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Sustainability Program for Rio Secco Golf Club and Cascata

By

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PART ONE

Introduction

Caesars Entertainment Corporation is the world's most diversified gaming entertainment company. Since its inception 70 years ago in Reno, Nevada Caesars Entertainment has expanded and now has over 35 casino resort properties and 70,000 employees (www.caesars.com).

Caesars Entertainment is focused on building loyalty and value with its guests through a unique combination of great service, excellent products, operational excellence, and technology leadership. Caesars is committed to environmental sustainability and energy conservation and recognizes the importance of being a responsible steward to the environment. Sustainability at Caesars Entertainment integrates strategic direction with the energy, innovation, and passion of its 70,000 employees. These employees are what drive Caesars Entertainment's comprehensive sustainability strategy, CodeGreen (CodeGreen factsheet, 2012).

Caesars Entertainment's CodeGreen strategy is committed to critical issues of energy, waste, water, and carbon emissions at all of its casino resorts. Caesars Entertainment uses CodeGreen to engage employees in company efforts to reduce natural resource use, conserve energy, and promote reusing and recycling. CodeGreen programs have lead to an annual savings of 200 million gallons of water companywide. Caesars has invested more than \$62 million on conservation projects that have reduced energy usage by more than 170 million kilowatt hours and carbon emissions by 110,000 metric tons each year (CodeGreen factsheet, 2012).

Caesars Entertainment Corporation owns two golf courses in Nevada. Rio Secco Golf Club opened in 1997 in Henderson and Cascata opened in 2000 in Boulder. Both are 18-hole championship Rees Jones designed golf courses that have received multiple awards and accolades for their service and course conditions.

This professional paper will create a sustainability program for Rio Secco Golf Club and Cascata that will use CodeGreen initiatives developed by Caesars Entertainment.

Purpose

The purpose of this paper is to design a sustainability program for Rio Secco Golf Club and Cascata that engages employees and follows the CodeGreen sustainability practices Caesars Entertainment implements in their hotel and casino properties.

Statement of Problem

There is a disconnect between the hotels and casinos Caesars Entertainment owns in Las Vegas and the Caesars Entertainment golf courses in regards to sustainability programs and practices. Caesars has done a very good job of increasing employee engagement and growing their sustainability programs in their hotels in recent years through CodeGreen initiatives. Unfortunately these practices and programs have not been adopted at the golf courses. Consequently golf course programs are not included in any reports published by Caesars Entertainment in regards to amounts of materials they have recycled or carbon emissions, energy, or water they have reduced.

This professional paper will first identify the sustainable practices that are in place at Rio Secco Golf Club and Cascata. Then, areas that lack sustainable practices and will be identified and CodeGreen practices will then be proposed to bridge the gap between the sustainability programs of the casino resort properties and the golf courses.

Justification

This sustainability program will benefit the golf courses, golf course employees, as well as Caesars Entertainment Corporation's sustainability department. Caesars Entertainment has found that their CodeGreen initiatives increase customer loyalty, cost savings, and employee

engagement and satisfaction (Migita, Dominguez, 2012). Therefore, this program will not only help the company's CodeGreen initiatives but will increase job satisfaction of the employees at both Cascata and Rio Secco Golf Club.

Constraints

Key Golf Management, LLC manages the maintenance of both Rio Secco Golf Club and Cascata. Their willingness to adopt initiatives and share and track data for new sustainability practices will affect the overall depth of the sustainability program. Key Golf's willingness to reduce turfgrass, water, energy, and chemical use will greatly affect the overall effectiveness of this sustainability program.

This program will rely heavily on the commitment of Eric Dutt, Vice President of Caesars Golf Operation's willingness to adopt the proposal and the changes it will have on the operations of the golf courses. The higher Eric's commitment is to the program, the more sustainable the golf courses will become.

Glossary

Acre – A measurement of land that equals 43,560 square feet. An acre-foot is the volume in irrigated water that would cover an acre to a depth of one foot, or 325,851.429 gallons (Webster's Dictionary, 1991).

Conservation – Protecting, maintaining, and preserving things of value over the long term. Most often conservation refers to maintaining various parts and processes of nature (Jenkins, 2010).

Greenhouse Gas Emissions (GHG's) – Gas emitted into the atmosphere that trap the sun's heat in the earth's atmosphere rather than allowing it to escape into space. GHG's include carbon dioxide emitted from electricity and fuel use, methane from landfills and livestock animals, and nitrous oxide from excess fertilizer (Baldwin, 2012).

Kilowatt Hour (kWh) – A unit of work or energy equal to that expended by one kilowatt in one hour. A kilowatt is equal to 1,000 watts (Webster’s Dictionary, 1991).

MCF – Equal to one thousand cubic feet of natural gas or 1,000,000 British thermal units (BTU) (Webster’s Dictionary, 1991).

Recycle – a.) To pass again through a series of changes or treatments in order to regain for material for human use. b.) To reuse or make available for reuse for biological activities through natural processes of biochemical degradation or modification (Merriam-Webster Dictionary, 2003).

Sustainability – The capacity to maintain some entity, outcome, or process over time.

Sustainability is increasingly used to frame the way in which environmental problems jeopardize the conditions of healthy economic, ecological, and social systems (Jenkins, 2010).

Therm – A unit of heat equal one hundred thousand (100,000) British thermal units (BTU) (U.S. Energy Information Administration, 2012).

PART TWO
LITERATURE REVIEW

Introduction

For this sustainability program to be successful it must be designed to have a more positive overall effect on the environment than the properties' current practices allow. It must be designed with practices from both land management and hospitality operations perspectives. This sustainability program must also have a close relationship with and be based on the core sustainable ideas that are already in place and valued by Caesars Entertainment. This literature review looks at both common and unique cases of sustainable practices as well as the practices in place and valued by Caesars Entertainment.

Caesars Entertainment's CodeGreen strategy is committed to critical issues of energy, waste, water, and carbon emissions at all of its casino resorts and seeks to engage Caesars employees in efforts to reduce natural resource use, conserve energy, and promote reusing and recycling. Positive outcomes have resulted from CodeGreen including customer loyalty, cost saving and revenue growth, brand value, community pride, and employee satisfaction and retention (Corporate Sustainability Fact Sheet, 2011).

In 2003 Caesars Entertainment established their commitment to sustainability and conservation by forming Caesars Corporate Energy and Environmental Services. The function of this department was to identify and implement energy and water conservation initiatives for the company.

Caesars introduced CodeGreen, its comprehensive sustainability strategy in 2008 and became the first casino company to join the Environmental Protection Agency's (EPA) Climate Leaders, a partnership between industry and government that puts in place programs committed

to the reduction of greenhouse gas emissions. In 2009 Caesars became the first global gaming company to join the EPA's Waste Wise Program to manage waste reduction and recycling programs efficiently.

In 2010 CodeGreen became an official part of Caesars Entertainment's Code of Commitment, Caesars' pledge of corporate responsibility to its guests, employees, and communities in which it operates casino resorts (Corporate Sustainability fact Sheet, 2011).

CodeGreen Initiatives and Practices

Annual Resources Saved

From 2003-2010 Caesars Entertainment invested \$62 million on energy conservation projects. Each year over 170 million kilowatt hours in energy, 3.3 million therms in natural gas, and 200 million gallons of water are saved while over 243 million pounds of carbon dioxide are averted (Regional Sustainability Fact Sheet, 2012).

Water Reduction

To reduce water use Caesars has installed more efficient fixtures including toilets, faucets, and showerheads. They have also implemented leak detection programs in their facilities. Retrofitting their Las Vegas laundry facility resulted in a reduction of 72 million gallons of water each year and a 40% increase in efficiency. Programs allowing and encouraging guests to reuse linens and towels during their stay has reduced water use by up to 10 gallons per room per occupied day (Regional Sustainability Fact Sheet, 2012).

Waste Reduction

While Caesars utilizes recyclable and non recyclable waste containers for employees and back-of-the house areas, they also use recycling receptacles throughout their properties for both employees and guests that go through single stream recycling. All waste in these receptacles is

sorted to capture as many recyclable materials as possible. Other items included in Caesars recycling program include room keys, cardboard, batteries, light bulbs, computers, slot machine circuit boards, cell phones, DVDs, and CDs. All Caesars properties in the United States now recycle vegetable oil leading to over 640,000 gallons of cooking oil recycled each year (Regional Sustainability Fact Sheet, 2012).

Energy and Carbon Reductions

In 2007 Caesars Entertainment committed to a 10% reduction in greenhouse gas emissions by 2013. As part of this commitment Caesars has installed over 65,000 LED light bulbs as of March, 2012. The Rio All-Suite Hotel and Casino and Harrah's Lake Tahoe both use co-generation facilities that generate electricity while capturing waste heat for water use. Harrah's Rincon in San Diego uses their own solar facility to produce enough energy to handle over 90% of the casino resorts' heating and cooling needs (Regional Sustainability Fact Sheet, 2012).

Internal and Guest CodeGreen Programs

CodeGreen has a strong presence in back of the house areas of Caesars Entertainment properties. Posters and stickers can be found throughout employee areas informing employees of energy saving initiatives from turning off lights on beverage fountain machines to encouraging team members to bring their own coffee and water containers to work so they can be reused.

Caesars Entertainment is a founding partner of the Teacher EXCHANGE program, a non-profit organization that reuses and recycles office supplies and office equipment for teachers in Southern Nevada (www.thepef.org). Caesars not only participates in this program but encourages their convention customers to participate in the program as well (Sustainability Fact Sheet, 2011).

Caesars Entertainment has an employee appreciation program plan named Total Return. Based on customer satisfaction level results Caesars receives from their online customer surveys, employees receive points they can redeem online for merchandise. There are thousand of items employees can choose from to redeem their points. The higher the customer satisfaction received through surveys, the more points employees receive.

Caesars is now starting a CodeGreen at Home program, an employee-focused sustainability program designed to encourage employees to live an environmentally conscientious life at home. Employees can now earn Total Return points for renovations and sustainable practices they implement in their homes. Applications to earn Total Return points must demonstrate the positive impact on the environment, a financial benefit to the employee or community, and address one of the four following categories; energy conservation, water conservation, waste reduction, and carbon emission reduction.

Table cards are left in guests' rooms that encourage guests to save energy by turning off lights and adjusting the thermostats back to their original settings when not in the room. They also inform the guests that only towels left on the floors are replaced on a daily basis and that during a guests' stay bed linens are only changed upon request. If guests want their linens changed daily or at any time during an extended stay they simply phone housekeeping to get their linens change. These table cards also inform guests of Caesars partnership with the Clean the World Foundation. Caesars recycles soap and shampoo and distributes them to communities around the world to help save lives from preventable diseases (Caesars Intranet Portal, 2012).

Stickers are left on refrigerators in several Caesars Entertainment properties informing guests that the refrigerator units are purposely turned off to reduce energy use and that the guest is welcome and encourage to turn it on if they want to use it.

Future CodeGreen Goals

CodeGreen initiatives for 2013 include developing CodeGreen leadership by designating employees in different departments as CodeGreen Leads. These Leads will be liaisons for employees, conduct monthly meetings, and assist in the implementation of new CodeGreen initiatives. Additionally, CodeGreen will aim for increased visibility to Caesars Entertainment guests with more front-of-the-house CodeGreen signage and CodeGreen walls in hotel properties. Caesars goal for 2013 will be a 10% increase in employee participation in the CodeGreen at Home program over final participation numbers for 2012. Caesars will continue to work on the goal of 10% overall reductions in greenhouse emissions that was set for 2013 in 2007 (Caesars Intranet Portal, 2012).

Environmental Impact of Golf Courses

Golf Course Impacts on Water Quality

Government agencies as well as communities often have concerns of the impact of golf courses on water quality. One of the most obvious ways a golf course and the surrounding environment can be impacted is by the large scale application of chemicals in the form of pesticides, fungicides, and fertilizers (Wheeler & Nauright, 2006). Both ground water and surface water from 78 golf courses in the U.S. and two in Canada in eight different ecoregions were studied to evaluate the impact of golf courses on ecosystems. Over 38,000 data entries on pesticide, nitrate-nitrogen, and total phosphorous levels were analyzed. Of the 38,827 data entries only 0.15% tested exceeded toxicity reference points for ground water and only 0.56% exceeded toxicity reference points for surface water. Less than 1% of the 1,683 ground water samples tested for nitrate-nitrogen level exceeded the maximum acceptable contaminant levels (Wheeler & Nauright, et al., 2006).

Five of the eight ecoregions analyzed had a total of 86.5% data entries above the acceptable phosphorous level of their ecoregion. Phosphorous contamination was found to be the biggest impact on the water quality of both ground and surface water of the 80 golf courses and will have the biggest impact on their ecosystems and surrounding communities (Wheeler & Nauright, et al., 2006).

Energy Impacts of Golf Courses

In 2008 the total electricity use for golf courses in the U.S. was 6.7 billion kilowatt-hours (kWh). The average use per facility was 448,123 kWh. In 2008 45% of golf courses used propane and their average use was 2,528 gallons. The Southwest region had the lowest percentage (34%) of golf courses using propane as well as the lowest average use (1,023 gallons) per golf course (Environmental Institute of Golf, 2012).

Approximately 41% of golf courses used natural gas in 2008. The average use was 2,856 Mcf per facility and an estimated 17.5 million Mcf in 2008. In 2008 only 9% of golf facilities used heating oil. The average use for 2008 was 2,273 gallons per facility. No golf courses that were surveyed in the Southwest region reported using heating oil in 2008, the only region in the country to not report using heating oil (EIG, 2012).

Only 3% of golf courses have a LEED certified building on their property. Less than 5% of golf facilities purchased green electricity or energy credits between 2004 and 2009 and less than 2% generated energy on site. Golf courses make up for an estimated 0.5% of energy consumption in the commercial sector each year in the United States. While the percentage of overall energy consumption is not high, proper energy management and conservation plans are important for golf courses to operate sustainable businesses. Energy audits should be conducted by golf courses and golf courses should use these audits to identify area of potential energy

conservation. These areas of improvement should become part of each facility's energy conservation plan (EIG, 2012).

Impacts on Land Development

The close link between nature and the enjoyment of the game of golf often leads land developers to build on the most scenic and often most environmentally sensitive areas of land. Golfers enjoy playing the game in beautiful areas, often near lakes, rivers, and oceans. It is common for golf course development to lead to the clearing of natural vegetation and deforestation in these areas (Wheeler & Nauright, 2006). The destruction of natural vegetation and deforestation leads to erosion which often leads to large sediment loads in runoff in bodies of water near golf courses.

The development of golf courses can also lead to the destruction of natural landscapes and local habitats. Historically golf courses were designed to be played with the landscapes they were designed on but as course designing and the popularity of the sport increased so did the process of moving land to create golf courses. This increases the impact golf courses now have on their surrounding environments (Wheeler & Nauright, et al., 2006).

Local communities are often excluded from the decision making process regarding the development of golf courses. This problem is even more pronounced in developing countries where there are few laws to protect citizens. Consequently, citizens often not only lose their fight against the developers but lose their land as well. One example of this conflict of interests took place in Sagaponack, New York where a local group of citizens stopped the development of a golf course for fear the proposed chemicals to be used on the course would negatively impact the quality of their drinking water (Wheeler & Nauright, et al., 2006).

Golf course development can also have a positive impact on the environment. Land development and creations of bodies of waters and other areas on the golf course can create habitats that were not available to animals and insects. Golf courses can also lead to the protection of areas of land that might otherwise be used for home or other commercial development. Five areas that golf course development improved from 1996 to 2005 were; irrigation system upgrades, installation of native plants, creating wildlife habitat, maintain erosion control measures, and enhancing wetland areas (National Golf Course Owners Association, 2006).

Sustainable Golf Course Practices

Sustainable Certification

Audubon International recognizes golf courses practicing sustainability with the Audubon Cooperative Sanctuary Program for Golf Certification (ACSPG). The ACSPG is an award winning education and certification program that assists golf courses with protecting the environment while preserving the natural heritage of the game of golf (Audubon International, 2012). Audubon International lists the areas they assist golf properties with as; environmental planning, wildlife and habitat management, chemical use and reduction, water conservation, water quality, and outreach and education. There are currently nine golf facilities with the ACSPG certification in Nevada including TPC Summerlin and TPC Las Vegas, two of Rio Secco Golf Club and Cascata's closest competitors. Chariot Run in Indiana and Atlantic Country Club in New Jersey are also golf courses owned by Caesars Entertainment that are currently ACSPG certified (G. Migita, personal communication, October 22, 2012). Currently Rees Jones, designer of Rio Secco and Cascata has 20 golf courses that are ACSPG certified (www.reesjonesinc.com).

The Audubon International states their certification and maintenance of their membership improves community relations and environmental performance, reduces liability, and saves facilities money (Audubon International, 2012). The certification is also affordable compared to other certifications. It is only \$200 per year for a golf course to maintain their certification and the startup materials for Audubon International only cost \$250 (United States Golf Association, 2012)

Water Use and Conservation Practices

Irrigation water use on golf courses in U.S. is estimated to be 0.5% of annual total water withdrawal in the country and 1.5% of the estimated annual total agricultural irrigation water use (Environmental Institute for Golf, 2009). In 2008 there was an estimated 2,224,512 total acres of land on golf facilities in the United States. Of this land 67% is maintained turfgrass and 53% of this land is irrigated turfgrass. The average golf course in the United States irrigates an average 80.7 of its 150 acres of turfgrass. In the Southwest region of the country where Rio Secco and Cascata are located the average golf course irrigates approximately 115 acres of turfgrass (EIG, 2009). This region includes Western Texas, New Mexico, Arizona, Southern California, and Southern Nevada. Golf Courses in the Southwest region of the United States require high volumes of irrigation due to the courses staying open year round, low rainfall, and high temperatures.

From 2003-2005 the total estimated water use by golf courses in the United States was 2,312,701 acre-feet of water per year. While the average golf course uses 152.5 acre-feet of water per year the average golf course in the Southwest region of the United States uses 459.0 acre-feet of water per year. Table 1 shows a breakdown of irrigation water sources for golf courses in the United States (EIG, 2009).

Table 1

Irrigation Water Sources for Golf Facilities in the U.S.

<i>Source</i>	<i>Percent</i>
Open water (lakes, ponds, etc.)	52%
On-site well	46%
Rivers, streams, creeks	17%
Municipal water (drinking water)	14%
Reclaimed/Effluent/Recycled water	12%
Canals	4%
Other	4%
Brackish Water	<1%

Recycled water is water treated at facilities and then sold to for irrigation or other purposes. Recycled water is commonly referred to as effluent or reclaimed water. While 12% of golf courses in the United States use recycled water, 37% of golf courses in the Southwest region use recycled water, 12% more than any other region in the U.S. Fifty-three percent of golf courses stated a lack of a recycled water source and 29% stated the use of recycled water was not necessary at their facility as reasons for not using recycled water (EIG, 2009).

Among irrigation and water conservation practices at golf courses in the United States, the use of wetting agents was the most popular practice with 92% of golf courses using wetting agents (EIG, 2009). Wetting agents are generally applied through irrigation systems and bond with water and the organic coating on soil and sand particles, allowing the particles to become wet (Karnok & Xia, 2004). Wetting agents are used for four primary reasons; relieving dry spots of turfgrass, managing water use, improving drainage, and improving the movement of pesticides into the soil.

In the U.S. 78% of golf courses use hand watering particular areas of the turfgrass area as a conservation practice and 69% of golf courses simply keep the golf courses drier than the

previous year. Over half of the golf courses in the United States have developed mulch beds to reduce the amount of turfgrass on their golf courses (EIG, 2009). Forecasting and planning has become more important to golf courses with 47% now utilizing weather forecasts and weather stations to better regulate and monitor their irrigation practices. Fertilizer practices have been adjusted at 45% of golf courses to reduce irrigation use. Other common practices include upgraded irrigation systems, raising mowing heights to reduce stress on turf, and changing landscape plants to plants with low water needs (EIG, 2009).

Approximately 15% of golf courses in the United States have drought management plans. In the Southwest regions of the United States 19% of golf courses have drought management plans. The Northeast region of the United States has a higher percentage of golf courses with drought management plans due to more reliance on natural rain to maintain course conditions and a higher number of courses required by government authorities to have drought management plans (EIG, 2009). Golf courses in Southern Nevada have less use for drought management plans because they rarely have to plan for natural rain.

One of the simplest practices to reduce a golf courses' use of water is simply reducing the acreage of turfgrass the golf course has to maintain. In recent years many golf courses in the Southwest region of the United States have practiced turfgrass reduction. The Southern Nevada Water Authority (SNWA) currently has a Watersmart Landscape Rebate Program that reward businesses for converting grass to desert landscapes. The program rewards \$1.50 per square foot of converted land for the first 5,000 square feet and \$1.00 per square foot after 5,000 square feet has been converted. The maximum rebate is \$300,000 per business in a calendar year (www.SNWA.com).

Golf Course Energy Conservation Practices

Between 2004 and 2009 15% of golf courses in the U.S. conducted an energy audit and only 6% of golf courses have a written energy management plan. In the Southwest region of the U.S. 23% of golf courses conducted an energy audit. During this same time frame 77% of golf courses felt they had incorporated behavioral changes to their to golf course operations to conserve energy. Popular behavioral changes included regular changing of filters, charging batteries on golf cart fleets during off-peak hours, and controlling thermostat temperatures more efficiently (Environmental Institute for Golf, 2012). Over 70% of golf courses made design, physical, or mechanical changes to facilities to conserve energy. Among popular design changes were installing programmable thermostats, upgrading water heaters, and replacing older faucets with new low flow faucets.

In 2009 Stone Creek Golf Club in Oregon realized an 11% savings on their clubhouse energy costs, 27% on their maintenance facility costs, and 30% savings on their cart facility energy costs from their prior year costs (Phipps, 2010). Stone Creek's energy savings in the clubhouse and maintenance facility was largely due to adjustments and changes to their lighting design. Stone Creek Golf Club changed all of their incandescent lights to fluorescent lights and put LED lights in all of their exit lighting. Timers were installed for the lighting of the exterior of the clubhouse and sensors were installed for lighting of the restrooms and employee break areas. Lights were also removed from areas of the facility they were excessively lit. The large savings in the golf cart facility was due to new upgraded battery chargers and charging golf carts during non-peak hours when possible.

Stone Creek Golf Club also created new policies for employees including thermostat settings and turning off computers at the end of each night. They began purchasing Energy Star

rated equipment when replacing appliances and created a more efficient HVAC maintenance schedule (Phipps et al., 2010).

Food and Beverage Sustainability Practices

Without tracking or measuring the progress of sustainable practices within an operation, management will be unable to know the success or impact of their sustainable practices. It is extremely important to measure and track the progress of a food and beverage sustainability plan. Measurements can be categorized into one five main priority areas; food, food waste, solid waste, energy and water, and a general priority area that tracks the operations' environmental footprint (Baldwin, 2012).

Tracking food and food waste allows management to continuously attempt to identify opportunities to reduce food waste. One third of the food produced globally is wasted, so this can be a great opportunity to reduce waste and expenses in an operation. Four to ten percent of food purchased is wasted before it gets to the consumer and 17% of food that does get to the consumer is wasted (Baldwin et al., 2012). Constant monitoring of food waste will lead to a consistent reduction of food waste and a proper food donation program can also reduce the amount of food an operation is wasting while improving community relations.

Food preparation is the largest source of energy use in food and beverage operations, at 35%. Food preparation is followed by HVAC at 25% of total energy use in food operations. Lighting, sanitation, and refrigeration are also large sources of energy use for food operations (Lewis, Cacciola, & Dennill, 2011).

It's estimated that up to 80% of the \$10 billion spent in energy at U.S. food and beverage operations is wasted. To reduce energy use, minimizing heat loss and gain by applying window

film on the south and west facing windows is recommended. It is also recommended to have the icemaker run during off-peak hours at night (Lewis, Cacciola, & Dennill et al., 2011).

Managers and owners should also use digital demand controllers and properly train staff to efficiently control the operations of water heaters, thermostats, refrigeration equipment and other equipment. Interrupting operation and properly using equipment can lessen energy consumption of the whole building without adversely affecting operations (Lewis, Cacciola, & Dennill et al., 2011).

Conclusion

A review of existing literature shows that many of the same sustainable practices that Caesars CodeGreen values and implements in their casino resorts are used in food and beverage operations and golf courses. The casino and golf industries understand the benefits for employees, the environment, and overall financial success to having sustainability practices in place.

The literature clearly demonstrates the large environmental impact that golf courses have in the U.S. and their commensurate responsibility. Golf courses have an obligation to the environment given their high use of energy, water, waste, and the large land area they are responsible for maintaining. The literature shows that the greatest opportunities for sustainable practices at golf courses are in the Southwest region of the country. Caesars' CodeGreen initiatives could be used to design an effective sustainability program for Rio Secco Golf Club and Cascata.

PART THREE

Introduction

The following is a proposal for a comprehensive sustainability program for the Caesars Entertainment owned golf courses Rio Secco Golf Club and Cascata. This plan will bring Caesars Entertainment's CodeGreen initiatives to the golf courses and inform and engage the employees of the golf courses with implementing these initiatives. In addition to CodeGreen initiatives several other recommendations will be made to improve the overall sustainability of the properties.

Water Use and Conservation

Golf Course Water Reduction

In 2011 Rio Secco Golf Club and Rio Secco Golf Club averaged 1,858,200 gallons of water per acre of turfgrass. Due to many reductions in overall water use in previous years Jared Bumpus, Head Superintendent for Rio Secco Golf Club and Cascata does not feel there many opportunities to reduce water use and keep the golf courses in satisfactory condition for the company and their guests, especially with the acreage of turfgrass the properties currently maintain (J. Bumpus, personal communication, November 12, 2012). Jared will use 5% less water on each course the ten days prior to the golf courses closing for overseed each year in August. Typically these are days when the temperatures are in excess of 105 degrees Fahrenheit and the courses require the highest amount of water per acre. August is also a time when rates to play the courses are lower than other times of the year, expectations of guests are not as high, and the number of guests that the golf courses serve each day is drastically lower than the rest of the year.

Therefore, this is an opportunity to save water without negatively impacting the operations and the course conditions because when the turf grass becomes extremely dry the courses will be closing for a month. The drier conditions also aid in the overseed process by allowing the new rye grass that is planted to grow. In August Cascata uses 1.1 million gallons of water per day while Rio Secco uses 800,000 gallons per day. A 5% reduction in water use over these ten days at each course will save a combined 950,000 gallons of water each August for the golf courses. The biggest opportunity to reduce water use on the golf course will be reducing turfgrass and transitioning as many areas to desert landscape as possible.

Facilities Water Reduction

Both Rio Secco Golf Club and Cascata will begin reducing their use of bottled water, especially in the clubhouse facilities. Both employees and guests use bottled water almost exclusively while in the clubhouse. Cases of Cascata and Rio Secco labeled bottle water are left in the refrigerators in the kitchen for employees to drink and rarely do employees use the filtered water unit on the fountain drink dispenser that is right next to the refrigerator. Employees will be asked to use the filtered water dispenser unless they need water to take on the golf course. They will also be encouraged to bring their own containers and reuse cups to reduce waste as they are in the Caesars Entertainment hotels.

Pitchers of water will now be used during banquet event functions on the tables instead of bottled waters, unless specifically requested otherwise. Bottled water will be available at the bars to accommodate guest requests. Currently each golf cart is stocked with four bottled waters for guests. Golf carts will now be stocked with two bottled waters for guests and water coolers will be placed in multiple locations on the golf course each morning by staff for guests to refill their bottles throughout the day. Coolers will be locked and cleaned each morning before taken

on the golf course to properly follow health department codes and liability of contamination of the water.

Energy Use and Conservation

Rio Secco Golf Club had a total cost of \$132,560 on electricity and an additional \$16,808 in gas and fuel in 2011. Cascata incurred a total cost of \$466,644 in electricity and an additional \$39,177 in gas and fuel in 2011.

Dining Rooms and Banquet Areas

The engineers for Rio Secco and Cascata currently keep all thermostats throughout the clubhouse at the same temperature. This keeps all heating and air conditioning units working together, and keeps some units from being overused and working harder than they should. If some units are not turned on other units have to work more to keep areas further away from their intended area at a comfortable level. This uses more energy than running all units throughout the building together.

The first policy that needs to be implemented for the operations in the banquet and restaurant areas is the closing of exit doors to the outside patios and parking lots. Employees often leave doors open even when the outside temperatures are below 60 degrees and above 90 degrees, leaving HVAC systems working continuously to maintain a comfortable temperature inside the building (C. Erlanger and D. Robinson, personal communication, October 29, 2012). Guests who smoke cigarettes and cigars often dine outside on the patios regardless of temperature, and servers tend to leave the two doors to the patio areas open. This makes it easier to get trays of food and drinks in and out to guests and the kitchen. Additionally, two large doors to the entrance way are often left open when we are expecting large groups to create a

welcoming front entrance. Effective immediately all four of these doors will be kept closed at all times in an effort to reduce energy and improve air quality inside the clubhouses.

The engineers currently try to keep the restaurant and banquet areas between 70 and 75 degrees Fahrenheit in the winter months and 72 and 76 during the summer months. Throughout this winter Chris Erlanger and Dave Robinson will keep the temperatures as close to 70 degrees as possible, reducing heating use. It will be impossible to maintain 70 degrees at all times based on outside temperature, sunlight, and the number of guests in the clubhouse. Chris and Dave agree that a goal of maintaining the inside air temperature at 70 degrees Fahrenheit as possible for 90 days would save energy, though it would need management's constant monitoring to accomplish this goal. This is due to the poor placement of several thermostats in the facilities. One thermostat at Rio Secco Golf Club is located directly above a light switch that produces heat, giving higher temperature readings than the actual temperature of the room. Another thermostat at Cascata is mounted on a wall with a steel beam directly behind the wall. Consequently, some thermostats give inaccurate and inconsistent temperature readings throughout the year due to factors outside the control of the engineers (D. Robinson, personal communication, December 4, 2012).

The majority of lighting in the dining and banquet rooms and the rest of the facility use MR16 75 watt halogen bulbs. Dave Robinson will start replacing these with Phillips 10 watt LED bulbs that will still light the clubhouse efficiently, according to Chris Erlanger and Dave Robinson. These LED bulbs are compatible with the current ballasts in the lighting system and will also produce 89% less heat, reducing energy needs for cooling the building during warm months.

The largest opportunity for energy savings in the clubhouse is in the administrative area at Cascata. Currently the back offices have 17 incandescent 150 watt bulbs that will be replaced with 8 fluorescent 23 watt bulbs. These new bulbs will reduce energy in this one administrative office by eight-two percent (D. Robinson, personal communication, November 6, 2012).

The last immediate change to operations will be regarding the gas fireplace that is used throughout the winter at Rio Secco Golf Club. It is located between the front door and the waiting lobby for the dining room. It is currently turned on as an employee opening procedure and turned off as a closing procedure by the assistants in the golf shop at the end of each day. Assistants generally arrive to open the clubhouse between one and three hours before the first guests arrive, and often leave 30 minutes to two hours after the last guest has left the dining room. Servers and food and beverage managers will be trained and responsible for turning the fireplace on when the first guests arrive in the morning and when the last guests exit at night. This will reduce its use by up to 20 hours per week. Additionally, the fireplace will only be used during operations when the outside temperature is below 60 degrees Fahrenheit or there is a banquet event at night. It does have aesthetic purposes but given its location does very little for the ambiance of the dining room and does even less in terms of heating the facility.

The biggest opportunity to save energy in the bar area is to only wash full loads in the dishwashing machine. It is current policy to wash any items in the machine before closing. However, it is not necessary to do this to have available glassware for the following day, as the dishwasher is fairly small and the bar has plenty of glassware. New policy will require the dishwashers to be completely full before a load can be washed.

There are also huge glass windows around the entire south side of the bar and dining room areas at both Rio Secco Golf Club and Cascata. A new opening procedure will be to open

the blinds behind the bar to let as much lighting in as possible in the early morning. This will be done daily from December 1st through February 28th. Currently, the blinds are left down because it can shine in guests' eyes when they sit at the bar in the morning. However, in the winter it is not uncommon to only have a few guests come by before 12:00 PM. This natural sunlight should help heat the dining room and reduce the use of heating for the dining room, banquet, and bar areas.

Kitchens

Effective immediately the kitchen will also only use the dishwasher when they have a full load. This is currently not a practice. Rio Secco Golf Club will replace all 150 watt incandescent bulbs currently in the kitchen with 25 watt fluorescent bulbs in the kitchen areas. Cascata will replace their 42 watt fluorescent bulbs with 25 watt fluorescent bulbs as the 42 watt fluorescent bulbs burn out (C. Erlanger and D. Robinson, personal communication, November 6, 2012).

There are five large ice machines throughout each facility, one of which is in the kitchen. Currently Dave and Chris clean the cooling coils every quarter when he replaces their water filters. They will now start cleaning the coils for every ice machine throughout the facility on a monthly basis, as the dirty coils make the coolers work much harder and waste energy.

Snack Bars

While the snack bars are the smallest structures on property, they have an enormous opportunity for energy savings. These facilities are the only areas with a thermostat that can be used by the staff. According to both engineers these thermostats are constantly misused by the employees. The staff will set the thermostat on an unreasonably high degree in the winter when they first arrive and it is cold. Likewise, they will set it to an unreasonably low degree in the

summer. The current issue is that if it is 110 or 35 degrees Fahrenheit outside that setting the thermostat on unreasonable high or low temperatures that cannot be met does not help air temperature. The air units simply overwork and never stop and a tremendous amount of energy is wasted. Covers and locks will be put on the snack bar thermostats and the engineers will be responsible for monitoring these thermostats as they are the rest of the facilities.

There are makeup air units in the snack bars that assist the main air conditioning units. They are heated by gas and cooled by electricity. The staff does not use it in the winter because the facility stays plenty warm once the stoves and grills in the snack bar are operating. However, it can be used in summer to help cool the snack bar. It is rarely used because the staff does not care for the additional noise, but it would help in saving energy during the hot months. The use of the unit will be evaluated in the spring when it starts to get hot to see if we can determine a more efficient plan for using the makeup air unit and air conditioner together to save energy.

Turfgrass Reduction

Rio Secco currently has 103 acres of maintained turfgrass and Cascata currently has 117 acres of maintained turfgrass (Jared Bumpus, personal communication, November 12th). Jared Bumpus, Head Superintendent of Key Golf and Kip Wolffe, owner of Key Golf have identified six acres of turfgrass to be eliminated from each property in both 2013 and an additional six acres for removal in 2014. The areas identified for turf removal at Rio Secco Golf Club are on the practice range and the area in between the practice range and holes one and ten and run parallel to the practice range. These are areas of grass that do not serve for golfers to play from while on the golf course so they will have minimal impact on the guest's playing experience. Cascata will reduce turfgrass along their half mile driveway to the clubhouse and again on the back end of the practice range that golfers do not play from and can simply not see from

anywhere on the facility. All identified areas for turf removal are currently watered with effluent water, which the golf courses currently pay a rate of \$1.20 per 1,000 gallons of effluent water.

While Cascata has more turf than Rio Secco Golf Club, management agrees that given the higher price to play Cascata and guest expectations the course cannot afford to reduce their turf by more than twelve total acres without negatively impacting their customers' experience. They do not feel that they can reduce the turfgrass area at Rio Secco Golf Club more than twelve acres because they have reduced the acreage of turfgrass at Rio Secco Golf Club from 133 acres to 103 acres from 2005 – 2008. There simply is not as many opportunities on the property to reduce turf at Rio Secco Golf Club as there are at Cascata due to past turf reduction projects.

Jared Bumpus and Kip Wolffe also agree this reduction in turfgrass acreage will allow time for the turf reduction process to take place with minimal impact on the operations of the golf course. A total of 24 acres at the golf course over two years will also allow Jared and Kip to manage the projects with their current staff without increasing labor costs and requiring them to hire more employees or employees from a third-party company to help with the projects.

Twenty-four acres over two years will allow both golf properties to participate in the Southern Nevada Water Authority's Water Smart Landscape Rebates (Southern Nevada Water Authority). This program rebates commercial properties \$1.50 per square foot of turfgrass removed and changed to water efficient desert landscaping up to 5,000 square feet. After 5,000 square feet the program rebates \$1.00 per square foot with the total rebate allowing a rebate of up to \$300,000 per business in a fiscal year. Each property will receive a total rebate of \$527,720 from the Southern Nevada Water Authority's program in 2013 and again in 2014 from this proposed turf removal if the SNWA program for turf reduction rebates does not change.

The cost for eliminating turfgrass is fifty two cents per square foot. The total cost to eliminate six acres at each course will be \$271, 814 per year. This includes labor, materials, equipment, and removal of the turf from the property. This also includes herbicides necessary to prevent future growth and the planting of desert shrubs on fifty percent of the area to receive the rebates. Rio Secco and Cascata average 1,858,200 gallons of water per acre per year. The desert landscape water needs are only 20% of the turfgrass. The turf reduction will result in an annual total savings of 35,677,440 gallons of water and \$42,813 once the project is completed. Each acre of removed turf also reduces labor needs by .8%. Therefore, after a total of 24 acres have been reduced from the property labor costs will be reduced 19.2%. The current total annual labor cost for Rio Secco and Cascata is \$1,340,000, resulting in a \$257,280 annual labor savings once the project is complete. The turfgrass reduction will also reduce 18.5 pounds of nitrogen, 4.8 pounds of phosphorous, and 9.6 pounds of potassium added as fertilizer to each acre of turfgrass per year. This is an additional cost savings of \$960 per acre and reduces fertilizer use by almost 66 pounds per year. Table Two illustrates these costs.

Table 2

Cost Savings of 2013-2104 Turf Reduction Project

<i>Initial Turf Reduction Project</i>	
Rebate from Southern Nevada Water Authority	\$1,055,440
Expenses including labor, equipment, and desert landscape	\$543,628
	\$511,812 initial investment
Annual Savings After Completion of Turfgrass Removal	
Labor Reduction of .8% (24 Total acres removed)	\$257,280
Water Reduction of 1,486,560 gallons (24 Total acres removed)	\$42,813
Fertilizer Reduction of 66 pounds per acre	\$23,040
	\$323,133 annual savings

Recycling Program

Solid Waste

Rio Secco and Cascata will begin their CodeGreen recycling program on January 1st, 2013. Cascata will begin their recycling program with the City of Boulder City's new recycling program for businesses that started in October, 2012. One of the current six yard trash containers will be replaced with a six yard commingled recycling container. There is no charge for recycling or pickup through the City of Boulder City's recycling program. Rio Secco Golf Club using a six yard commingled recycling container as well that gets picked up once per week by Republic Services.

For the courses to properly track recycled materials industrial scales will be purchased and installed on the back delivery docks of both golf courses where the commingled recycling containers are located. All employees will be trained how to properly weigh recycled materials before discarding materials in the recycled containers. The weight and type of material being discarded will be logged in a log book that will be kept on the loading docks at each facility. Jay Childers will take this information on a monthly basis to record and track for communications with the corporate sustainability department. Materials to be weighed and tracked will be cardboard, plastic, paper products, aluminum, and glass. Four containers will be placed in the golf cart cleaning where the majority of the materials from guests are put into trash receptacles. Containers will be labeled for only one item; paper, plastic, aluminum, or glass. The same containers will be kept in the food and beverage facility as well. This will allow the properties to track the amount of each recyclable material for reporting to the corporate sustainability department. All cardboard will be kept on the loading docks to be weighed and discarded once per week by a designated staff member.

Multiple trash cans will be located around the clubhouses and on the golf courses that will allow guests the options to discard their items into paper, aluminum, plastic, glass or trash. Containers for paper will be located next to all printers and paper shredders to assure all paper is properly collected to be weighed before being placed in the recycling containers.

Less common items that are part of Caesar Entertainment's CodeGreen recycling program, including containers for batteries, CD's, DVD's, cell phones, and ink cartridges will be collected in the break rooms. The employee that is designated for taking the golf courses' accounting paperwork to corporate headquarters and running various other errands for the golf course will be responsible once per week for tracking the number of each recycled item in a log and then dropping these items off at the recycling containers at the most convenient hotel location for recycling. The author will track and log these numbers once per month and include them in his communications at the quarterly corporate sustainability department meetings.

Furniture, Fixtures, Appliances, and Equipment

Energy Star is a joint program of the U.S. Environmental Protection Agency (EPA) that identifies, labels, and promotes energy efficient products that reduce greenhouse gas emissions (www.energystar.gov). WaterSense is another partnership program of the EPA that approves high-efficiency toilets, urinals, showerheads, and faucets that have completed a third-party certification process (www.epa.gov). Currently, Rio Secco Golf Club and Cascata do not use Energy Star appliances for office or kitchen equipment (J. Rusciolelli, personal communication, December 4, 2012). Additionally, Rio Secco Golf Club and Cascata do not use WaterSense certified toilets, urinals, or faucets in their restrooms.

Both Rio Secco Golf Club and Cascata will begin replacing all major kitchen appliances and office equipment with Energy Star products after the end of the current product's useful life.

Both facilities will also replace all toilets, urinals, and faucets with WaterSense products as these products reach their useful life.

Rio Secco Golf Club and Cascata will begin participating in Caesars partnership with teacher EXCHANGE, a non-profit organization that allows teachers of Southern Nevada to obtain items that can assist them and their students (Corporate Sustainability Fact Sheet, 2011). Computers, furniture, office supplies, and office equipment will be donated to the teachers EXHCHANGE reuse/recycle centers when they are replaced at both facilities.

New furniture at both Rio Secco and Cascata will be purchased based on products that best fit the following criteria (Parikka, 2008):

- Long lifetime and durability
- Profile of materials (recycled materials, low chemical content, non-toxic substances)
- Environmentally sound and recyclable packaging
- Recyclability of materials after useful life

Internal CodeGreen Employee Engagement

The author will be designated the CodeGreen Lead for Rio Secco Golf Club and Cascata. The author will be responsible for implementing the tracking procedures for the recycling programs as well as all carbon, water, and energy reduction goals and results. The author will communicate CodeGreen progress for Rio Secco Golf Club and Cascata with the corporate sustainability department during their quarterly meetings. Each quarterly report that the author presents to the corporate sustainable meeting will be put on bulletins in the back office areas and in the break rooms for employees to view. The author will put together a CodeGreen team of three Rio Secco Golf Club and three Cascata employees that will assist in implementing CodeGreen initiatives and encouraging employee to participate in CodeGreen at home.

One staff meeting will be held at Rio Secco for all Rio Secco and Cascata employees to introduce CodeGreen and the new initiatives and policies that the golf courses will be adopting. Employees will take a tour of the facility to get properly trained and familiarize themselves with new procedures and CodeGreen collateral throughout the facility. The CodeGreen at home program will be part of the meeting and the employees will be encouraged to participate and communicate their efforts with the CodeGreen lead so he can track and award them with their Caesars Total return points. Employees will also be encouraged to bring in ink cartridges, unwanted CD's, DVD's, batteries, and cell phones that they can not recycle at home.

Each property will have a CodeGreen suggestion box in the employee break rooms. Employees can ask any questions they have regarding CodeGreen or make suggestions for new practices the properties can endorse to make the properties more sustainable. These questions and suggestions will be reviewed during monthly meetings held between the author and the CodeGreen team for Rio Secco and Cascata.

“Buzz sessions” are three to five minute meetings for departments at Caesars Entertainment properties that inform, encourage, and engage employees at work. They often include information on new Caesars shows or employee policies and are supposed to be fun and motivate employees to give their best possible service during their upcoming shift. Buzz sessions are conducted by supervisors and managers of the departments. The author and the other six CodeGreen team members between Rio Secco Golf Club and Cascata will lead one buzz session per month informing employees of new CodeGreen news and as well initiatives and address any questions or suggestions that have been placed in the CodeGreen suggestion box.

Sustainable Certification

The author will be responsible for managing the certification process of both Rio Secco Golf Club and Cascata through the Audubon Cooperative Sanctuary Certification for Golf Courses Program. The starter kits for the certification process will be ordered immediately and then a meeting will be held in December between the author, Kip Wolffe, Jared Bumpus, and Eric Dutt to discuss a timeline for the steps that will be taken to complete the certification. The author will use Jared, Kip, and Eric's expertise to take stock of environmental resources and potential liabilities and develop an environmental plan for Audubon International. The author will also be responsible for producing the environmental management practices in the following five main areas based on site specific information from Audubon International to receive certification.

- Environmental planning
- Wildlife and habitat management
- Chemical use reduction and safety
- Water conservation
- Water quality management

The sixth area of focus to receive certification from Audubon International is outreach and education. The First Tee is an international youth organization that introduces the game of golf and its inherent values to young people (www.thefirsttee.org). Nine chapters of The First Tee have recently partnered with Audubon International to create a "Live Green" program to provide environmental education to First Tee participants and golf courses in their community (Penton Media, 2012). The author will volunteer as an environmental educator for the First Tee

of Southern Nevada to suffice the requirements of outreach and education set forth by Audubon International.

The author will communicate updates to the Caesars Entertainment corporate sustainability department during their quarterly meetings. The goal for completion of the certification process will be July 1st, 2014 with the extended goal of the courses maintaining their certifications each year.

Conclusion

This sustainability proposal addresses many different departments at two different facilities. It does not propose any specific goals that are unattainable and suggests a starting point for how Rio Secco and Cascata can become more sustainable and benefit financially from this program. This program will also address the long overdue problem of employees of Rio Secco Golf Club and Cascata missing the CodeGreen education, engagement, and awards that Caesars Entertainment has found leads to high job satisfaction and increase in pride of the company in which one works. CodeGreen will finally be a part of the golf courses and the golf courses will now be part of CodeGreen.

Recommendations

The latest employee satisfaction survey participation session ended on November 19th, 2012. The survey included a section on both the employee's satisfaction with their job and their company as well as questions on their awareness of the CodeGreen initiatives that Caesars Entertainment has created. Eric Dutt, Vice President of Caesars Golf Operations will receive these results in December. The author strongly recommends that Rio Secco Golf Club and Cascata begin tracking their employees' awareness of CodeGreen initiatives and how this awareness correlates with overall job satisfaction at their facilities. The author recommends that

Rio Secco Golf Club and Cascata adopt this proposal and as the sustainability of their properties increases and the gap that exists between Caesars Entertainment's casino resorts and CodeGreen initiatives is bridged the golf courses continue to look to become more sustainable and continue to participate in the CodeGreen program and the new goals Caesars Entertainment initiates. This proposal will not be the final program that will create two properties with no room to become more sustainable. It is a proposal in which the smallest steps can start immediately and all suggested practices, certification processes, and employee engagement can be completed before the end of 2014. As the golf courses embrace CodeGreen and engage their employees in CodeGreen initiatives, Rio Secco Golf Club and Cascata will be able to mirror their goals regarding reductions and employee engagement closer to those of Caesars Entertainment.

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