County energy conservation goals in the future.

***3. The Big Picture***. This section analyzes energy consumption, cost, and other variables of all 59 buildings in aggregate, which demonstrates energy consumption trends over time and whether the County is on track to meet its 30% reduction goal by 2020.

***4. Energy Consumption by Cluster***. This section analyzes energy consumption of County buildings through two different lenses:

- By Campus Clusters, where groups of buildings are located together on shared campuses (e.g. County Campus, Airport Campus, Arlington Campus, etc.); and
- By Functional Clusters, where buildings are grouped by the same use type (e.g. Office, Fleet, etc.).

Generally, Campus Cluster energy consumption is presented first in aggregate, and then by building where individual building consumption data exists. Building Campus clusters considered in this report include the County Campus, Cathcart Campus, Airport Campus and Arlington Campus. It is important to note that this analysis by Campus Cluster does NOT include all 59 of the County facilities. Aggregate data for all 59 buildings is addressed in *Section 3: The Big Picture*.

Functional Clusters included in this report are: Corrections Facilities, Public Works Buildings, Fleet Buildings, Transfer Stations, Parks, Courts, Offices, and Miscellaneous uses. It is important to note that in some cases, individual buildings appear in both the Campus Cluster Analysis and Functional Cluster analyses (e.g. Airport Administration Building), providing context for a building's energy use against buildings of similar use types, and as a share of its Functional Cluster.

***5. Summary of Findings and Next Steps.***

This section provides a summation of the data and data trends and a short list of recommendations for practical, cost effective next steps to continue the pursuit of County energy conservation goals.

# 02 Executive Summary

## Background on County Buildings

This Energy Benchmark Report compares 2014 building energy data againast a 2010 baseline to determine how 59 of the County's primary energy consuming facilities are performing with respect to the 30% SOAP energy reduction goal. This is the first Energy Benchmarking Report that the County has produced, laying the groundwork for continued comprehensive energy managment and conservation in County facilities.

## Energy Consumption Trends

Snohomish County made significant improvements in energy conservation in the last five years, but is not currently on pace to meet its 30% energy reduction goal by 2020, a goal established in the SOAP. Table 1 shows the 2014 Benchmark Goal Results of each facility group studied in this report (NOTE: some facilities appear in multiple groups). The results presented in Table 1 indicate whether each facility group in 2014 is on-pace to meet the 2020 Benchmark Goal.

### 2014 Energy Benchmarking Summary

- ✓ Weather normalized energy use has decreased by 9% and nearly 14 million kBTUs since 2010; this energy savings is equivalent to powering 154 homes
- ✓ Energy spending is down 4.8% and $113k since 2010
- ✓ The County is saving $310/day compared to 2010
- ! While the County is conserving energy and energy costs, it is not currently on pace to meet its energy conservation goals

Analysis of the energy consumed by the County's primary 59 buildings between 2010-2014 showed that:

- County facilities fell short of the 2014 benchmark goal by 4.6 million kBTU or about 3%
- While facilities did not meet the 2014 energy conservation goal, energy consumption across all 59 buildings decreased 13.9 million kBTU (9%) from 2010 levels
- Annual energy spending decreased $113,000 (4.8%) from 2010 levels. This decrease is less than the actual rate of conservation due to rising energy prices and a growing number of energy accounts.
- If 2014 energy savings over 2010 levels were purchased with 2014 energy prices, the total savings would exceed $220,000.

## Recommendations

The recommendations below represent next steps to help the County achieve its 30% energy reduction goal by 2020. These recommendations are described in more detail in *Section 5: Findings and Next Steps*.

1. Focus energy conservation efforts on the biggest energy consumers
2. Develop a capital investment strategy for energy efficiency and conservation
3. Continue regular monitoring for building schedule optimization
4. Identify candidates for building commissioning
5. Continue annual utility rate reviews to optimize billing rates for consumption patterns
6. Focus conservation efforts on facilities with outsized energy use for their size or building class
7. Develop energy efficiency policy standards for buildings and equipment
8. Continue to provide training for County employees on the Environmental Purchasing and Product Utilization Policy

# 02 Executive Summary

**Table 1. 2014 Benchmark Goal Progress by Facility Group**

| FACILITY GROUP | 2014 GOAL MET? | ENERGY TREND 2010-2014 | 2014 ENERGY SPENDING |
|---|---|---|---|
| Airport | No | ↓ 12% | ↓ $18K |
| Arlington Campus | Yes | ↓ 31% | ↓ $11K |
| Cathcart Campus | No | ↓ 10% | ↓ $12K |
| Corrections | Yes | ↓ 12% | ↓ $67K |
| County Campus | No | ↓ 10% | ↓ $55K |
| District Courts | Yes | ↓ 23% | ↓ $9K |
| Fleet | No | ↑ 10% | ↑ $16K |
| Miscellaneous Facilities | No | ↓ 1% | ↓ $9K |
| Offices | No | ↓ 7% | ↓ $29K |
| Parks | No | ↑ 17% | ↑ $49K |
| Public Works | Yes | ↓ 16% | ↓ $45K |
| Transfer Stations | Yes | ↓ 23% | ↓ $20K |

A summary table showing the energy consumption and energy spending for the facilities studied in this report can be found in Appendix A.

# 03 The Big Picture

## Total Consumption

Energy consumption for the 59 primary County buildings assessed in this report has decreased by 9% since 2010, yet the County is not on pace to meet its 30% energy reduction goal by 2020. Figure 1 shows that 2014 energy consumption is well below 2010 levels (9% reduction), but higher than where consumption should be if energy conservation goals were met ('2014 Actual' is 3.4% above the '2014 Benchmark Pace'). Similarly, the County is well behind the pace needed to meet its 2020 Benchmark Goal for the building portfolio, however there is still time to meet this goal with continued investment in energy efficiency retrofits and implementation of no cost/low cost projects that address conservation through operational, maintenance, and behavior change.

**Figure 1: Overall County Benchmark Performance 2010-2014**

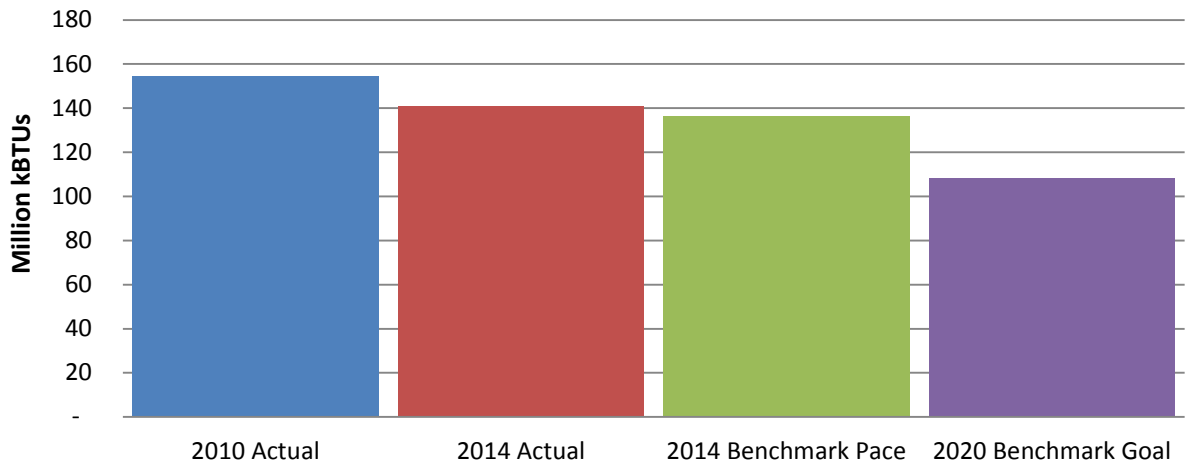
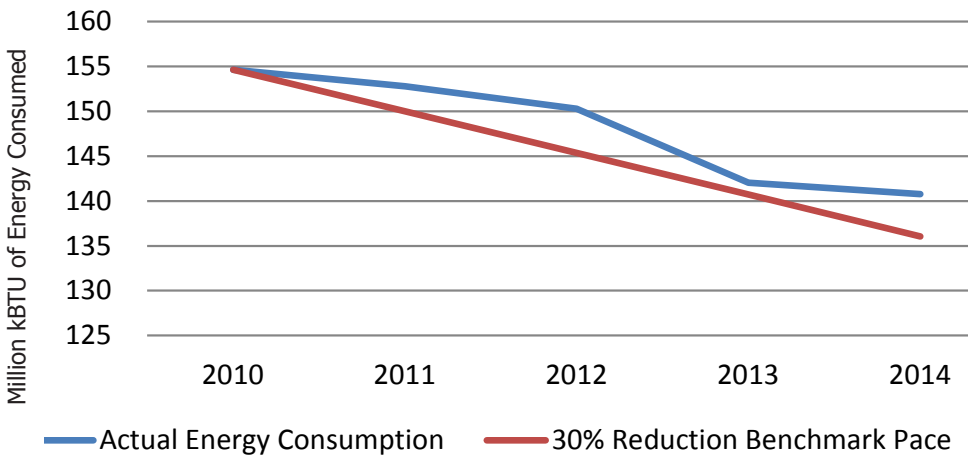



Figure 2 shows total energy consumption trends for 2010 through 2014, along with the average annual conservation pace needed to achieve the County's goal by 2020 (30% Benchmark Pace). Energy conservation accelerated in 2013 and 2014, and approximately 70% of the energy savings achieved since 2010 were realized after 2013. This success is likely due to a substantial number of energy retrofits implemented through a Federal Energy Efficiency and Conservation Block Grant (EECBG) that was awarded to the County in 2009. This success also coincides with the establishement of the County's Office of Energy and Sustainability in early 2010, and the adoption of the County's Sustainable Operations Action Plan (SOAP) in 2013.

**Figure 2: Energy Consumption Trends 2010-2014**

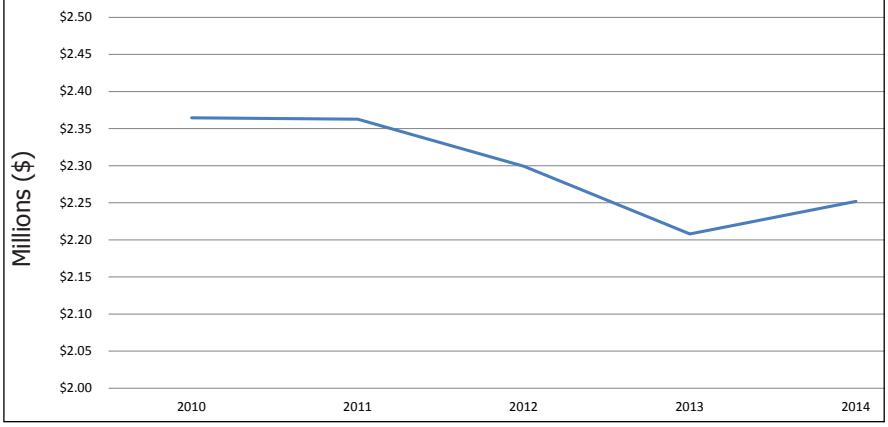


# 03 The Big Picture

## Total Costs and Consumption

Figure 3 shows that total energy spending from 2010 through 2014 hovered around $2.3 million for the 59 facilities analyzed in this report. Overall spending has decreased by more than $112,000 over this time period, despite consistent increases in energy prices and an expansion in both the number of facilities and number of utility accounts within the County portfolio.

**Figure 3: Energy Spending Trends 2010-2014**




The average price for a unit of energy (kBTU) has increased 6.8% since 2010. Analyzing energy fuel sources separately, however, shows that the price per BTU of natural gas fell 6.2% between 2010-2014, while the cost of electricity increased by 7.2%. In 2015, Snohomish County Public Utility District (PUD) issued two rate changes that increased electricity prices by 5.3% over 2014 prices. The 2015 utility rate increases are higher than typical electric escalation rates in years past. Nonetheless, because a larger proportion of the County's energy is electric, the County's overall energy costs have increased.

Figures 4 and 5 show the energy and cost implications of holding energy consumption at 2014 levels, continuing at the 2010-2014 current rate of energy consumption, and conserving energy at the "Benchmark Pace" needed to reach the 2020 conservation goal.

**Figure 4: Comparison Scenario for Energy Consumption**

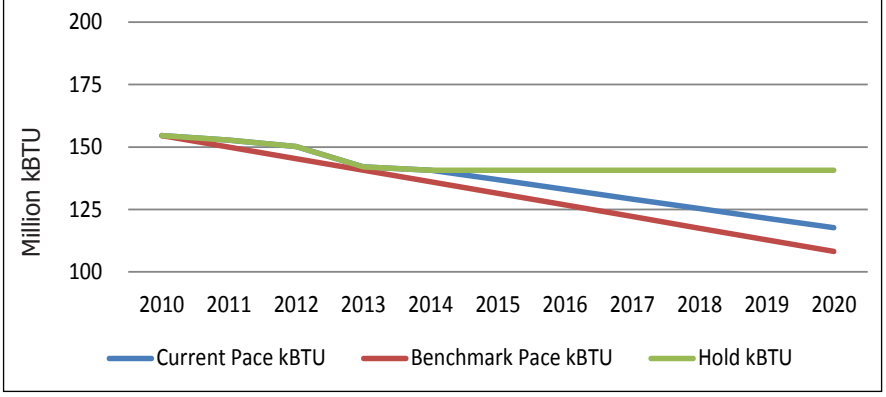



Figure 4 shows future projected energy consumption under three modeling scenarios: 1) Consumption is held at 2014 levels (Hold kBTU), 2) Consumption is projected using an average 2010-2014 rate (Current Pace), and 3) Consumption is reduced at an average annual pace to reach the County Energy Conservation Benchmark in 2020 (Benchmark Pace kBTU).

**Figure 5: Comparison Scenario for Energy Costs**

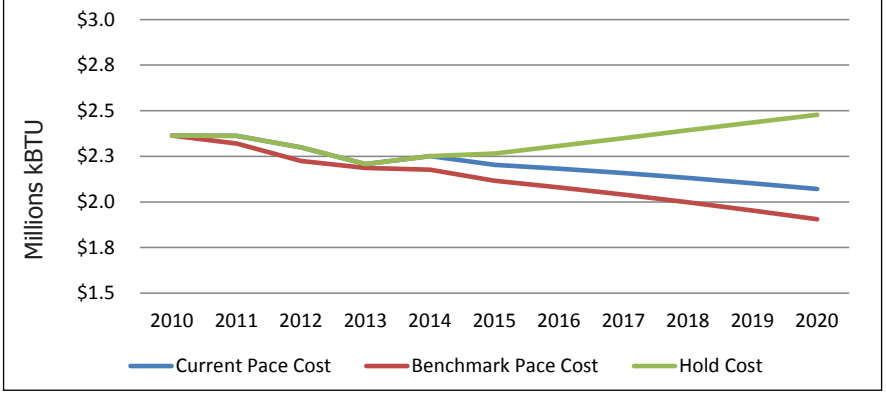



Figure 5 shows the estimated annual cost of energy consumption from 2015-2020 under the three modeled scenarios used Figure 4. Note that in

this Figure 4, the Hold Cost shows 2014 energy costs including an average annual escalation rate based on historical data. The average escalation rate of energy prices demonstrates that there is significant opportunity for avoided cost savings through energy conservation. For example, historic utility escalation rates indicate that even if energy consumption stayed at 2014 levels, energy spending would increase by more than $200,000 in 2020 compared to 2010 levels.

**Figure 6: Energy Consumption by Cluster**

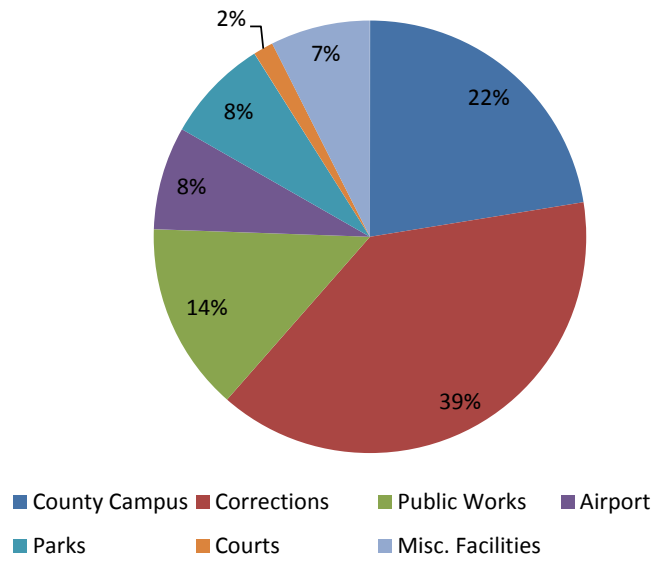



Figure 6 shows the distribution of energy consumption by cluster within the building portfolio. Of the 59 buildings analyzed in the report, more than half (61%) of the County's energy consumption takes place at the County Campus in Everett along with three Correctional facilities (two adult and one juvenile). The remaining 39% of the County's energy consumption is more evenly distributed between Public Works facilities, Airport facilities, and Parks facilities. Other facilities that fall outside of these categories are listed as "Miscellaneous Facilities" and include the Medical Examiner's Office, the Multi-Service Center, the Sultan Sheriff's Office, Sheriff's Records Storage Building, Gun Practice Range, Marine Unit, and Impound Garage.

**Figure 7: 2014 County Energy Benchmark Performance**

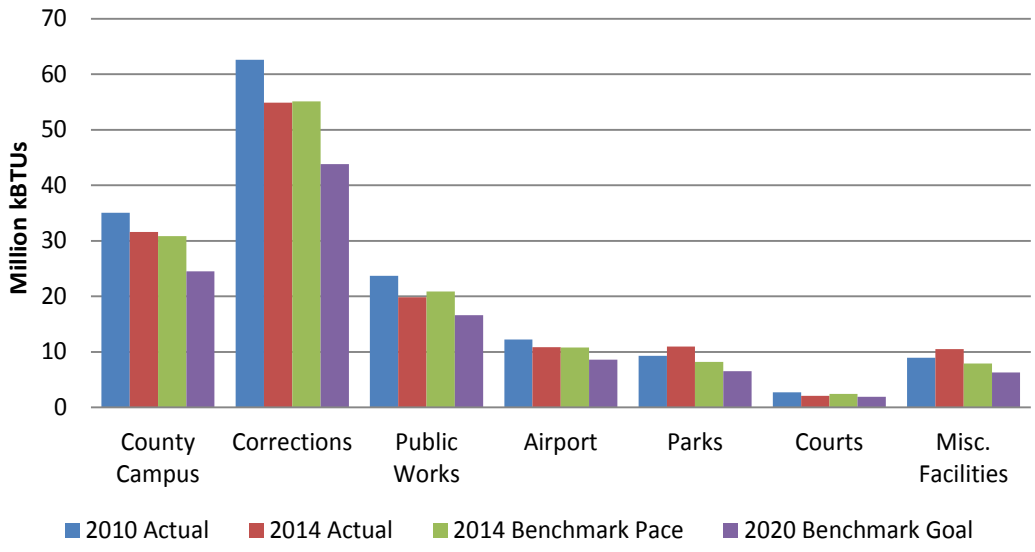



Figure 7 shows changes in energy consumption over time in each building cluster and whether each cluster is on pace to meet the County's 2020 Benchmark Goal. Nearly all of the clusters show a general downward trend in energy consumption between 2010 and 2014. Each cluster's actual 2014 consumption is shown in comparison to the 2014 Benchmark Pace and 2020 Benchmark Goal. Corrections, Public Works and Courts clusters are all on pace to meet the 2020 goal, while the County Campus, the Airport, Parks, and Miscellaneous Facilities are not.

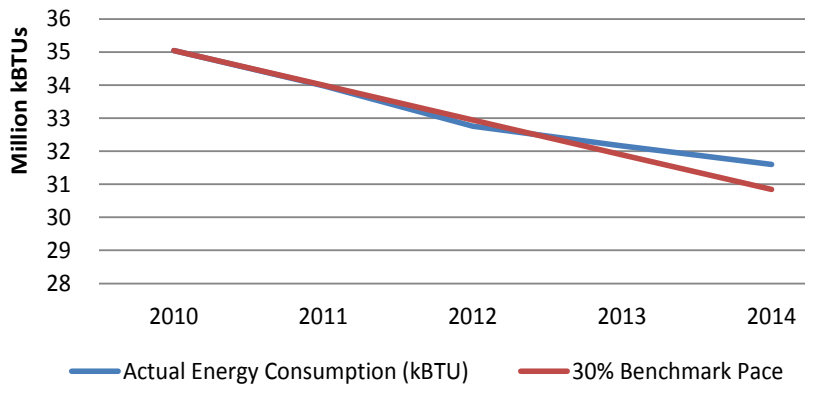
# 04 Energy Performance

## CAMPUS CLUSTERS

### County Campus

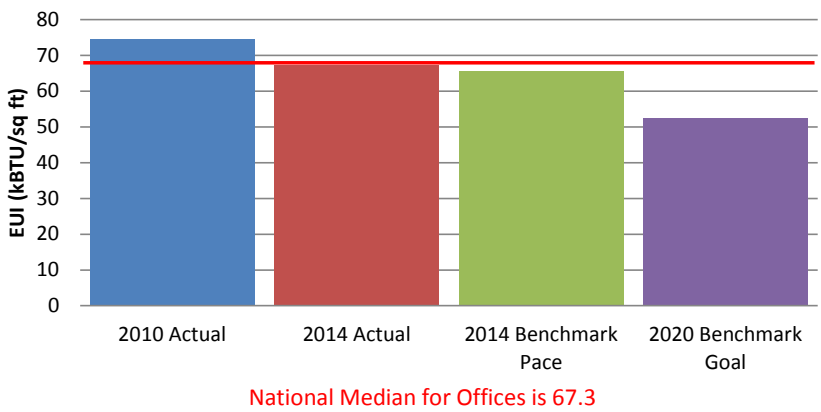
The County Campus as a functional cluster is comprised of the two primary Administration Buildings (i.e. Admin West and Admin East), the main Courthouse, the historic Mission building, the underground parking garage, and the Plaza Cafe. While the County Campus consumes the second largest share of the County's total energy at 22%, progress has been made in reducing energy consumption among the buildings in this cluster. County Campus energy consumption decreased by 10% from 2010 levels, yet it still missed the 2014 Energy Benchmark goal by approximately 2%. County Campus energy spending decreased by about $55,000 in 2014 compared to 2010 levels.

**Figure 8: County Campus Energy Trends**




County Campus buildings are on shared natural gas and electricity meters, which means that calculating an accurate EUI per individual building is not possible. As such, Figure 9 profiles the County Campus cluster as a whole with regard to its Energy Use Intensity (EUI) expressed in kBTU per square foot. The National Median EUI for offices is 67.3, and in 2014 the County Campus cluster was right at this threshold with an EUI of 67. The County Campus has reduced its energy use by 10% since 2010, and is currently just 2% off of the 2020 Benchmark Goal pace.

**Figure 9: Campus Energy Benchmark Performance**




*Key Facility Changes 2010-2014*

- Chiller upgrades at Admin West and Courthouse
- HVAC Controls upgrades and optimization (Admin East, Admin West, Mission and Courthouse)
- 16.4 kW solar panel array installed on Admin West
- Lighting and lighting control upgrades at Admin West, Admin East, Parking Garage, Plaza Cafe, and the Mission Building

*Upcoming Facility Changes*

- Billing rate schedule changes for natural gas for the Courthouse and Admin West anticipated to save approximately $12,000 in utility costs starting in 2015

# 04 Energy Performance

**Cathcart Campus**

Cathcart is predominantly a Public Works campus located in Snohomish, and is comprised of a landfill Leachate Pre-Treatment facility, Fleet Shop, Administration Operations building, Materials Testing facility and Heated Shop, Sheriff's Gun Range, Vehicle Wash building, Sheriff's Impound and Investigative facilities, and other smaller structures. The Cathcart campus consumes about 9% of the County's total energy consumption, or approximately 12 Million kBTUs per year.

Energy consumption at the Cathcart Campus has decreased by 10% from 2010 levels but missed its 2014 Energy Benchmark Pace goal by about 2%, as shown in Figure 10. Energy spending in 2014 also decreased by about $12,000 from 2010 levels.

Figure 11 illustrates energy use trends and the proportion of consumption by buildings throughout the Cathcart Campus. Most of the buildings in this cluster realized slight energy reductions over the course of the five years shown, with three notable exceptions: the Sheriff's Gun Range doubled its energy consumption since 2010, the Fleet Shop increased its consumption by 10%, and the Leachate Pre-Treatment facility reduced its consumption by 70%. The significant reduction at the Leachate Pre-Treatment facility can be attributed to a number of energy efficiency retrofits completed in 2012 as part of the County's federal EECBG grant, namely the installation of variable frequency drives for the aeration pumps, lighting retrofits, and installation of programmable thermostats in occupied spaces.

Figure 12 profiles the Cathcart Campus with regard to its total energy consumption. The campus has significantly reduced its energy use since 2010, but is 2% off of the conservation pace needed to meet 2020 benchmark goals.

**Figure 10: Cathcart Campus Energy Trends**

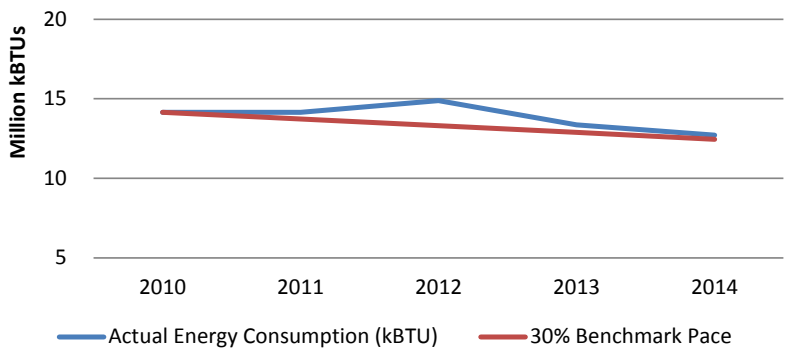



**Figure 11: Cathcart Campus Building Energy Detail**

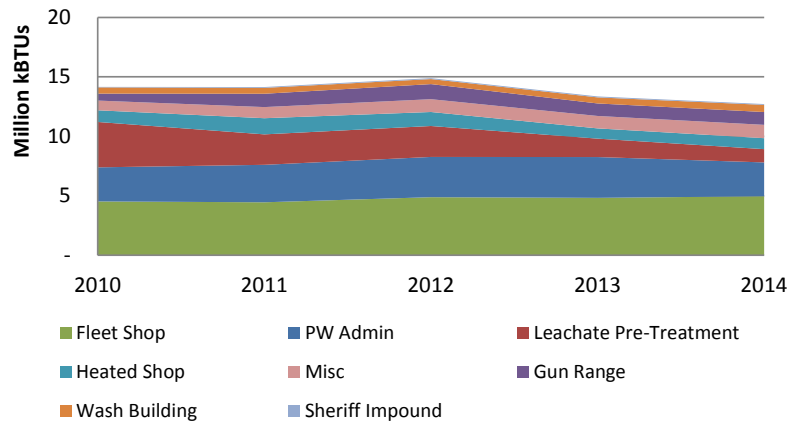
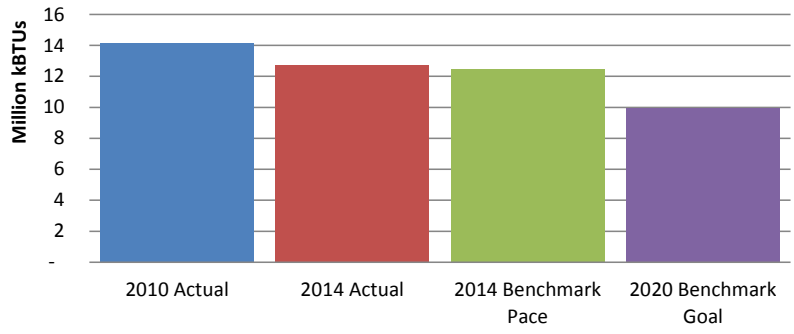



**Figure 12: Cathcart Benchmark Performance**




*Key Facility Changes 2010-2014*

- HVAC control upgrades and optimization at Admin Building and Fleet Shop

- Reduced energy use of Leachate Pre-Treatment facility
- 4.7 kw solar panel array installed
- Installation of electric vehicle charging stations

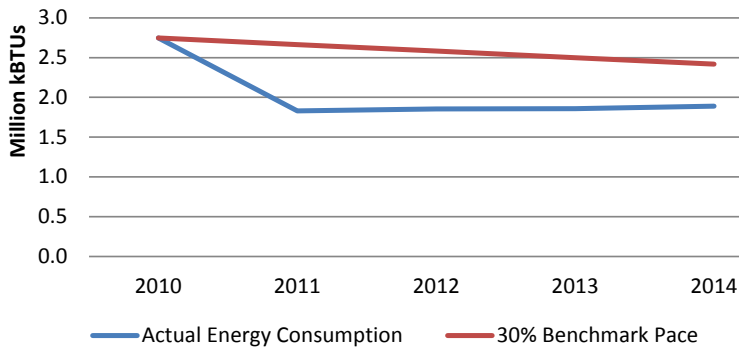
*Upcoming Facility Changes*

- HVAC scheduling improvements to reduce off-hours run-time at Cathcart facilities
- Increased demand for training time at the Gun Range will increase operating hours

**Arlington Campus**

Arlington Campus is a Public Works facility that consumes about 1% of the County's total energy use. The Arlington Campus is comprised of a Fleet Shop, Bridge Crew Shed, Bridge Crew Modular Office, Vactor Decant facility, and a Modular Administration Building, along with several out buildings used primarily for storage. The Arlington Campus realized the largest proportional energy reduction of any group, large or small, in this report. Figure 13 shows that energy consumption at the Arlington Campus decreased by 31% from 2010 levels, exceeding its 2014 Benchmark Pace by about 19%, and meeting its 2020 Benchmark Goal. Energy spending in 2014 decreased by about $11,000 from 2010 levels.

**Figure 13: Arlington Campus Energy Trends**




The proportion of energy consumption throughout the Arlington Campus is illustrated in Figure 14. All facilities except the Bridge Crew Modular building benefited from energy reductions since 2010 (the Bridge Crew Modular building increased consumption by 26%). The Fleet Shop led the campus in energy reduction, saving 43% over 2010 levels which is enough energy to power 9 homes. Figure 15 profiles the benchmark performance of Arlington Campus with regard to its total energy use. The Campus significantly reduced energy use since 2010, exceeding both the 2014 Behcmark Pace needed to meet 2020 Benchmark Goal, and the 2020 Benchmark Goal itself by 20% and 12% respectively.

**Figure 14: Arlington Campus Building Energy Detail**

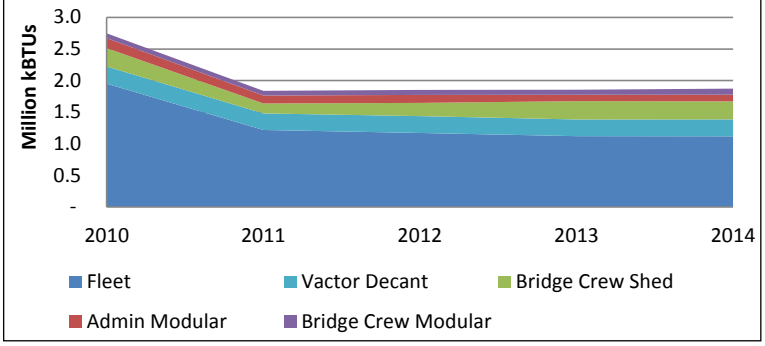
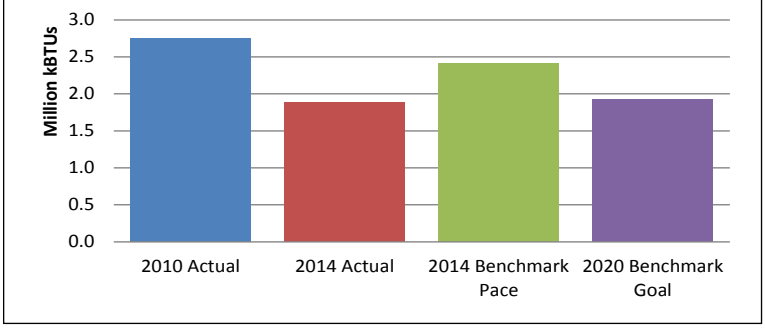



**Figure 15: Arlington Campus Energy Benchmark Performance**




*Key Facility Changes 2010-2014*

- Installation of high-efficiency natural gas radiant heating system in in the Fleet Building, with smart HVAC controls

- Energy efficient lighting upgrades

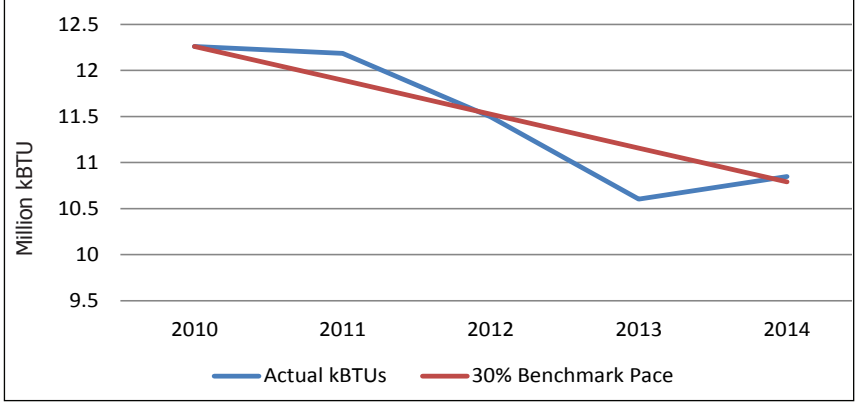
*Upcoming Facility Changes*

- HVAC scheduling improvements to reduce off-hours run-time at Arlington facilities
- Construction of materials additional storage buildings with interior and exterior lighting

**Airport Campus**

The Airport Campus is located in Mukilteo and is comprised of a large number of buildings, many of which the County owns and leases to tenants, but only a few of which the County owns and operates independently. This report focuses on the County owned and operated buildings, including: the Airport Administration building, 219 Maintenance building, Future of Flight Museum, and Fire Station. Together, these buildings comprise about 12 Million kBTU, or approximately 8% of the County's total energy consumption. The Airport achieved significant energy savings since 2010, led by impressive energy savings at the Future of Flight. Figure 16 shows how the Airport as a cluster reduced its energy consumption by 11.5% from 2010 levels, narrowly missing its 2014 Benchmark Goal by less than 1%. Energy spending in 2014 decreased by about $18,000 from 2010 levels.

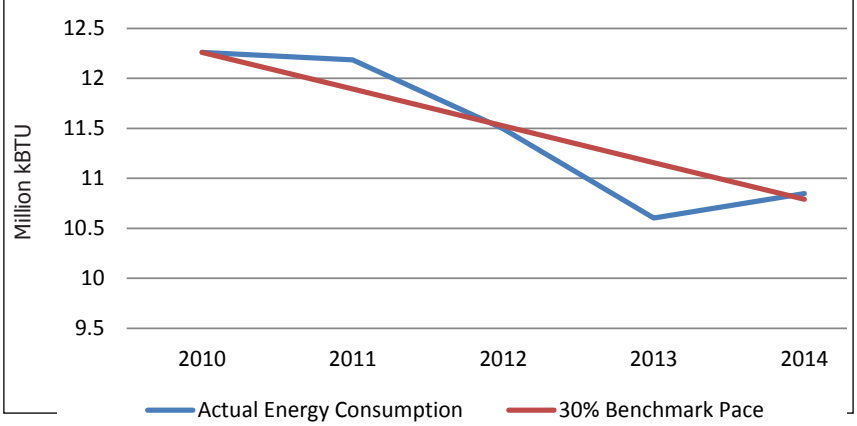
**Figure 16: Airport Campus Energy Trends**




The proportion of energy consumed by each of the four facilities in the Airport Cluster is shown in Figure 17, with the Future of Flight being the largest consumer in the cluster. Figure 17 also illustrates facility energy use trends throughout the Airport campus. The Future of Flight and Maintenance Building both reduced total consumption since 2010. The Future of Flight achieved a 16% reduction, enough energy savings to power 18 homes. The Airport's Administration building roughly doubled its energy consumption since 2010, a finding that requires additional investigation.

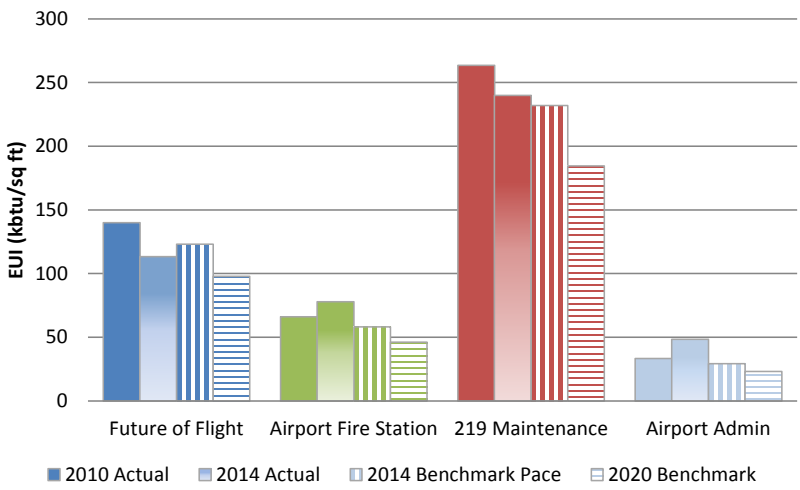
Figure 18 profiles the Airport Campus with regard to its Energy Use Intensity (EUI) expressed in kBTU per square foot. While the campus as a whole just missed its 2014 Energy Benchmark Goal, the Future of Flight is currently the only building on the Airport Campus that is on pace to meet its individual 2020 goal. The Airport Maintenance and Administration buildings stand out as needing further investigation into their high energy consumption. With an EUI of 240, the Airport Maintenance building has one of the most energy

**Figure 17: Airport Campus Building Energy Detail**



intense footprints per square foot of any building in the County building portfolio, despite the fact that its consumption decreased since 2010. The Airport Administration building has an EUI of 48.5, which is significantly less than the National Median EUI for an office building at 67.3 kBTU per square foot, but its energy consumption has risen sharply since 2010.

**Figure 18: Airport Campus Benchmark Performance**




*Key Facility Changes 2010-2014*

- Energy efficient lighting upgrades
- HVAC control enhancements at Future of Flight
- Air stratification fans installed at Future of Flight
- Small data server center installed in Airport Admin building

*Upcoming Facility Changes*

- Additional air stratification fans at Future of Flight Museum

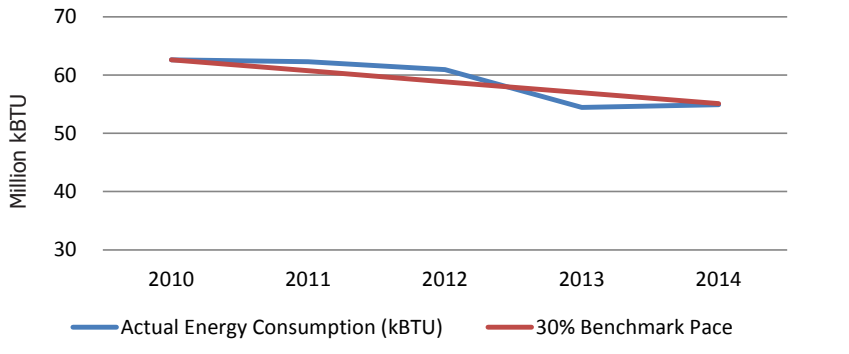
- Utility rate schedule changes at the Future of Flight are estimated to save approximately $3,000

## FUNCTIONAL BUILDING CLUSTERS

### Corrections

The County's correctional facilities cluster consumes the largest share of the County's total energy use at 39%, and contains the New Jail, the Old Jail, and Denney Juvenile Justice Center. Energy consumption at these facilities decreased significantly since 2010, which is largely attributable to energy retrofits implemented in the New and Old Jails through a federal EECBG that the County received to implement conservation projects.

**Figure 19: Corrections Energy Trends**




Corrections as a cluster reduced energy consumption by 12% from 2010 levels (Figure 19), and met its 2014 Benchmark Pace goal. Corrections energy spending decreased by about $67,000 from 2010 levels. While not addressed in this report, water consumption in both Jails is significantly reduced, due in large part to completed EECBG retrofits. More information on water conservation in County facilities, including correctional facilities can be found in the *Water Conservation Benchmark Report 2010-2013*.

The proportion of energy consumed by each of the three facilities in the Corrections Cluster is shown in Figure 20, with the New Jail being the largest energy consumer of the three.

**Figure 20: Corrections Building Energy Detail**

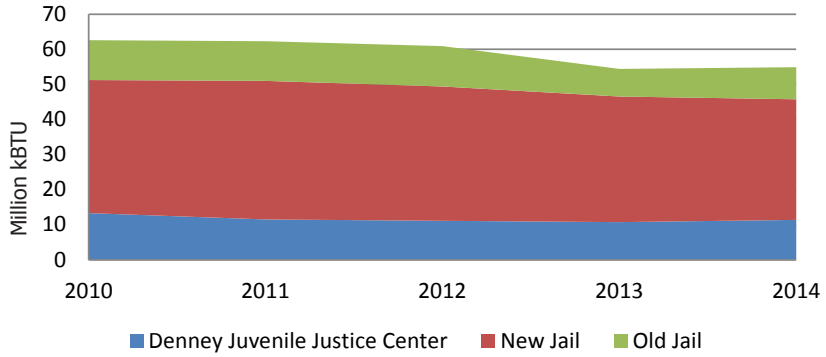
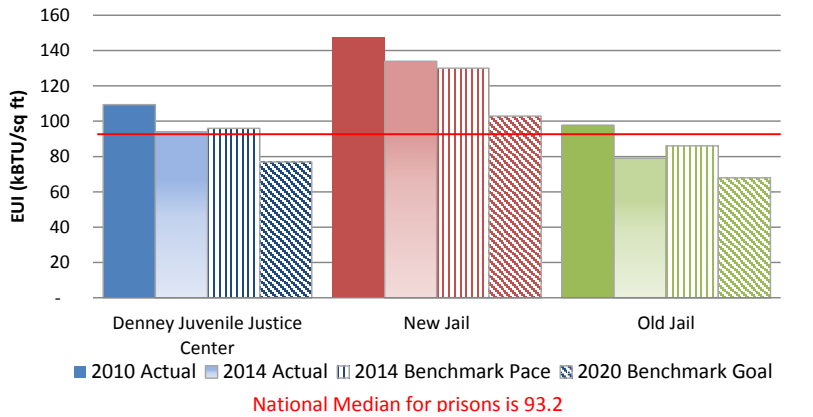



Figure 21 profiles each facility within the Corrections cluster with regard to their Energy Use Intensity (EUI), expressed in energy (kBTU) used per square foot, and is useful to compare buildings of different sizes and use types. The National Median EUI for prisons is 93.2, and all but the New Jail are under that level. Energy use in all three correctional facilities decreased since 2010, and only the New Jail is off pace to meet 2020 the 2020 Benchmark Goal.

**Figure 21: Corrections Benchmark Performance**




*Key Facility Changes 2010-2014*

- HVAC controls optimization and upgrades at New and Old Jail and Denney Juvenile Justice Center

- Lighting and lighting control upgrades at New and Old Jails
- Power factor correction capacitors at all Corrections facilities
- Boiler replacement at Denney Juvenile Justice Center
- Water heating conservation upgrades at both jails
- Laundry equipment upgrades at all facilities
- Variable frequency drive upgrades at New and Old Jails

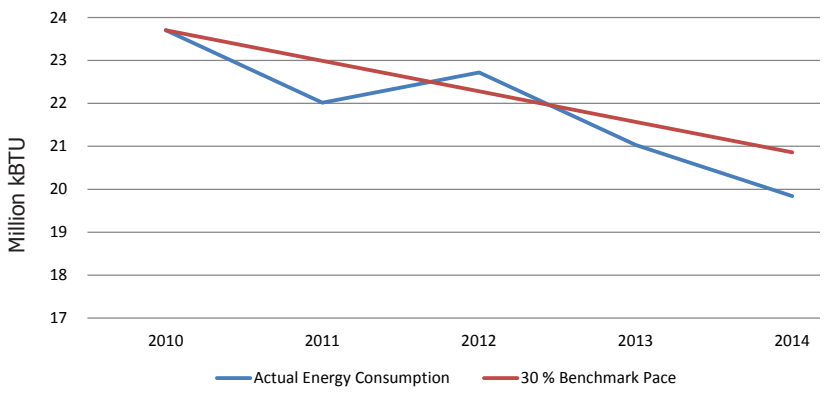
*Upcoming Correctional Facility Changes*

- Boiler replacment and sequencing optimization is planned at New and Old Jails
- Anticipated cost savings from a natural gas rate schedule change at Denney Juvenile Justice Center and the Old Jail should result in annual cost savings of $24,000

**Public Works**

Public Works as a Functional Cluster consumes the third largest share of the County's total energy (14%), and contains Cathcart Campus, Arlington Campus, two transfer stations (Paine Field and Southwest), and Sand Hill Pit. Compared to other large cluster groups, Public Works made the most progress in reducing energy consumption. Figure 22 shows that the Public Works cluster reduced energy consumption by 16% from 2010 levels, meeting its 2014 Benchmark Pace goal. Energy spending in 2014 decreased by about $45,000 from 2010 levels. Cathcart, Arlington, and the two transfer stations are reviewed in more detail in subsequent sections.

**Figure 22: Public Works Energy Trends**




The proportion of energy consumed by each of the facilities in this Cluster is shown in Figure 23, with Cathcart Campus being the largest consumer.

Figure 24 profiles each facility within the Public Works cluster with regard to its Energy Use Intensity (EUI). Energy use decreased in all Public Works buildings since 2010, and all but Cathcart Campus are currently on pace to meet the 2020 Benchmark Goal. Arlington Campus and the Southwest Transfer Station have already met their 2020 Energy Conservation goals, and Sand Hill Pit is very close to doing so as well.

**Figure 23: Public Works Building Energy Detail**

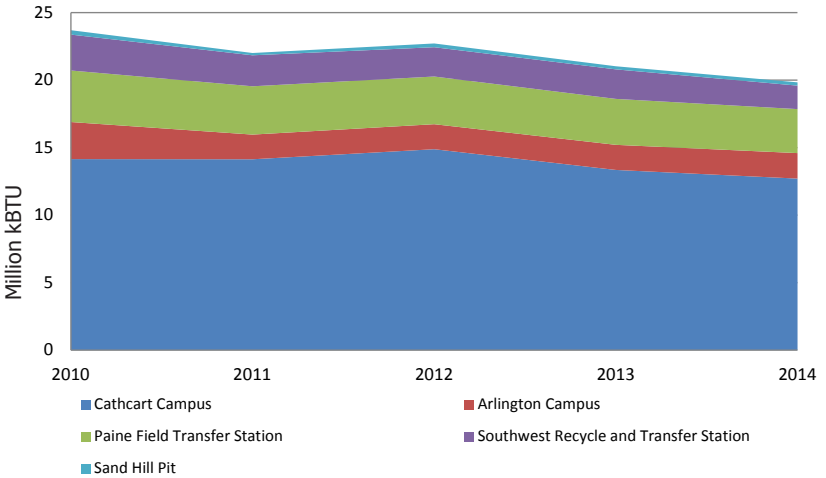
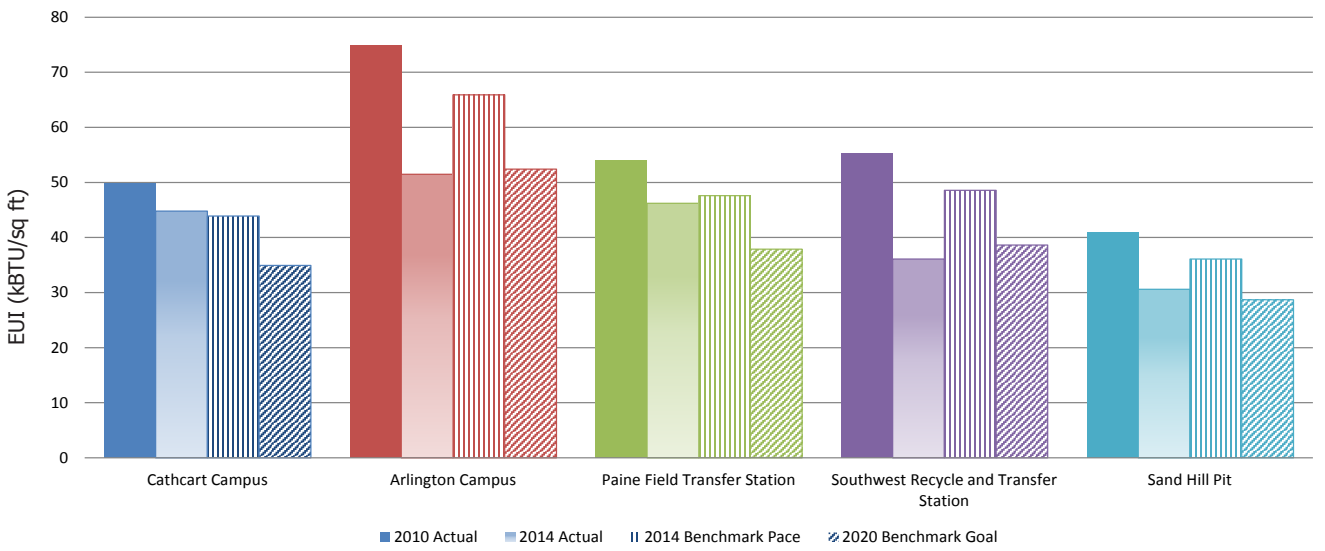


**Figure 24 Public Works Benchmark Performance**




*Key Facility Changes 2010-2014*

- HVAC control upgrades and optimization at Admin Building and Fleet Shop
- Reduced energy use of Leachate Pre-Treatment facility
- 4.7 kW solar panel array installed
- Installation of electric vehicle charging stations

*Upcoming Facility Changes*

- HVAC scheduling improvements to reduce off-hours run-time at Cathcart Campus
- Two new sand shed storage facilities will be added at Arlington Campus
- New hazardous materials storage facility will be added at Arlington Campus

**Transfer Stations**

Transfer Stations are a Functional Cluster consuming a 4% share of the County's total energy consumption, and include the Paine Field Transfer Station in Everett and the Southwest Recycling and Transfer Station (SWRTS) in Mountlake Terrace. Energy consumption in both facilities decreased significantly since 2010, and both already reached the County's 2020 Benchmark Goal. Figure 25 shows that energy consumption at both transfer stations decreased by 23% from 2010 levels, far exceeding the 2014 Benchmark Goal. Energy spending in 2014 decreased by about $20,000 from 2010 levels. The energy savings for the transfer Stations is largely due to lighting retrofits completed in 2010 and 2011 through the County's federal EECBG grant.

**Figure 25: Transfer Station Energy Trends**

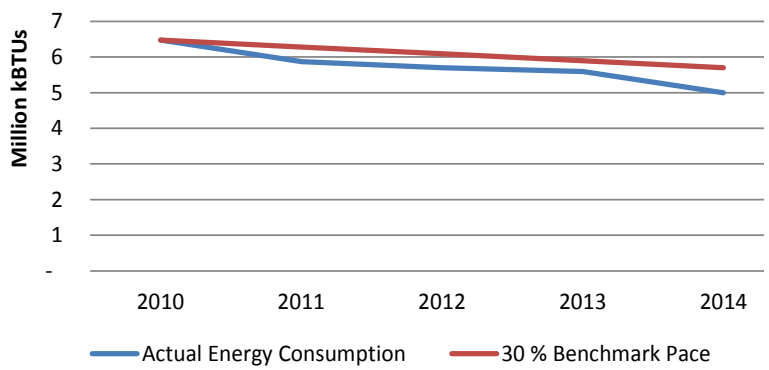
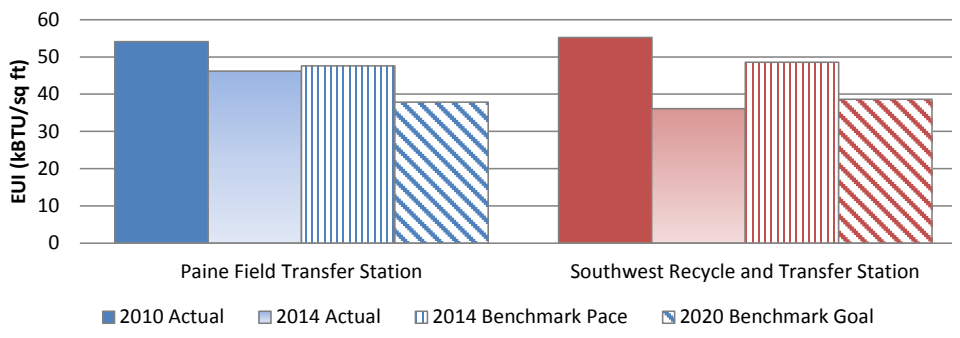



Figure 26 profiles each transfer station with regard to its Energy Use Intensity (EUI). Both facilities

have reduced their energy use since 2010, have met 2014 Benchmark Goal, and SWRTS already met its 2020 Benchmark Goal. Both transfer stations are also performing exceptionally well for their building sector. The Skagit County Transfer Station in Mt. Vernon, for example, has an EUI of 85, roughly double that of the Snohomish County facilities.

**Figure 26: Transfer Station Benchmark Performance**




*Key Facility Changes 2010-2014*

- Energy efficient lighting upgrades
- Programmable thermostats installed in some facilities

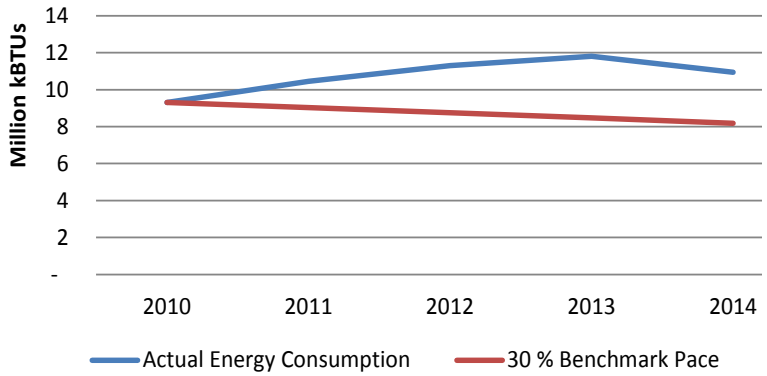
*Upcoming Facility Changes*

- Compactor motor replacement planned for Southwest Recycle and Transfer Station
- Lighting and HVAC schedule changes
- Exterior lighting efficiencies at both Transfer Stations

**Parks**

Snohomish County Parks' building portfolio ranges from large complexes like the Evergreen State Fairgrounds to natural areas that have limited energy consumptive infrastructure such as the Machias Trailhead.

**Figure 27: Parks Energy Trends**




For the purposes of this Report, the County's 20 parks with the highest energy consumption were examined (as listed by name in Figure 28), although there are a total of 59 distinct properties being tracked within Parks' building energy portfolio. Many of the remaining properties are natural areas such as trails or conservation areas, with little to no energy consumption. In all, the 20 properties listed here consume about 8% of the County's total energy use.

Of the 20 parks assessed in this Report, the Evergreen Fairgrounds is the biggest energy user, accounting for 62% of total energy use, and about 5% of the County's total energy use. Between 2010-2014, both energy consumption and energy cost increased in the Parks portfolio, driven primarily by increased energy consumption at the Fairgrounds and an expansion of Parks properties. Figure 27 shows an increase in Parks energy consumption by 17% from 2010 levels, but it is important to note the conservation improvement in 2014 over 2013 levels. Energy spending in 2014 increased by approximately $49,000 from 2010 levels.

# 04 Energy Performance

Figure 28 provides a listing of Parks properties included in this report, as well as a sense of energy consumption at the Evergreen State Fairgrounds (Fairgrounds) compared with the rest of the Parks portfolio. The Fairgrounds consumes about 65% more energy than the rest of the Parks portfolio combined. Figures 29-32 provide energy profiles for parks grouped into clusters of similar size. Because a significant amount of energy consumption takes place outside of built structures, comparisons are presented in total weather-normalized energy consumption, rather than EUI (energy use per square foot of built space).

**Figure 28: Parks Energy Consumption Distribution**

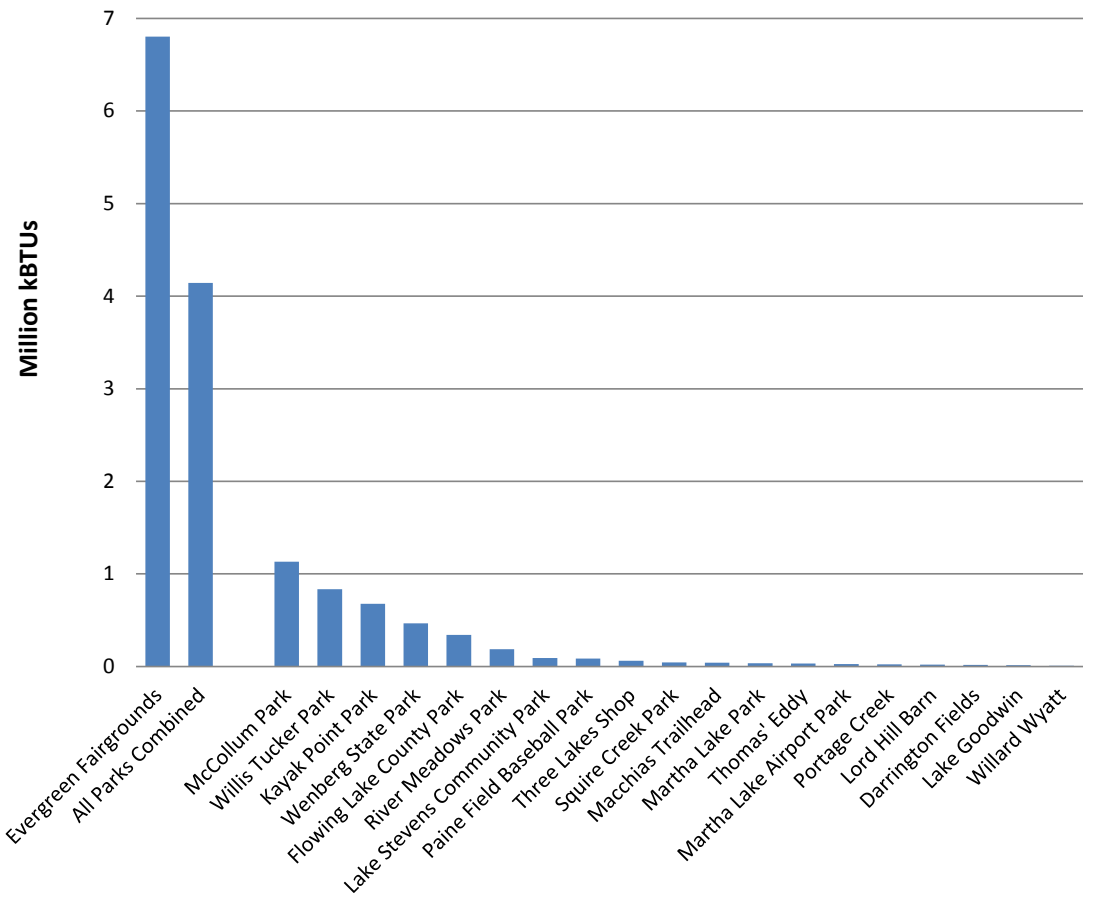
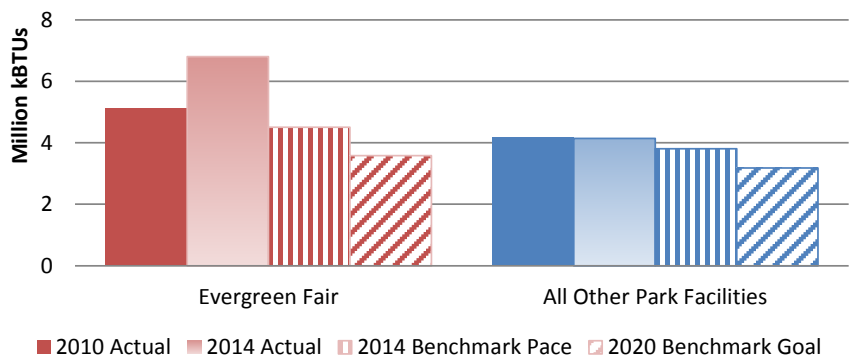



Figure 29 compares energy consumption of the Fairgrounds with the remaining 19 Park buildings in the Portfolio. While energy consumption at the Fairgrounds increased sharply, energy consumption in the remainder of the Parks portfolio stayed relatively consistent. Neither group is currently on pace to meet its individual 2020 energy Benchmark Goal. One of the drivers of increased energy consumption at the Fairgrounds is the addition of several year-round activities hosted at the Fairgrounds. For example, the Evergreen Speedway began operating under new ownership and at a much larger capacity in the spring of 2011, and visitor attendance to the Fairgrounds for various events throughout the year continues to increase on an annual basis. The new Gary Weikel Multi-Purpose Building, completed in 2011, is a large building utilized for events year-round.

**Figure 29: Parks Benchmark Performance**



# 04 Energy Performance

Figure 30 profiles 'Large Parks' with respect to total energy consumption within the 20 profiled in this report. Of these Parks, only McCollum Park and Flowing Lake County Park are on pace to meet their energy Benchmark Goal. Yet, it is important to note that 2014 energy consumption decreased from 2013 levels in all of the large parks with the exception of Kayak Point Park and Wenberg State Park, which generally stayed flat. While a comparison between 2014 and 2013 consumption for these two Parks is not shown, the trend reversal at these two facilities likely demonstrates that recent energy conservation efforts are making an impact.

**Figure 30: Large Parks Benchmark Performance**

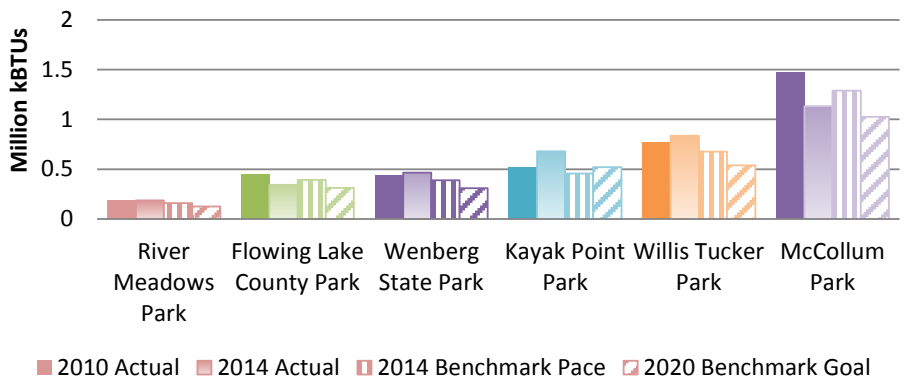



Figure 31 profiles 'Medium Parks' with respect to total energy consumption. The smallest of Parks included in this group, Martha Lake Park, consumes 35,000 kBTUs per year, which is roughly 1/3 as much energy as an average American household (92,000 kBTU). Of these Medium Parks, only Lake Stevens Community Park is on pace to meet its energy Benchmark Goal (the baseline year was set at 2011 due to the Park's continued development in 2010).

**Figure 31: Medium Parks Benchmark Performance**

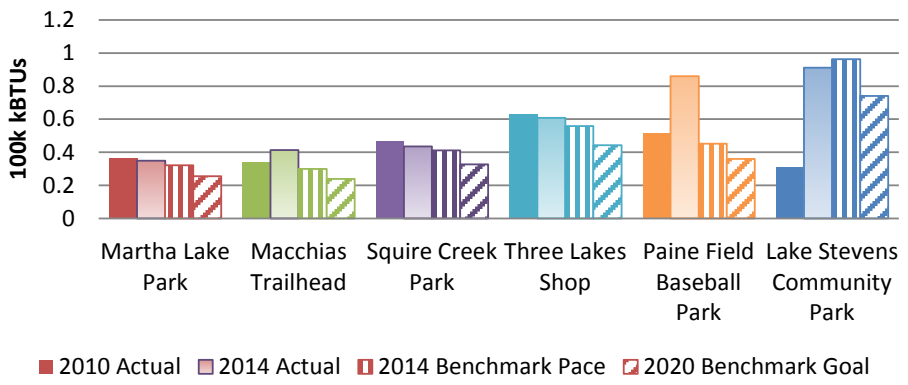
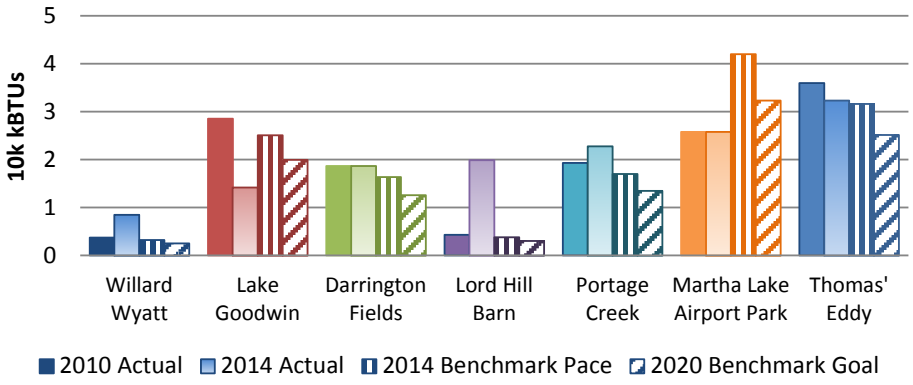



Figure 32 profiles the least energy consuming Parks, or 'Small Parks'. The smallest Park included in this group, Willard Wyatt Park, consumes 8,513 kBTU per year, which is roughly equivalent to leaving fifty 100-watt light bulbs on for 20 days. Of these Parks only Thomas' Eddy, Lake Goodwin and Martha Lake Airport Park are on pace to meet the energy Benchmark Goal (the baseline year for Martha Lake Airport Park was set at 2011

**Figure 32: Small Parks Benchmark Performance**



due to the Park's continued development in 2010).

*Key Facility Changes 2010-2014*

- Lighting upgrades at the Fairgrounds, Kayak Point Park, Wenberg, and River Meadows Parks
- Increased RV lot use and consumption at campgrounds at the Fairgrounds, River Meadows and Kayak Point Parks
- Increased Fairgrounds usage for year-round activities

*Upcoming Facility Changes*

- LED lighting retrofits at Martha Lake Airport Park and Willis Tucker Park
- Increased RV lot use and consumption at campgrounds at the Fairgrounds, River Meadows, and Kayak Point Park
- High-efficiency hand dryers at Fairgrounds
- Increased controls of yurt electric resistance heating at Kayak Point Park and River Meadows

**District Courts**

The District Courts cluster is comprised of the following three courts: South District Court in Lynnwood, Cascade Court in Arlington, and Evergreen Court in Monroe. The Superior Court, located in Everett, cannot be independently assessed because it shares electrical meters with County Campus buildings. The District Courts cluster collectively consumes approximately 2% of the County's total energy consumption. These three district courts had one of the largest proportional energy reductions of any facilities group listed in this report. Figure 33 shows a 23% reduction in District Court energy consumption from 2010 levels, exceeding its 2014 Benchmark Pace by about 11%. Energy spending in 2014 has decreased by about $9,000 compared to 2010 levels.

**Figure 33: District Courts Energy Trends**

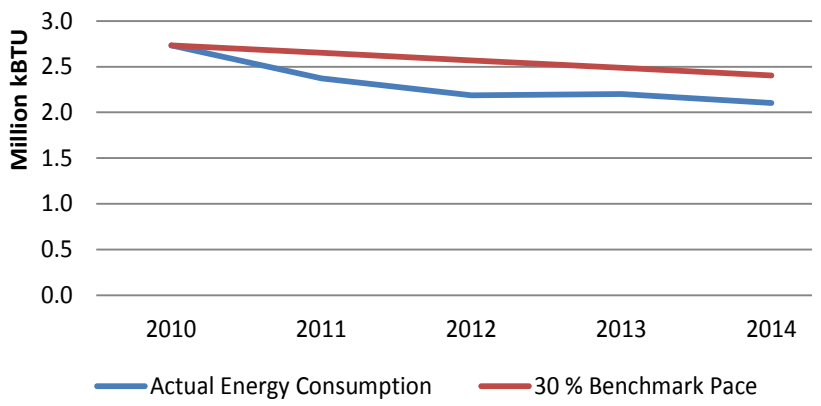



Figure 34 illustrates energy use trends by facility within the District Courts cluster. With the exception of Cascade Court, energy consumption in the other two Courts decreased since 2010. South District Court had the largest energy reduction, saving 35% over 2010 levels, which is enough energy to power seven homes.

**Figure 34: District Courts Building Energy Detail**

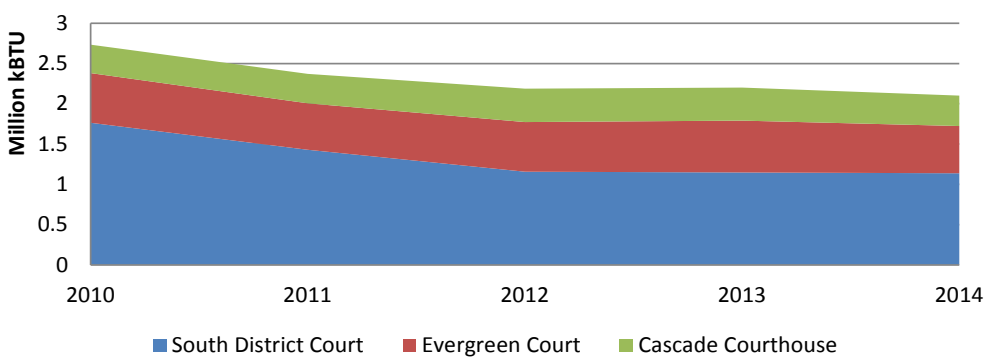
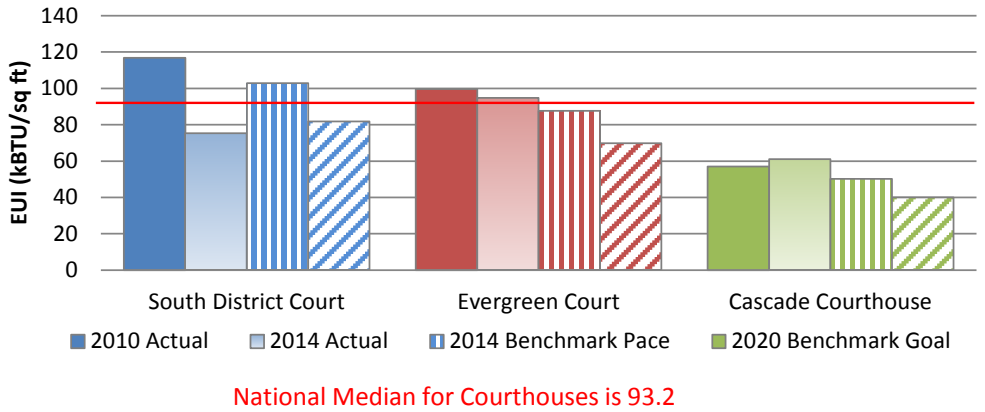


Figure 34 also illustrates that South District Court is the largest energy consumer of the three. Figure 35 shows the Energy Use Intensity (EUI), expressed as kBTU per square foot, for each district court. South District Court reduced its energy use by 35% since 2010, and exceeded both the 2014 Benchmark Pace needed to meet 2020 Benchmark Goal, and the 2020 Benchmark Goal itself. While energy consumption at Evergreen Court decreased by 5%, it was not enough of a reduction to keep pace with the 2020 Benchmark Goal. Energy consumption in Cascade Court actually increased by 7% since 2010.

**Figure 35: District Courts Benchmark Performance**




The National Median EUI (expressed in kBTU per square foot) for Courthouses is 93.2, and each Court except Evergreen is currently using less energy than the National Median. At Evergreen Court's current average rate of energy reduction, approximately 1.25%/year, it is anticipated to meet and potentially surpass the National Median for Courthouses in 2015.

*Key Facility Changes 2010-2014*

- Rooftop HVAC Units replaced at South District Court
- HVAC controls upgrades and optimization at South District Court, Cascade Court, Evergreen Court

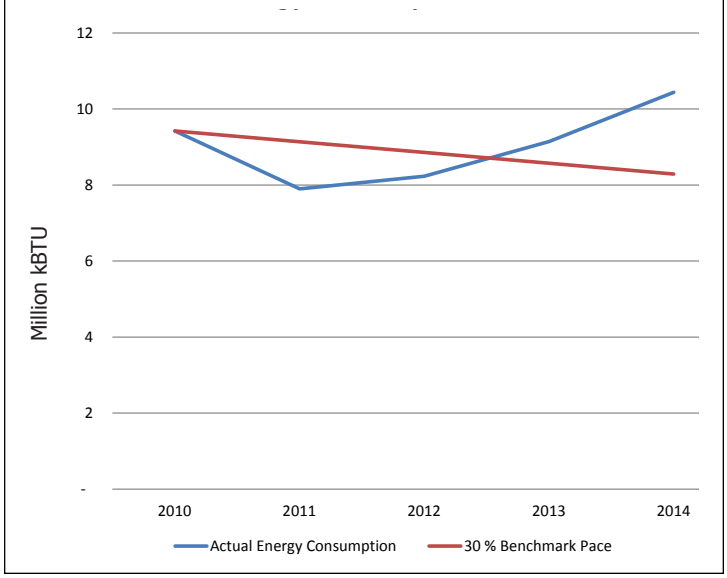
*Upcoming Facility Changes*

- HVAC scheduling improvements to reduce off-hours run-time at Cascade Court

**Fleet**

Fleet is a Functional Cluster of four buildings dedicated to vehicle maintenance and repair, including the McDougall facility in Everett, the Cathcart facility in Snohomish, the Wash Building in Snohomish, and the Arlington facility in Arlington. The Fleet cluster collectively comprises about 7% of the County's total energy consumption, and has one of the largest proportional energy increases of any cluster listed in this report. Figure 36 shows that the Fleet cluster increased energy consumption by 10% from 2010 levels, exceeding 2014 energy Benchmark Pace by about 21%. In 2011 and 2012, the Fleet cluster was on pace to outperform the 2020 Benchmark Goal. Fleet energy spending

**Figure 36: Fleet Energy Trends**



increased by about $16,000 from 2010 levels.

The significant increase in Fleet energy use between 2012 and 2014 is largely attributable to an operational issue at the McDougall facility. In late 2014 the HVAC system was found to be operating 24 hours a day, seven days a week, even when the building was unoccupied. Adjustments were made to McDougall's HVAC control settings that should save significant energy and reverse the upward trend in 2015.

**Figure 37: Fleet Building Energy Detail**

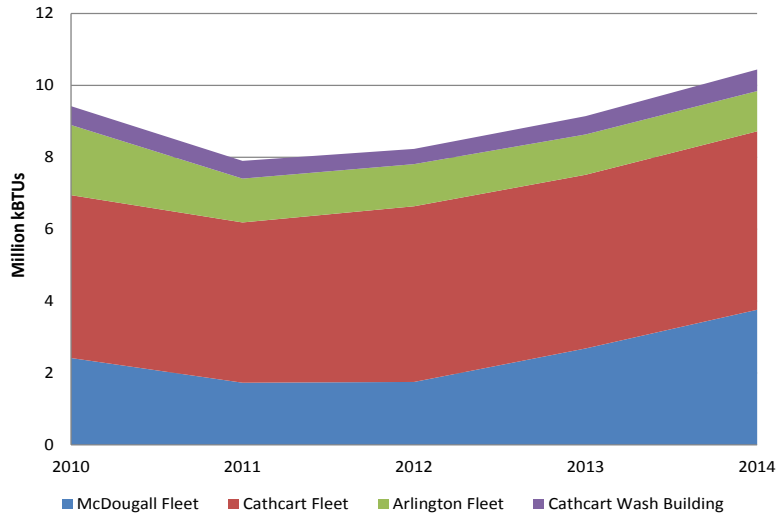



Figure 37 illustrates facility energy use trends within the Fleet cluster. All Fleet buildings except Arlington have experienced energy increases since 2010. As described above, the McDougall Fleet building had the largest rise in energy consumption of all the facilities, increasing by 55% (1.3 million kBTU) over 2010 levels, which is enough energy to power 15 homes.

**Figure 38: Fleet Benchmark Performance**

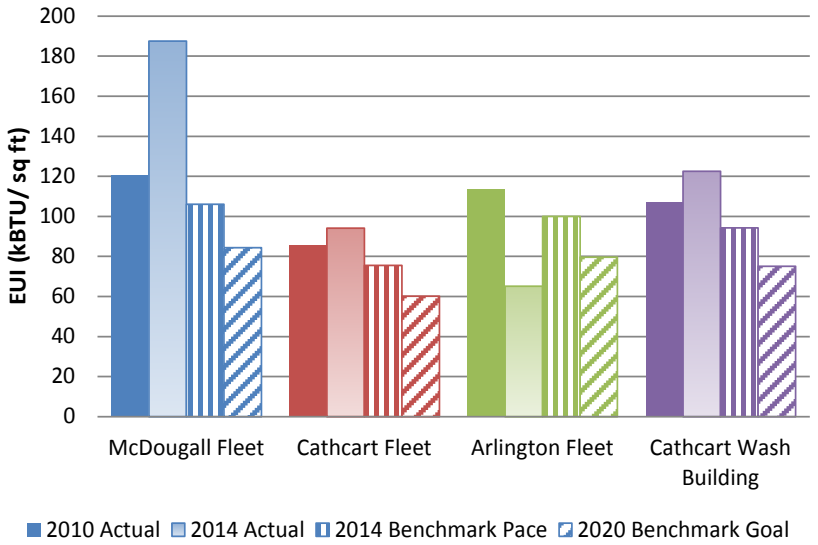



Figure 38 shows the Energy Use Intensity (EUI) of each building in the Fleet cluster. The Arlington facility significantly reduced its energy use since 2010, exceeding both the 2014 conservation pace needed to meet 2020 Benchmark Goal, and the 2020 Benchmark Goal itself. All other Fleet buildings increased energy consumption beyond 2010 levels, and well beyond the 2014 Benchmark Pace levels.

*Key Facility Changes 2010-2014*

- Energy efficient lighting upgrades
- HVAC controls and optimization at Cathcart Fleet
- High efficiency natural gas radiant heating upgrade with smart controls at Arlington Fleet

*Upcoming Facility Changes*

- HVAC scheduling improvements at McDougall, Cathcart, and Arlington Fleet
- New materials storage structure with mechanical ventilation added to Arlington Fleet in 2015
- Cathcart Wash Building water leak fix in 2015

# 04 Energy Performance

## Office Buildings

Snohomish County office space consumes 25% of the County's total energy use. For the purposes of this report, office space in this assessment includes the County Campus buildings, the Cathcart Administration building, the Airport Administration buildings, the Department of Emergency Management (DEM) building, and the Arlington Administration modular building. Offices have made tremendous progress reducing energy consumption, but have fallen short of the 2014 conservation Benchmark Pace to meet the 2020 Benchmark Goal.

Figure 39 shows a 7% energy reduction in Office space in 2014 from 2010 levels, yet Office space fell short of achieving the 2014 Benchmark Goal by 5%. Energy spending in 2014 for Office space decreased by about $49,000 from 2010 levels.

Figure 40 shows that the County Campus is, by far, the largest energy user of all the County office buildings.

Figure 41 profiles each office with regard to its Energy Use Intensity (EUI). All facilities except the Department of Emergency Management and Airport Administration building have reduced energy use since 2010. Only the Arlington Administration modular building has met its 2014 Benchmark Pace. The County Campus, DEM, Airport Admin, and Arlington Admin Modular are all currently outperforming the National Median EUI (67.3 kBTU/square foot) for an office building.

*Key Facility Changes 2010-2014*

- Chiller upgrades at Admin West and Courthouse
- HVAC Controls upgrades and optimization (Admin East, Admin West, Mission, Cathcart Admin and Courthouse)
- 16.4 kW solar array installed on roof of Admin West
- Lighting and lighting control upgrades at Admin West, Admin East, Parking Garage, Plaza Cafe and the Mission Building

**Figure 39: Office Energy Trends**

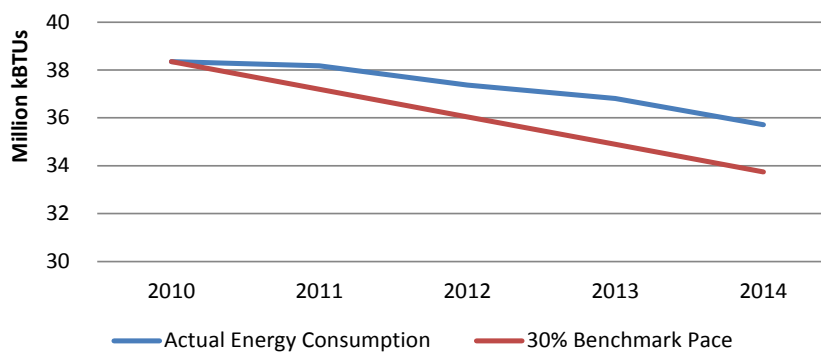



**Figure 40: Office Energy Detail**

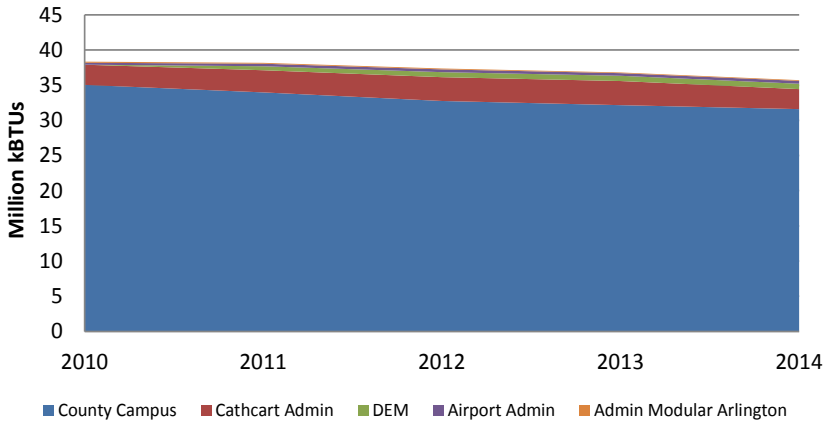
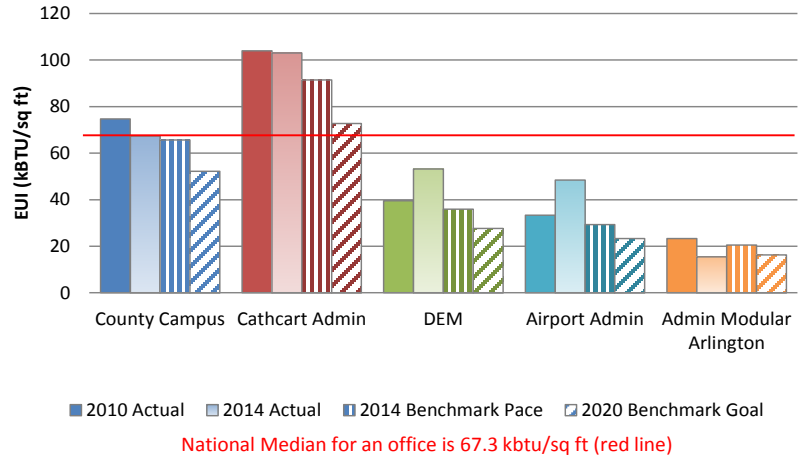



**Figure 41: Office Benchmark Performance**



- Occupancy changes

*Upcoming Facility Changes*

- Rate Schedule changes for natural gas for the Courthouse and Admin West should result in annual energy cost savings of approximately $12,000 from natural gas bills beginning in 2015
- HVAC scheduling improvements to reduce off-hours run-time at Cathcart Admin and Arlington Modular facilities

## Miscellaneous Buildings

Miscellaneous Buildings represents the remaining facilities within the County portfolio that do not fit in either the Campus (geographic) or Functional Clusters. The Miscellaneous Facilities included in this report are:Records Storage, the Multi-Service Center, and the Medical Examiner's Office (all located in Everett), a satellite Sheriff's Office in Sultan, Sheriff Gun Range and Impound Facility in Snohomish, and a Sheriff Marine Unit in Monroe. As a cluster, these facilities comprise about 7% of the County's total energy consumption. Since 2010, this cluster's energy consumption remained relatively flat, while energy spending increased.

**Figure 42: Miscellaneous Energy Trends**

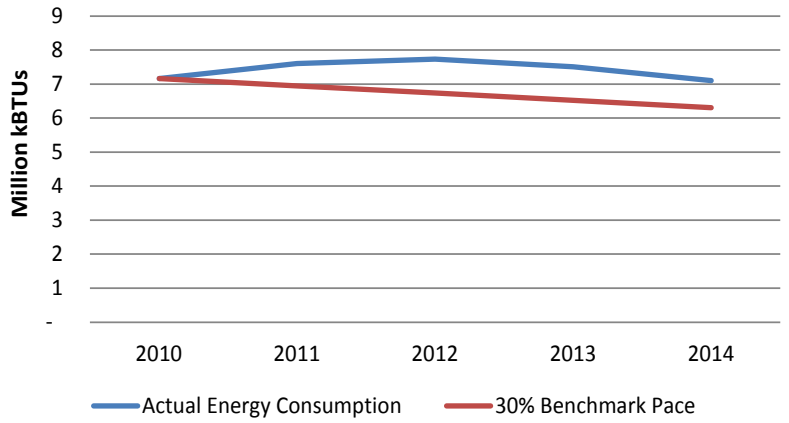



Figure 42 shows a 1% decrease in energy consumption from 2010 levels, exceeding the 2014 Benchmark Pace by about 11%. Energy spending in 2014 increased by about $9,000 from 2010 levels.

Figure 43 illustrates facility energy use trends within the Miscellaneous cluster. All facilities except the Sheriff's Gun Range had a decrease in energy since 2010; the Sheriff's Gun Range roughly doubled energy consumption in that time. The Medical Examiner's Office led the other buildings in energy conservation, decreasing consumption by 13% or 338,000 kBTUs over 2010 levels, which is enough energy to power 3 homes.

**Figure 43: Miscellaneous Building Energy Detail**

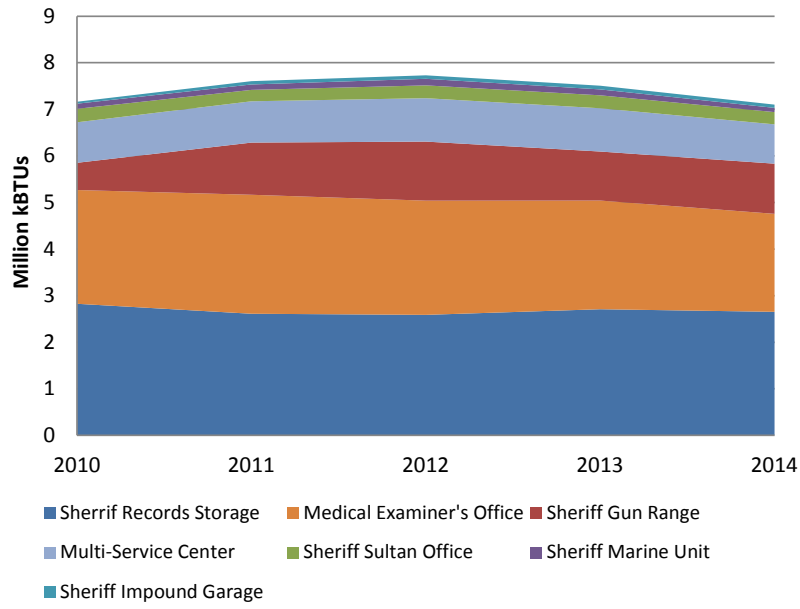


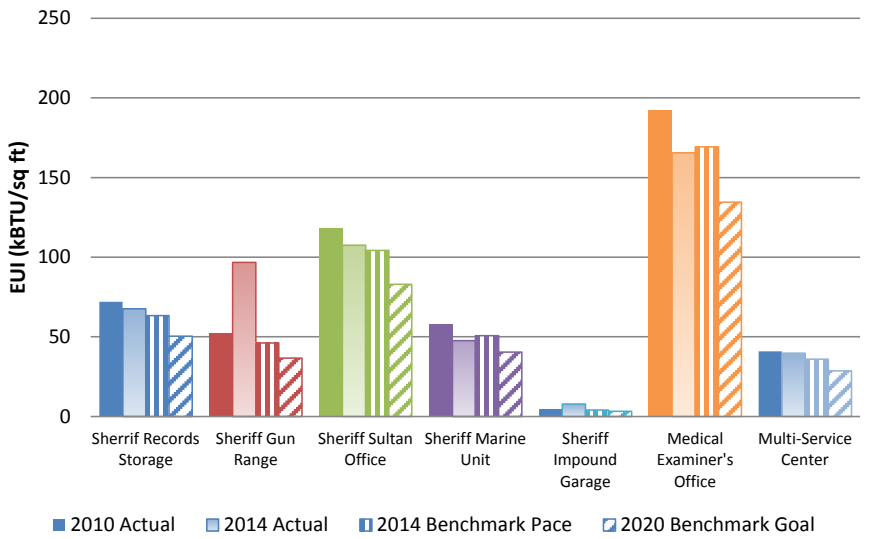

Figure 44 shows the EUI of each building in this cluster. The Sheriff Marine Unit and the Medical Examiner's Office reduced energy consumption to at least the 2014 Benchmark Pace. Consumption in all other facilities either increased or did not conserve enough

energy to keep up with the Benchmark Pace needed to meet the 20201 Benchmark Goal.

*Key Facility Changes 2010-2014*

- Lighting upgrades
- Sheriff Gun Range retrofitted approximately 120 incandescent lamps with LEDs
- HVAC controls upgraded and optimized at Medical Examiner's Office and Multi-Service Center
- Motor control upgraded to variable speed drive at Multi-Service Center

**Figure 44: Miscellaneous Benchmark Performance**




*Upcoming Facility Changes*

- HVAC controls optimized to occupancy at the Sheriff Gun Range, and Sheriff Records Storage
- Increased demand for training time by external agencies will increase operating hours of gun range.

# 05 Findings & Next Steps

## Findings

With energy consumption down 9% since 2010, it is clear that the County's efforts to conserve energy over the last four years are paying off. The capital investments in energy efficiency made through the federal Energy Efficiency and Conservation Block Grant played a key role in helping reduce energy use in government buildings. At the same time, Snohomish County is not conserving energy at the rate needed to meet the SOAP conservation goal of 30% reduction from 2010 levels by 2020. Currently, the County is 3% off of the pace needed to reach this goal. Investing in future capital improvement projects will be a key component to achieve the 30% SOAP reduction goal, along with ongoing monitoring and tracking of consumption throughout the portfolio.

Energy efficiency and conservation are an effective way to reduce utility costs and avoid future cost increases, especially given the historic trend of rising electricity rates from Snohomish County PUD. As stated earlier in this report, 2014 energy consumption levels are estimated to cost $225,000 more by 2020 through average utility escalation rates alone. Alternatively, if 2020 energy conservation goals are met the County is estimated to save approximately $345,000 in energy costs.

Energy conservation outcomes have not been consistent across the County building portfolio. While the average rate of energy conservation was 9% across the County's building portfolio, actual energy consumption varied widely among building types. Reccomendations to help achieve the County's 30% reduction goal are outlined below in Next Steps.

## Next Steps

The Office of Energy and Sustainability will continue tracking and reporting County energy consumption, spending, and progress towards energy conservation goals. As described in the Introduction, OES uses a variety of tools to track energy consumption trends over time, primarily through benchmarking, as well as energy interval and real-time data (when available). These continue to be effective energy management tools, and OES encourages Departments that manage facilities to use these tools as well.

Recommendations to help the County achieve its 30% energy reduction goal by 2020 include:

1. **Focus energy conservation efforts on the biggest energy consumers:** More than half of the County's energy consumption occurs at the County Campus and three primary correctional facilities. The large scale of energy use at these facilities provides significant opportunity for conservation projects, above and beyond what has already been accomplished. Focusing future conservation efforts on the Jails, County Campus and the Evergreen State Fairgrounds will address approximately 64% of total County energy use.
2. **Develop a capital investment strategy for building energy efficiency:** The data presented in this report demonstrates that additional investment in capital retrofit projects is neccesary for the County to continue making large gains in energy conservation. Despite the significant progress made over the last four years with respect to energy conservation, there is still substantial opportunity to replace old and inefficient building equipment with more energy efficient models. OES will continue to work across departments to help identify and prioritize energy conservation projects and potential financing strategies for project implementation.
3. **Continue regular monitoring for building schedule optimization:** Regular review and optimization of building system controls to match occupancy is an effective energy saving strategy that requires little to no capital investment. Monitoring HVAC, lighting, water heating, and major plugloads helps ensure that energy is only consumed when needed.

4. **Identify candidates for building commissioning:** HVAC retro-commissioning at the Jails and County Campus could result in a strong return-on-investment with relatively low capital costs. Snohomish County should consider participating in the established commissioning incentive programs available through local utilities, as these programs help to reduce the upfront costs of building commissioning. Starting in 2016, OES will work across departments to identify good candidates for retro-commissioning and identify capital investment strategies to finance the upfront cost of commissioning.
5. **Continue annual utility rate reviews:** Utility rates can change frequently, and these changes can go unnoticed without consistent review to ensure energy costs are optimized. In 2014 alone, the County saved approximately $80,000 from utility rate schedule changes identified by OES. Regular utilty bill review is a no-cost financial management tool to help save on energy costs.
6. **Focus energy conservation efforts on facilities with outsized energy use for their size or building class:** Snohomish County has a number of buildings with outsized energy use for their size, including: the Medical Examiner's Office, McDougall Fleet, Evergreen Court, Airport Maintenance Building, and the Sultan Sheriff's Office. Buildings with outsized energy use for their building class include: New Jail, Airport Administration Building, and Sultan Sheriff's Office. OES already conducts regular building walk-thrus to identify conservation opportunities. Building walk-throughs can be an effective tool to identify causes of out-sized energy use. A recent walk-through of one of these buildings identified HVAC scheduling issues which, once corrected, resulted in an approximate 50% reduction in energy use.
7. **Develop energy efficiency policy standards for buildings and equipment:** Developing standards and policies for new facilities or equipment helps ensure that the County provides public services in a cost-effective and enviornmentally sound manner. Starting in 2016, in accordance with the Goal 1 of the SOAP, OES will lead an inter-departmental effort to develop green building standards for government buildings. Green building standards can be an effective policy tool to incorporate lower operating costs for energy, water, and waste into the design, construction, and operation over the life of a building.
8. **Continue to provide training for County employees on the Environmental Purchasing and Product Utilization Policy.** Snohomish County's Environmental Purchasing and Product Utilization Policy (EPP) provides guidelines to help employees incoporate environmental impacts into their purchasing decisions. Building systems, HVAC equipment, water heating equipment, lighting equipment, and major plugload contributors (e.g. computers, copiers and data centers) all have substantial impacts on County energy use. Ensuring that purchased products meet EPP guidelines and are as energy-efficient as possible plays an important role in managing energy consumption.

# 06 Appendix A

**Table 2. Summary of Energy Consumption and Costs by Building**

| Building Name | Weather Normalized Site Energy Use (kBtu) | Weather Normalized Site EUI (kBtu/ft²) | Energy Cost ($) | Energy Cost Intensity ($/ft²) |
|---|---|---|---|---|
| New Jail | 34,373,413 | 133.9 | $ 439,496.97 | 1.71 |
| County Campus | 31,599,759 | 67.4 | $ 510,579.37 | 1.09 |
| Cathcart Campus | 12,712,751 | 44.8 | $ 223,551.39 | 0.79 |
| Denney Juvenile Justice Center | 11,383,163 | 93.5 | $ 165,982.81 | 1.36 |
| Old Jail | 9,148,038 | 78.7 | $ 166,598.53 | 1.43 |
| Future of Flight Museum | 8,619,598 | 113 | $ 111,787.49 | 1.47 |
| Evergreen Fairgrounds | 6,804,223 | N/A | $ 139,041.13 | N/A |
| McDougall Fleet | 3,758,765 | 187.4 | $ 52,549.36 | 2.62 |
| Paine Field Transfer Station | 3,259,030 | 46.2 | $ 67,629.19 | 0.96 |
| Records Storage Building | 2,652,717 | 67.6 | $ 46,794.92 | 1.19 |
| Medical Examiner's Office | 2,103,845 | 165.6 | $ 42,342.28 | 3.33 |
| Arlington Campus | 1,888,298 | 51.5 | $ 32,456.40 | 0.89 |
| Southwest Recycle and Transfer Station | 1,737,892 | 36.1 | $ 34,782.71 | 0.72 |
| South District Court | 1,137,247 | 75.3 | $ 26,875.11 | 1.78 |
| McCollum Park | 1,132,641 | N/A | $ 16,452.22 | N/A |
| Multi-Service Center | 844,169 | 39.7 | $ 19,930.65 | 0.94 |
| Willis Tucker Park | 835,036 | N/A | $ 12,804.23 | N/A |
| DEM/EOC | 762,260 | 53.2 | $ 18,407.57 | 1.28 |
| Kayak Point Park | 678,563 | N/A | $ 16,665.74 | N/A |
| Evergreen Court | 586,357 | 94.7 | $ 9,616.57 | 1.55 |
| Wenberg State Park | 465,427 | N/A | $ 11,616.87 | N/A |
| Cascade Courthouse | 377,650 | 61 | $ 9,141.74 | 1.48 |
| Flowing Lake County Park | 341,885 | N/A | $ 8,530.87 | N/A |
| Sultan Office | 262,919 | 107.5 | $ 5,140.86 | 2.1 |
| Sand Hill Pit | 242,918 | N/A | $ 4,134.17 | N/A |
| River Meadows Park | 188,136 | N/A | $ 4,621.00 | N/A |
| Lake Stevens Community Park | 91,108 | N/A | $ 2,185.68 | N/A |
| Paine Field Baseball Park | 85,948 | N/A | $ 2,085.26 | N/A |
| Three Lakes Shop | 60,753 | N/A | $ 1,482.39 | N/A |
| Squire Creek Park | 43,564 | N/A | $ 1,072.43 | N/A |
| Macchias Trailhead | 41,385 | N/A | $ 1,003.56 | N/A |
| Martha Lake Park | 35,006 | N/A | $ 831.20 | N/A |
| Martha Lake Airport Park | 25,770 | N/A | $ 614.58 | N/A |
| Sultan Recycling Center | 24,127 | N/A | $ 581.25 | N/A |
| Portage Creek | 22,760 | N/A | $ 557.39 | N/A |
| Lord Hill Barn | 19,906 | N/A | $ 536.62 | N/A |
| Darrington Fields | 18,660 | N/A | $ 452.37 | N/A |
| Lake Goodwin | 14,181 | N/A | $ 351.99 | N/A |
| Willard Wyatt Park | 8,513 | N/A | $ 304.17 | N/A |
| *Contextual Reference: An average 2,000 sq ft home consumes about 90,000 kBTU/yr* | | | | |