

# **Streamlining Utility Billing Analysis and Reporting**

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## Abstract

*The University of Texas at San Antonio's Office of Business Affairs submits its Utility Billing Analysis and Reporting functions for consideration for SACUBO's 2016 "Best Practices." Continuous improvement of these processes have led us to use various modern reporting mechanisms and to restructure & centralize accounting functions. These tasks were designed in an effort to share the University's utility performance to internal departments and design consultants to assist with campus growth considerations. These functions result in monthly utility reports composed of automated billing reports, graphs & charts, and detailed narratives. These fully auditable reports detail and summarize 55 utility vendor accounts by campus, funding group, and commodity while demonstrating transparency, celebrating conservation achievements, and identifying energy & water saving opportunities.*

## Introduction of Organization

The University of Texas at San Antonio's Office of Business Affairs is the primary beneficiary of this Best Practice. The Facilities Engineering and Project Management Utility team is responsible for analyzing and processing outside utility vendor bills and charging internal departments for their consumption. The Utility Team is also tasked with educating the University on the monetary and environmental benefits of energy and water conservation.

## Statement of the Problem/Initiative

Due to a recent accounting software change and rapid & significant expansion of the University, the Utility Team adopted the accounting function of the billing process as well as the construction of utility reports to internal departments, also

referred to as customers. This provided an opportunity to streamline tasks in order to produce reliable accounting data, expedite billing processes, and enhance utility reports. The complexity involved in operating the University demanded a process that provided an accurate portrayal of the utility performance in order to aid in decision making, measure past initiatives, and identify future investments.

## Design

UTSA Facilities' Utility Team has streamlined and modernized its utility billing & analysis operations by hiring a Utility Analyst and enrollment in e-billing, which reduced payment time to vendors by 10 days. 100% of the utility billing & analysis is paperless, expediting communication with outside vendors and internal customers.

The Utility Team also created an electronic system to maintain files, process bills, create & distribute reports to customers, and communicate electronically with all parties involved. Auditable Microsoft Excel data entry systems were designed to facilitate analysis, increase auditability, and reduce reporting time. The billings are entered into automated Excel workbooks to analyze & validate billing accuracy and internal & external meter reading consumptions, thereby generating reliable sub bills. The team processes the sub bills resulting in expedited accounting reports and minimization of data entry errors & corrections. A reconciliation is done at month's end to ensure accuracy.

These practices have allowed for automated monthly reports to be created and further customized to suit each customer's needs (Figure 1).

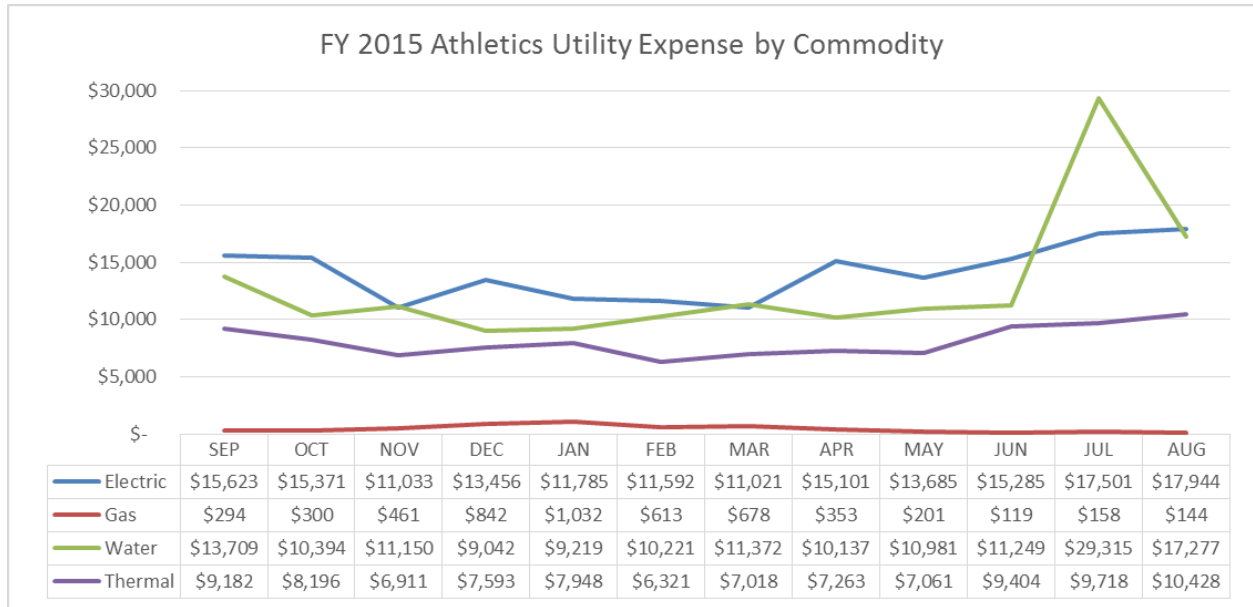


Figure 1. UTSA Athletics Monthly Utility Cost Trend

The monthly reports provide a cost & consumption trend analysis and interpretation, comparing year to year and month to month through percentage & monetary fluctuations. The monthly reports discuss the variations and communicates any findings for significant irregularities (Table 1).

**Electricity:** Overall Athletics electric consumption increased by 1% and \$216.26 compared to August 2014, and decreased 2% from last month equal to \$443.07. Park West represents 19% of the total electricity consumption with \$4,304.42. Electricity for Athletics is responsible for 39% of the total Utility Cost for August 2015.

**Natural Gas:** Overall NG consumption decreased when compared to August 2014 by 22% and \$72.41 due to a new credit from CPS enacted June 2015. This month's credit was \$72.42 and \$2.39 for PW. From July to August consumption decreased by 6%; resulting in \$13.75 less than last month. Park West represents 3% of the total NG cost. Due to warmer weather the demand for natural gas will fluctuate and the demand for electricity increased. NG represents .3155% of the total Utility Cost for August 2015. These amounts include the CPS Agreement discount and therefore, do not match the bills. The credit was allocated via journal upload.

**Water:** Total gallons for August 2015 are 29% lower than August 2014, a decrease of \$7,968.79. Compared to last month, consumption decreased by 39% and \$12,038.41. Park West represents 80% of the total Athletics consumption and cost. Water expense represents 38% of total Utility Costs for August 2015.

**Chilled Water / Steam:**  
Thermal energy cost increased from last month by \$710.73 and increased when compared to August 2014 by \$413.40. Thermal costs represent 23% of the total Utility Cost, as the weather warms the buildings will become more dependent on thermal usage to cool buildings.

**Park West:** Domestic water consumption decreased from last month by 51% and \$3,629.28. Compared to August 2014, water consumption increased by 792% and \$2,906.97, occupancy levels at the trailers last year affect this consumption comparison. Domestic water costs represents 21% of total Park West water costs and 25% of total Park West water consumption.

Irrigation water decreased from last month by 41% and \$8,498.11. Irrigation water consumption decreased from last year's August by 50% and \$11,052.04. This is due to fluctuations in the watering schedule. Irrigation consumption represents 45% of the total Park West water consumption and 79% of the total Park West water costs.

Total water consumption decreased by 44% and \$18,044.83 from last month and decreased by 34% and \$3,982.32 from August 2014. Water costs represents 79% of Park West's total Utility Costs.

**Annual Notes:**  
Total Athletics Utility Cost for FY2015 is 4.51% lower than FY2014 and \$20,099.17 less. The most expensive months for this fiscal year were September, July and August. The least expensive months were November, January, and February.

Table 1. UTSA Athletics Variation Analysis

Charts & graphs are also provided in an effort to visualize the information and trends, assisting the customer in their budgetary plans and operations (Table 2 & Figure 2).

FY15 Athletics Utilities										
Month	Electricity		Natural Gas		Water /Sewer			Total Water	CHW/STM Cost	Total Utility Cost
	kwh	Cost	MCF	Cost	Gallons	Water	Sewer			
SEP	208,073	\$15,623.11	44	\$294.45	1,865,872	\$12,971.24	\$737.80	\$13,709.04	\$9,181.56	\$38,808.16
OCT	196,831	\$15,370.97	50	\$299.86	1,460,186	\$10,059.47	\$334.12	\$10,393.59	\$8,195.64	\$34,260.06
NOV	146,849	\$11,032.54	80	\$460.70	1,549,451	\$10,741.10	\$408.92	\$11,150.02	\$6,910.91	\$29,554.16
DEC	182,992	\$13,456.17	113	\$841.56	1,314,409	\$8,408.82	\$632.73	\$9,041.55	\$7,593.28	\$30,932.56
JAN	159,272	\$11,784.64	155	\$1,031.61	1,291,824	\$8,497.87	\$720.78	\$9,218.65	\$7,948.30	\$29,983.20
FEB	146,926	\$11,592.14	119	\$612.52	1,398,804	\$9,596.15	\$625.00	\$10,221.15	\$6,321.48	\$28,747.28
MAR	158,441	\$11,020.97	110	\$678.09	1,535,329	\$10,721.44	\$650.23	\$11,371.67	\$7,018.42	\$30,089.15
APR	191,806	\$15,101.26	61	\$353.29	1,269,746	\$9,497.36	\$639.79	\$10,137.15	\$7,263.14	\$32,854.84
MAY	170,094	\$13,684.83	40	\$200.60	1,359,706	\$10,246.11	\$735.01	\$10,981.12	\$7,061.14	\$31,927.69
JUN	192,762	\$15,284.98	33	\$119.38	1,370,001	\$10,573.41	\$675.21	\$11,248.62	\$9,404.31	\$36,057.29
JUL	223,565	\$17,500.73	37	\$158.24	3,268,242	\$26,482.73	\$2,832.41	\$29,315.14	\$9,717.52	\$56,691.63
August-14	216,662	\$17,727.54	44	\$216.90	2,835,346	\$25,049.19	\$196.33	\$25,245.52	\$10,014.85	\$53,204.81
AUG	218,766	\$17,943.80	34	\$144.49	2,005,290	\$15,842.32	\$1,434.41	\$17,276.73	\$10,428.25	\$45,793.27
<b>Total FY 15</b>	<b>2,196,376</b>	<b>\$169,396.14</b>	<b>875</b>	<b>\$5,194.77</b>	<b>19,688,859</b>	<b>\$143,638.02</b>	<b>\$10,426.41</b>	<b>\$154,064.43</b>	<b>\$97,043.95</b>	<b>\$425,699.29</b>

Table 2. UTSA Athletics Monthly Costs

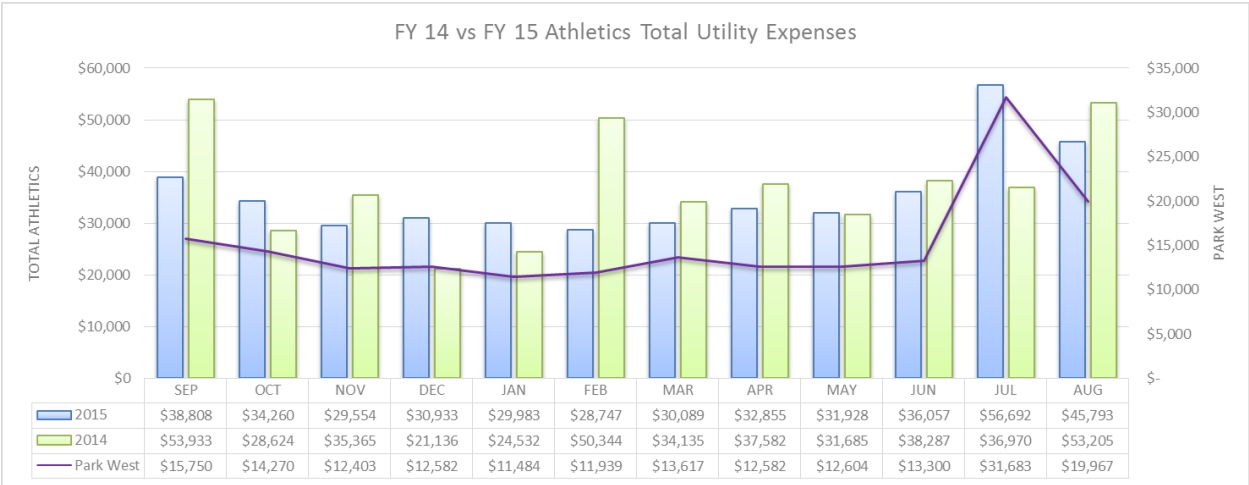


Figure 2. UTSA Athletics Current-to-Previous Cost Comparison

This analysis encourages collaboration with customers to help justify savings initiatives and improve business relationships. Additionally, communication is improved by providing a pathway to discuss opportunities for improvement. The Annual Utility Cost and Consumption Report (AUCCR) is the culmination of these monthly functions. The AUCCR serves as a quick reference guide for investment decisions, future growth strategies, and is a standard of measure for utility performance when comparing to other institutions. This report has also served our internal departments in their budget construction; faculty & students have utilized this content for academic research purposes; and, design firms have relied on the data for their services.

Implementation

The hiring of the Utility Analyst allowed for the restructuring of utility billing systems, beginning with enrollment in electronic billing with all vendors. The

Accounting and Accounts Payable Departments assisted in training this position to enter data into the University's accounting software to streamline processes. Previous spreadsheets were modified and tested throughout several months until proven reliable. Customers were contacted and asked to provide their reporting needs in order to ensure monthly reports would satisfy.

### Benefits

The streamlining of utility billing analysis and reporting functions help communicate the significant funding required to supply a growing research university and allows for deeper analysis to be performed. As a result, upper management has an improved understanding of utility cost impacts and the benefit of conservation efforts.

Additionally, customer service is improved by transparently providing detailed utility billing data to institutional customers. The integration of data contained in this process is assisted by a remotely monitored utility metering system still in implementation as well as the adoption of an energy billing software in design, these systems will continue to optimize the Utility Team's operations.