



AUDIT DEPARTMENT

Audit Report

Nevada Energy and Southwest Gas Utility Expenditure and Usage

November 2013

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Audit Director

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Angela M. Darragh, CPA, CFE, CISA, Director

November 25, 2013

Mr. Don Burnette
Clark County Manager
500 South Grand Central Parkway, 6th Floor
Las Vegas, Nevada 89106

Dear Mr. Burnette:

Pursuant to our Audit Department plan, we performed an audit of Nevada Energy and Southwest Gas Utility Expenditures and Usage. The audit objective is to determine whether expenditures are reasonably valid, accurate, paid timely, and to analyze usage for reasonableness. Our procedures consisted of interviews, observations, detailed testing, and analyses.

We concluded that Nevada Energy and Southwest Gas expenditures are reasonably valid, accurate, and paid timely with the exception of a few electrical meters that are potentially misclassified. We also found that controls could be strengthened over expenditures by implementing procedures to ensure that all out of service electrical meters are properly authorized and tracked on the County's Meter Request computer application, compliance with Clark County Information Technology Directives over EMIS passwords, and implementing more effective segregation of duties with EMIS user access restrictions. EMIS and Meter Request User accounts are also not kept current based on employee positions and employment status and generic accounts are not approved in accordance with Clark County Information Technology directives. We further found that public lighting electric meters may also be connected to other services such as facility lighting or irrigation. When this occurs, public lighting electrical usage is charged at a higher general service rate than public lighting rates. The amount charged may be significantly more at general service rates. Usage of electrical services is reasonable for the five large electric meters examined. Inefficiencies in usage of natural gas are occurring at the Regional Justice Center and the Desert Breeze Aquatics Center.

A draft report was provided to the Director of Real Property Management for comment and his response is included. We appreciate the cooperation and assistance provided by the Real Property Management, Finance Department, and Department of Public Works.

Sincerely,

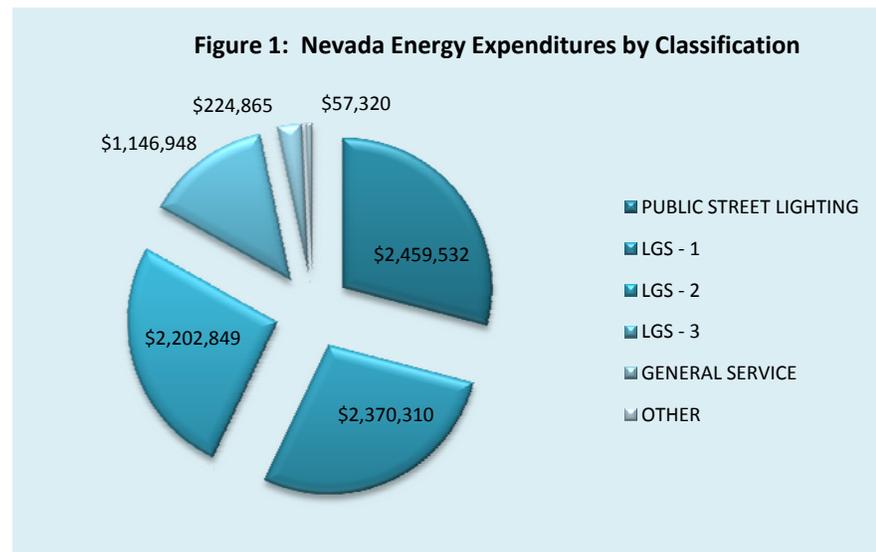
Angela M. Darragh, CPA
Audit Director

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BACKGROUND Nevada Energy is the main service provider of electricity and Southwest Gas is the main service provider of natural gas for Clark County. Clark County utilizes electricity for operational buildings, parks, public street lighting, and outdoor lighting. Natural Gas is primarily utilized to heat and assist in cooling buildings and for domestic use. Utility rates are regulated and approved by the Public Utility Commission of Nevada (PUCN). Nevada Energy rate structure is highly complex with rates changing periodically. Southwest Gas rate structure is not complex.

Nevada Energy expenditures amounted to \$8.5 million during the audit period. The charts below show the amount expended. LGS-1, LGS-2, AND LGS-3 classification represent large general service (LGS) users. Service levels are classified as LGS when consumption of energy exceeds 3,500 kWh in any one month. Additionally, a demand usage equal to or less than 299 kW is a LGS-1 level. A demand usage equal to or greater than 300kW is a LGS-2 level. A demand usage equal to or greater than 1,000 kW is a LGS-3 level.



Southwest Gas expenditures amounted to \$648,930 for the audit period. Expenditures for the five largest users amounted to \$307,923, or 47%, of total expended.

In 2011, Clark County implemented an energy management information system known as EMIS. This system is programmed to process payment information, identify various potential errors that can occur in billings, such as duplicate payments, identify new meters, report on trends in usage, and

perform other functions such as energy efficiency management. The system is also capable of monitoring rates and real time usage. Currently the information in EMIS is primarily uploaded from Nevada Energy billings. The County has also installed 53 ION meters in various county locations to monitor electrical usage. These meters electronically communicate real time usage to EMIS. Southwest Gas bills are entered manually into EMIS.

The County also implemented the Meter Request computer application to process approvals of new and out of service meters, allowing the Comptroller to verify the authorization of new meters and the removal of meters from Nevada Energy billings. Southwest Gas meters are not approved through Meter Request.

**OBJECTIVES, SCOPE,
AND METHODOLOGY**

The objectives of our audit are to determine whether Nevada Energy and Southwest Gas utility expenditures are reasonably valid, accurate, and paid timely and to analyze the usage.

We gathered information and examined data relevant to the period from July 1, 2012 to January 31, 2013 for Nevada Energy billings and from July 1, 2012, to May 31, 2013 for Southwest Gas billings. To achieve our audit objectives we conducted interviews with key personnel, performed observations and walkthroughs, reviewed rules and regulations, and gathered sufficient evidence to conclude on the objectives of our audit.

We reconciled utility bill data to EMIS and to SAP to determine completeness of population. Our detailed testing included performing 100% analyses for duplicate and late payment. We also performed 100% analyses of Nevada Energy billings to recalculate charges, verify application of regulation rates, and verify meter classification. We judgmentally selected 29 Southwest Gas accounts and recalculated charges, and verified regulated rates and meter classification. Usage was recalculated based on actual and estimated consumption stated on bills. We then compared this usage to the billed usage. A usage and cost trend analysis was performed on five large service meters. We performed physical observations of the boiler systems for four of the five large natural gas users. We performed a zip code analysis of public street lighting electric meter locations to identify meters within unique Clark County jurisdictions. We judgmentally selected 264 public street lighting meters and determined whether these were within a Clark County jurisdiction by observing service address locations on Clark County Open Door geographic information system. We then selected all meters

with payments totaling \$50,000 and more. We performed a random selection of an additional 10 meters for LGS-1. Our overall selection of meters represented 61% of the total expenditures or 58% of the meter population. These meters were observed on Open Door. We obtained user lists for EMIS and Meter Request computer applications from EMIS Database Administrator utility. We verified the employment status and positions of names on the list through SAP Human Resource information. We then reviewed user lists noting status, positions, and generic users. The last day of fieldwork was on June 17, 2013 for Nevada Energy and August 8, 2013 for Southwest Gas

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

RESULTS IN BRIEF

Nevada Energy and Southwest Gas expenditures are reasonably valid, accurate, and paid timely with the exception of a few electrical meters that are potentially misclassified. While we noted numerous duplicate charges on Nevada Energy billings, the Comptroller's Office was able to significantly identify duplicate payments through EMIS and research. Not all out of service electric meters are authorized through Meter Request. Sufficient restrictions are not in place for the EMIS computer application. We further found non-compliance with County Information Technology directive requirements for passwords and generic user accounts. We also noted that user accounts are not kept current based on employee job duties and employment status.

We found that public lighting meters may also be connected to other services such as facility lighting or irrigation. When this occurs, public lighting electrical usage is charged at a higher general service rate than public lighting rates. The amount charged may be significantly more at general service rates. Usage of electrical services is reasonable for the five large electric meters examined. Inefficiencies in usage of natural gas are occurring at the Regional Justice Center and the Desert Breeze Aquatics Center.

DETAILED RESULTS

New and Out of Service Meter Requests

The County implemented the Meter Request computer application to control the addition and removal of meters from Nevada Energy billings. We noted that Meter Request had only one meter out of service account during the audit period. However, in reviewing Nevada Energy billings, we found eight public street lighting meters that did not have continued billing throughout the audit period that are likely out of service. Out of service meters should be properly authorized through Meter Request in order to ensure that County meters are properly turned off.

We examined 10 of 30 accounts that had starting dates within the audit period. All 10 accounts added to Nevada Energy billings were authorized through Meter Request.

Recommendation

1. Obtain exception reports from EMIS for meters that are no longer active and obtain proper authorization forms for updating status on Meter Request and EMIS or requesting necessary service for those meters that should not be out of service.

EMIS and Meter Request Application Access Controls

All EMIS access groups, according to access reports provided by Information Technology, have access to all reports, functions, and modules. Delete and modification functions are available in these modules. Sufficient restrictions are not in place for segregation of duties or for access that allows deleting or adding data of accounts. While EMIS access controls are lacking, mitigating manual controls have been established by the Comptroller's Office to verify new electric accounts on billings to authorized meters on Meter Request, segregation of duties in approving payment, and reconciliation of EMIS accounts to Nevada Energy billings.

We did examine EMIS users and found four withdrawn from employment, two names that are not known, one user transferred to another department, two generic accounts, (of which one is a test account), and two users who likely no longer need access based on current job duties. We further noted that six Information Technology personnel have access to EMIS, which we believe is excessive.

We also examined the Meter Request application users and found 12 users withdrawn from employment, one user with duplicate access, one user transferred to another department, and two generic accounts.

EMIS and Meter Request do not have the ability to limit passwords to ensure compliance with County Information Technology directives. Clark County Information Technology directives state that network and system administrator privileges must be limited to the minimum number of Information Technology staff required to perform their duties. Generic and Guest user accounts are also not permitted. Vendor, Contractor, and other third party accounts are to be disabled when not required for use. EMIS and Meter Request access controls are not in compliance with county directives and place the two systems at risk of unauthorized access.

Recommendation

1. Change access rights for groups to limit access sufficient to allow only those individuals that need to perform certain job functions necessary access, taking into consideration segregation of duties.
2. Immediately remove access for withdrawn and transferred employees.
3. Periodically request departments to confirm necessary authorized access.
4. Deactivate the test user account.
5. Use a separate, non-production database for testing purposes.
6. Obtain authorization for generic user accounts in accordance with County IT directives or remove those accounts.
7. Disable third party user access and only reactivate when required.

Combined Electric Meter Service

Potentially we noted 65 meters with billings totaling \$69,276 that have service connection for public street lighting. These meters may also have other services connected for irrigation or bathroom facility lighting. When other than public street lighting services are connected to the meter, the meter classification becomes general service.

These meters were initially identified as public lighting by codes included in Nevada Energy billing addresses. We then determined all public streetlight coding within addresses and compared to the actual service type on billings and found that classifications were not always the same. We observed 45 electric meter locations through geographic information systems and internet satellite maps. We found that two meters were misclassified as general service as one was for public street lighting and one was for traffic signals. We further noted that lighting for a ball field was connected to a meter with other services causing a higher general service rate to apply. The total amount billed for seven months amounted to \$16,566. Savings

under public lighting rates may be significant. We did not verify through observation all 65 accounts with coding are actually for public lighting.

Public lighting is charged at approximately half the rate as for general service meters. General service rates effective January 1, 2013 bundled to \$0.07126 compared to \$0.05612 for public street lighting bundled metered rate. General Service bundled rates are \$0.01514, or 27%, higher, with an additional basic service charge of \$23. A total of 629,250 kWh hours (including the large general service meter) were billed for the 65 meters that should likely be classified as public street lighting.

Currently, sufficient monitoring controls are not in place to monitor and ensure appropriate classification of meters. In order to provide adequate controls over meter classifications, we believe the process of paying the bills and monitoring and authorizing payments should be separated.

Recommendation

1. Review the 65 public street lighting and residential meters exceptions for determining appropriateness of classification.
2. Assess whether future parks should be built with separate meters for lighting.

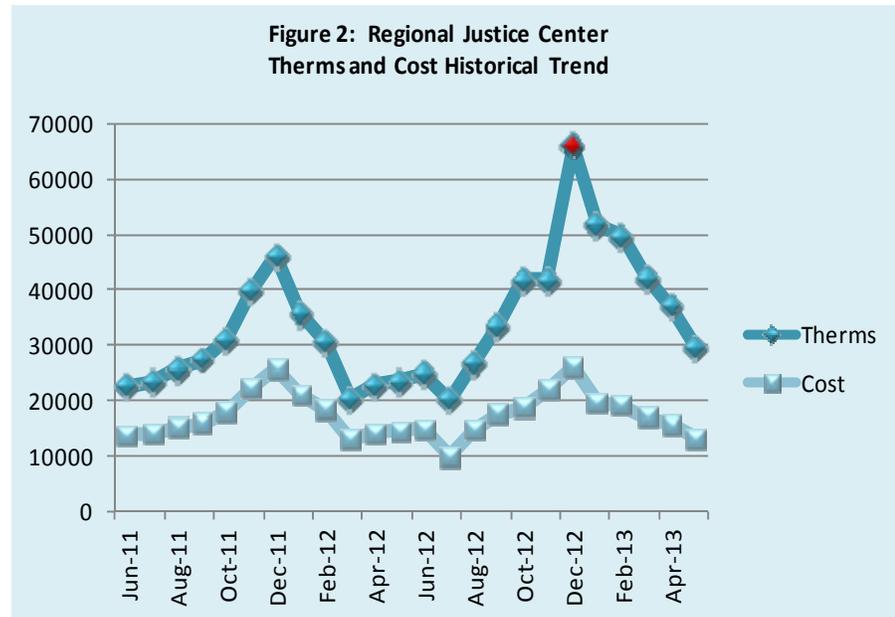
Regional Justice Center Inefficient Natural Gas Usage

The Regional Justice Center system for heating and cooling the building and providing hot water has high usage base over 20,000 therms with a high billing service rate level. Total billing for the 11-month audit period amounted to \$180,010 including \$18,366 of demand charges with total usage of 410,702 therms.

The primary reason for high usage is due to the design of the system. The Regional Justice Center has two large boilers that must heat all the water contained to service the building year round. The design of the heating and natural gas system did not include a design to incorporate lower load periods, severe conditions, or to segregate lower domestic usage. The RJC system also does not have a controller for intelligent load sharing between the boilers.

All these factors lead to an inefficient system, higher therm usage, and higher costs. Since all the water in the two boilers must be heated year round to a set temperature, natural gas usage is significantly higher in the spring, summer, and fall months than is necessary with the system

constantly cycling. The boilers are on all year round as if the building needed to be heated year round.



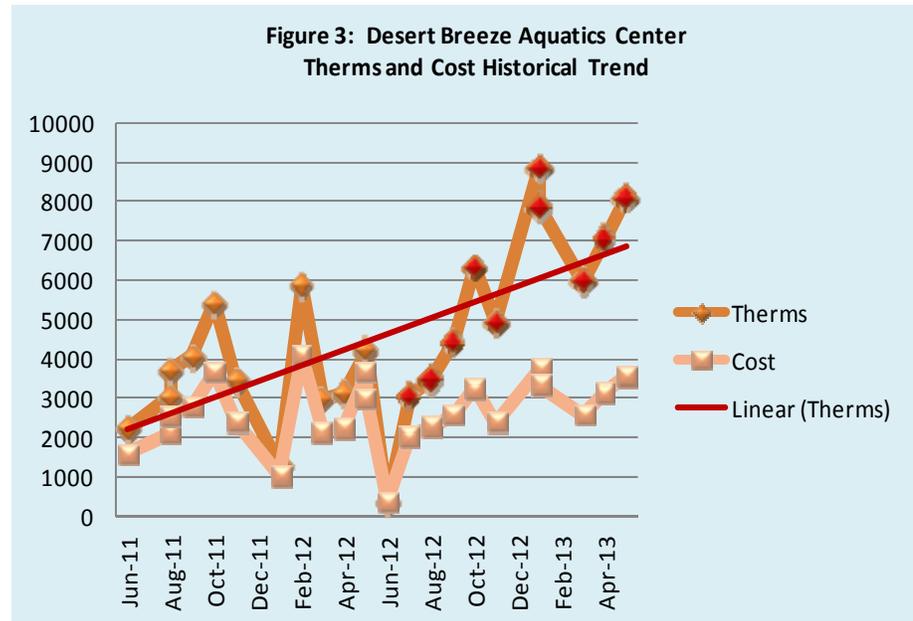
When an incident occurs that would require reheating the boilers, usage will increase dramatically. Billing is affected as additional demand charges are based on the highest average usage during a 12-month period. The spike in usage will cause additional escalating charges to be incurred for the next 12-month period. This occurred during the audit period when the dual coils were fixed in the air handler and usage increased to 66,095 therms during December 2012. Figure 2 illustrates historical trends of therm usage and cost. Costs did not escalate proportionately as rates decreased. Savings should be occurring due to the drop in rates.

Recommendation

1. Reevaluate the boiler system at the Regional Justice Center to determine and implement the best options to increase efficiencies.

**Desert Breeze
 Aquatic Center
 Escalating Natural
 Gas Usage**

The Desert Breeze Aquatics Centers is experiencing escalating costs for natural gas. For the period from July 1, 2012 to May 1, 2013, an eleven-month period, costs have been continually escalating significantly past normal historical trends. Therms have increased from 3,071 to 7,047. This represents an escalation of usage of 3,976 therms, or 129% increase.



Real Property Maintenance is working with the vendor to determine the cause for problems experienced with the pool paks. It was discovered that when the pool system was shut down for maintenance, the pool pak programming controlled through a computer application changed causing the pool paks to be on a higher operating cycle than normal. We believe this is one of the main causes of the escalating usage of therms. Since the rates charged by Southwest Gas have actually decreased, the amounts paid monthly did not escalate. However, these costs should have decreased and produced a cost savings. Figure 3 illustrates escalating therm usage and gradually increasing costs even with a drop in rates charged by Southwest Gas.

Usage of large natural gas users is not monitored. Southwest Gas bills do not represent a sufficiently significant monetary amount to warrant detailed monitoring on all activity. Monitoring of therm usage based on historical trending can provide alerts to problems that should be given attention such as increasing therm usage for larger users. Identifying areas of concern may lead to cost savings.

Recommendation

1. Monitor the larger users of natural gas on a consistent basis to assist in identifying problems as they arise.

MEMORANDUM

DEPARTMENT OF REAL PROPERTY MANAGEMENT

JERRY STUEVE
Director

Lisa Kremer
Assistant Director

TO: Angela M. Darragh, Audit Director
FROM: Jerry Stueve, Director
SUBJECT: Nevada Energy and Southwest Gas Utility Expenditure Audit
DATE: November 15, 2013

This memo is Real Property Management's (RPM) written response to the Nevada Energy & Southwest Gas Utility Expenditure Audit for the period of July 1, 2012 to January 31, 2013 for Nevada Energy billings and July 1, 2012 to May 1, 2013 for Southwest Gas billings.

The current RPM's Energy Program Management (EPM) team currently is unstaffed. Actual implantation of the responses below is dependent on the hiring and training of new EPM staff.

Ref 1 New and Out of Service Meter Requests

RPM will run the exception report in EMIS and shall verify whether the exception caused the meter being faulty, the service being temporary place out of service or the services needs to be disconnected. RPM, based on the situation, take the appropriate action and update the status on the Meter Request and EMIS system.

Ref 2 EMIS and Meter Request Application Access Controls

Information Technology will continue their role as the System Administrator for EMIS.

1. Now that the system is live and in production, access rights will be changed to limit access sufficient to allow only those individuals that need to perform certain job functions necessary access, taking into consideration segregation of duties.
2. Access for withdrawn and transferred employees will be deleted and procedure developed to periodically review the user list to verify employee status.
3. Procedure will be developed to periodically request departments to confirm necessary authorized access.
4. The test account has been deactivated.
5. Use of a separate, non-production database for testing purposes, is currently being utilized.
6. Generic user accounts will be deleted.
7. Third party user access has been deleted and will only be reactivated, when needed.
8. A proposal to reprogram the system for restriction of passwords will be submitted. Implementation of this change will be dependent on funding..

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DONALD G. BURNETTE, County Manager

Ref 3 Combined Electric Meter Service

1. RPM will coordinate with Public Works to review whether the service classifications of the 65 public street lighting exceptions is appropriate, and work with NVE to change the service classifications, as appropriate.
2. RPM will modify our Design Guidance Documents to include separate meters for ball field lighting, street lighting and facilities, when appropriate and does not create a safety hazard.

Ref 4 Regional Justice Center Inefficient Natural Gas Usage

RPM has plans to replace the existing boilers with a new three-stage boiler that will allow us to run only the stage boiler in the summer months and adjust to the demands of the building. This will greatly reduce the natural gas usage, particularly in the summer months.

Ref 5 Desert Breeze Aquatics Center Escalating Natural Gas Usage

RPM will monitor the large natural gas users on a periodic basis to assist in identifying potential issues with the systems

Please let me know if you need additional information.

Cc: Randy Tarr, Assistant County Manager
Lisa Kremer, Assistant Director of RPM
Chuck James, D & C Manager
Darren Daniels, Operations Manager