LOS RIOS COMMUNITY COLLEGE DISTRICT
A Long-Term Commitment to Sustainability and Resource Conservation Inside and Outside the Classroom
April 2016
For many years, the Los Rios Community College District has recognized the environmental, economic and social benefits of sustainability and resource conservation. The District’s award-winning approach to sustainable practices has been integral to its construction, operations and maintenance programs, an approach and philosophy launched long before other public and private agencies and organizations responded to the lure of “being green.” Fifteen years ago, in 2001, the District recognized the burgeoning significance of sustainability when it created the position of Director of Energy and Utility Resources to help lead the District’s efforts. Today, the District’s current Strategic Plan calls for a districtwide vision for sustainability that “integrate[s] this vision into courses of instruction as well as District Business practices and operations.” The plan has helped guide the District and the four Los Rios Colleges to demonstrate leadership in achieving a sustainable future for the region.

Indeed, the District has worked for years to ensure that sustainable practices are woven into the new construction, modernization and expansion of nearly $400 million in Measure A and Measure M building projects, as well as into the daily operations and maintenance of all facilities and grounds and into the academic curriculum. The integration of this sustainable philosophy into business and teaching practices has led to many successful efforts to reduce the District’s use of resources, reduce its carbon footprint and provide an environmentally friendly environment in which to learn and work.

Along the way, Los Rios has shown time and again that choosing the sustainable path has allowed the state’s second largest community college district to do good and do well: environmentally responsible practices can prove to be financially responsible. Consider the District’s partnership with the Sacramento Municipal Utility District that led to more than $5.6 million in federal grants and energy efficiency incentives, or the District’s partnership with Pacific Gas and Electric Company that led to nearly $391,400 in financial support for a Smart Grid controls project. Smart Grids are electrical grids that include advanced meters and appliances, renewable energy resources and energy efficiency technologies to reduce the use and cost of electricity.

The District has also garnered numerous honors and awards for its efforts. Earlier this year, for example, the Sacramento Regional Transit District awarded Folsom Lake College’s new Rancho Cordova Center its Transit-Oriented Development of the Year honor.

The District’s sustainability and resource conservation programs have focused on five general areas:

- Energy and Resource Conservation & Efficiencies
- Reduction in Operational Costs
- Increased Lifespan of Major Equipment
- Responsible Stewards of Natural Resources
- Community Education and Awareness
At each of the four Los Rios Colleges, there is compelling evidence of the value of the District’s investment in the sustainable path. Here are some examples:

**American River College (ARC):**
- Aggressive recycling efforts, including 12 BigBelly solar-powered trash compactors, and 14 Max-R recycling stations
- Multiple bottle-filling hydration stations
- Drought-tolerant landscaping
- Eleven Electric Vehicle (EV) charging stations on campus

**Cosumnes River College (CRC):**
- Fourteen Electric Vehicle (EV) charging station on campus
- The college will be smoke-, tobacco- and vape-free beginning August 1, 2016
- The college has hosted a wide range of zero-waste events, including the 2014 Innovate! Conference (97 percent of waste diverted from landfill!) and the fall 2016 fall convocation
- The college is engaged in an aggressive, coordinated Reduce, Reuse and Recycle Strategy

**Folsom Lake College (FLC):**
- Two Electric Vehicle (EV) charging stations to be installed on campus in 2016-17, and bottle-filling hydration stations already installed (at FLC and the Rancho Cordova Center)
- The college will be smoke-, tobacco- and vape-free beginning August 1, 2016
- The college has launched green waste, cardboard and wood recycling programs
- “Green Course” offerings in environmental biology and water/waste water management, and the development of a wetland interpretive trail to enhance cross-curricular learning opportunities

**Sacramento City College (SCC):**
- Six Electric Vehicle (EV) charging stations on campus – four in the Parking Structure and two in the F (staff) parking lot, and four bottle-filling hydration stations on campus, with plans for others
- Two-thirds of the campus’s 28 fleet vehicles (including carts, flatbed trucks, vans and lifts) are electric or propane, and two new vans are Flex Fuel vehicles
- Professor David Hagerty this spring is working with students to complete a STARS (Sustainability Tracking, Assessment and Rating System) survey from the Association for the Advancement of Sustainability in Higher Education. The results of the survey will address many aspects of campus life, including transportation, curriculum development and the planning of new buildings. Students will learn citizenship responsibilities, including human impacts on the earth.

The following is a more detailed discussion of the District’s sustainable efforts and practices:

**Energy Conservation Measures:**

Over the last two decades, the District has actively pursued a wide variety of energy conservation programs. These programs include:

**Proposition 39:** In 2012, California voters passed the California Clean Energy Jobs Act, also known as Proposition 39. This act closed loopholes in the state’s corporate tax code, which then provided the
state with a revenue stream to create a 5-year Clean Energy Job Creation Fund of approximately $550 million annually for public agencies. Proposition 39 allows public agencies to undertake job-creating energy conservation projects within their respective institutions.

Los Rios has been taking advantage of Prop 39 funding to implement energy saving strategies that allow buildings to reduce energy consumption based on occupancy. These projects include lighting occupancy sensors for buildings and parking structures as well as Energy Management System (EMS) updates that include vacancy sensors and intrusion system interfaces.

Other occupancy-based measures provide the ability to shut down primary energy conversion systems such as boilers and chillers. These projects include ancillary cooling for computer spaces and other critical spaces that allows shutdown of chiller plants. We have also removed domestic water heating systems from central heating plants allowing for seasonal shut down of boiler plants further reducing energy demands. For Science labs, controls systems are being installed that will reduce energy usage in “Lecture” and “Unoccupied” modes.

These projects save energy and reduce maintenance costs while improving the learning environment. Prop 39 funding has allowed these projects to be implemented many years ahead of the typical funding schedule. Attached, please find a list of projects the District has completed or is in the process of completing in the first 3 years of this program.

The overall payback for the District’s Prop 39 projects is about 7 years. However, many of the projects are compelling as capital improvements. For example, the CRC Pool needed a new heater, SCC Mohr Hall needed a new chiller and the EMS Controls at FLC’s El Dorado Center are antiquated and no longer serviceable. Prop 39 funds were then used to address all of these issues, which in turn helped improve building performance and reduce costly unscheduled maintenance.

**Smart Grid:** On Sept. 15, 2010, the Board approved the Smart Grid Investment Grant (SGIG) Assistance Agreement CE-OE0D002H with SMUD. The $5,084,279 grant paid 50 percent of the total $10,168,558 project costs for energy-related measures. The District match included personnel time and bond funded building projects. The measures included updating the District’s Energy Management System (EMS) to conserve energy and providing a Web-based platform for participation by building occupants and energy information sharing. EMS updates included improvements to:

- Automated Demand Response (ADR)
- Occupancy based scheduling
- Supply Air Temperature optimization.
- Demand Ventilation
- Economizers (Outside air cooling)
- Night Purging

The project was completed in May 2013 and resulted in the District receiving $916,174 in utility incentives.

To accommodate the grant requirement for “Informed Participation,” the Lucid Design Group was selected to develop a Web-based platform for sharing energy and utility information with building
occupants and other stakeholders. This platform presents information in a graphically informative way that is meaningful to non-technical users. The platform provides single gateway for energy and utility information for the entire District. Some of the capabilities include displaying and/or providing:

- Real time energy use data for 71 buildings throughout the District
- Sustainability features of recent building additions and renovations
- Diagnostic tools for assessing energy use patterns
- Running Energy Utilization Index (EUI) for each campus as required by Prop 39.
- Real time PV generation tracking
- Automatic tracking of SMUD and PG&E utility bills

As the volume of available data expands with technology improvements, so does the challenge of turning data into usable information. To accomplish this, the District uses a web-based system called Lucid. The Lucid system is expandable and we currently plan to include water usage data within the system as well. This system will allow the District to save countless hours of manual data entry, data downloads and charting. The system requires little maintenance and is readily accessible by all stakeholders through a campus-based website where users are able to see real-time data from a campus-wide perspective all the way down to the individual building on campus. Below is a screenshot of the CRC Lucid website showing real-time energy consumption at the Visual and Performing Arts Center and cumulative energy usage for eight additional buildings on the CRC campus.
Access to this kind of data will allow campus user groups to take an active role in helping conserve energy and promote sustainability in their respective campus or building.

In addition to automatically retrieving data and generating graphics, analytical tools are incorporated to facilitate energy diagnostics without data scrubbing or manual conversions. One of the more compelling tools is the ability to continuously update and display Prop 39 required benchmarking calculations directly from Portfolio Manager which is the system the CCCCO uses to monitor Prop 39 projects.

**CCC-IOU Projects:** In 2008, the CCCC-IOU Partnership was developed to promote energy conservation projects while making optimal use of utility expertise and maximum use of utility incentives. This partnership resulted in the delivery of $2,043,000 in projects and $565,000 in utility incentives. Work included:

- Demand Ventilation controls
- Damper replacements
- Custodial bypass timers for ventilation control
- Variable speed drives and premium efficiency motors
Universal Transit Pass Program: In the spring of 2004, students approved a pilot Universal Transit Pass (UTP) fee program that offers students access to low-cost mass transit. The UTP pass provides students with a special unlimited pass to use on all Regional Transit (RT) bus and light rail systems in the Sacramento area, encouraging use of mass transit that translates to cleaner air, less crowded roadways and reduced fuel consumption throughout the region. Los Rios students embraced the program, taking close to 4 million passenger trips annually. Students in September 2015 voted overwhelmingly to continue the program for another five years at a slightly increased cost.

Energy Service Company (ESCO) Project: In 2003, the District undertook several ESCO projects, most notable the Districtwide Re-lamping Project. Older, poor performing fluorescent light tubes were replaced with new, high efficiency lamps and ballasts. This retro-fit project improved energy efficiency, improved light quality and allowed standardization of lamp types helping reduce operating costs and helped the District save $439,370 a year in electricity and operational costs. Utility incentives totaled $73,000. Additional ESCO projects included:

- Districtwide non-chemical Cooling Tower water treatment systems
- District Office cooling tower replacements
- Conversion of high pressure to low pressure steam boiler system at SCC
- Natatorium dehumidification system at SCC

Scheduled Maintenance and Special Repair (SMSR) Projects: Since 2002, the District has used state SMSR funding to maintain District facilities in a safe and continually usable condition. Whenever energy using equipment has needed replacement, a higher efficiency product has been installed. Since 2002, SMSR expenditures related to increased energy efficiency total $1,983,000. Projects include:

- Cooling Tower replacements
- Boiler replacements
- Transformer replacements
- Natural gas leak repairs
- Variable speed kitchen hood

Measure A and Measure M Projects: The District is committed to the US Green Building Council’s LEED standards. While we have only officially certified two buildings – the CRC Winn Center (LEED Platinum) and the Davis Center Phase 1 (LEED Silver), and are in the process of certifying a third (the Davis Center Phase 2 (LEED Silver)) – because of the high cost associated with “official” LEED certification, we have required all our new facilities be designed and built to LEED Silver equivalency. In order to achieve this, we require our design teams to demonstrate that they have achieved the Silver level by scoring between 50 to 59 points on the LEED certification checklist shown below.
As a result, the facilities constructed under our bond programs (modernizations, expansions and new construction) include numerous sustainable features. For example:

- Use of low-e tinted insulated glass for all windows. The low-e film reflects infrared light (heat) while allowing visible light to enter the building. This reduces heat gain within the building, which reduces the cooling load, thereby reducing the mechanical unit sizes; this generates a savings both in initial cost of equipment and long-term savings in energy usage.

- Extensive use of daylighting through window walls and skylights to provide sufficient illumination during the day reduces the need for electric lighting.

- Mechanical system features high efficiency fan units.

- Light-colored roofing materials to help reflect sunlight also reduces heat gain and reduces the need for cooling.

- Multi-level light switching and motion sensors for the electric lights help to minimize unnecessary light usage when daylight is sufficient, or when rooms are unoccupied.
• Renewable materials in the building contain both recycled and recyclable products:
  o carpet contains recycled content and is recyclable,
  o acoustical ceiling tiles contain up to 42 percent recyclable content
  o linoleum flooring contains recyclable content
  o glass, metal studs, and other flooring materials can be recycled or reused.

• Walk-off mats at all building entrances help maintain a higher indoor air quality by minimizing
  the amount of dirt and contaminants brought in from the outside.

• Low V.O.C. (volatile organic compound) emitting products help to improve overall indoor air
  quality.

• Automatic flush valves on toilets and sensors on faucets lower water usage. Landscape materials
  were also chosen to minimize irrigation demand.

• Building designs present sustainable strategies from an organizational or layout standpoint:
  community rooms are designed to be available for use when the rest of the building is closed.
  Access to restrooms and other building support areas is maintained without compromising the
  security of the main building. This effectively increases the efficiency of the building by allowing
  flexible use of space without having to heat/cool or turn on lights and other equipment for the
  entire building.

• Local products and labor: a substantial portion of the materials and labor for this project is
  within a 500 mile radius of the site, which reduces the amount of embodied energy through
  savings in fuel and transportation costs.

**Electric Vehicle Charging Stations:**
In addition to reducing our carbon footprint by increasing our energy efficiency and our use of “green”
building materials and practices, several electric vehicle (EV) charging stations have been installed
throughout the District. Today, there are 31 EV stations located on the main college campuses: 11 at
ARC, 14 at CRC and six at Sacramento City College. In addition, two stations are in design for FLC and two
are in design for the District Office. More stations are anticipated in the near future as funding becomes
available, to comply with state regulations.

**Power Generation – Photovoltaic (PV) Panels:**
When discussing the use of PV, it is important to understand the difference between power generation
and power/energy conservation. PV arrays provide a renewable and clean energy source. In an area
like Sacramento, they are a source of consistent and reliable energy and reduce the demand placed on
the local energy provider’s grid especially during peak use hours. But while they provide a source of
energy generation, they do not help reduce energy usage or directly aide in energy conservation.
Reducing energy usage (and reducing operation costs) can only be achieved by reducing the power
required by the application or end user. This is done in a variety of ways that include but are not limited
to energy efficient light fixtures, energy efficient HVAC units and automated and integrated energy
management systems in District facilities.

With the exception of the Davis, West Sacramento and El Dorado centers, all District facilities reside in
the SMUD service area. That means that the District’s energy costs are significantly lower than if it were
in the PG&E service area. Because of this, PV remains a difficult option for the District to justify financially in terms of its payback.

Today, the District has two PV systems installed capable of producing 330 kilowatts (kW) of electricity, as follows:
- CRC Parking Structure - 290 kW
- CRC Winn Center – 40 kW
  (Note: 330 kW is sufficient to power about 55 average single-family homes)

However, it is important to understand that:

- The expected payback for PV in SMUD territory is about 20 years. This is without utility and tax incentives. Since there is no SMUD incentive and we do not qualify for tax breaks, PV is not very compelling at this time. Please see analysis below. The costs shown are construction costs only and do not include indirect costs (design fees, inspection costs, DSA, etc.) that would make the payback period even longer. According to SMUD, because of this, there are no schools currently pursuing PV in the SMUD service area.

<table>
<thead>
<tr>
<th>System Type</th>
<th>Installed Cost ($/watt)</th>
<th>Present Value (Cents Per KWH)</th>
<th>Simple Payback (Years)</th>
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<tbody>
<tr>
<td></td>
<td>Low</td>
<td>High</td>
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<tr>
<td>Parking Canopy</td>
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<tr>
<td>Greenfield</td>
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<td>$4.00</td>
<td>7</td>
</tr>
</tbody>
</table>

**Assumptions:**
1) Each installed KW generates 1,650 KWH/yr for fixed south facing collector in Sacramento
2) Rolled up cost for SMUD electricity is $0.11/KWH
3) Life expectancy of PV system is 20 to 25 years.
4) Installed cost does not include soft costs such as legal, engineering, inspections, DSA etc.

- Solar panels may produce power for as long as 40 years, but beyond 20 to 25 years the amount of electricity produced drops off dramatically. This is due primarily to the life of the inverter (the piece of equipment that converts the collected solar energy into usable electricity). Their life is about 10 to 13 years. By year 20 to 25, it is not cost effective to purchase and install a 3rd inverter to get another five or so years out of the system. At year 25, the panels may still produce, but they will begin to fail. If one panel fails, it will take out the energy production from the entire string of panels. Additionally, mix and matching replacements in 20 years is not always successful in keeping a solar array productive.
• Unfortunately, PV does not help with our Prop 39 benchmarking reports. PV is simply considered the energy source and does not reduce our energy utilization index.

• With recent technological advancements in energy-saving HVAC equipment and light fixtures, it is actually far more economical and beneficial for owners to focus on reducing demand than installing energy generation facilities. For example, LED lights have improved greatly in the last five years. They have a longer lifespan and require a fraction of the power that other standard fixtures do. Additionally, the payback for replacing light fixtures in a facility is far shorter for LEDs (approximately five years depending on the type of fixture and application) than installing PV arrays. This is another reason why we have focused our Prop 39 projects on managing the demand side. In fact, Prop 39 California Community College (CCC) Project Guidelines require that energy conservation projects be prioritized over energy generation projects (CCC Energy Project Guidelines - District Guidelines Addendum, Article 4.2.3.1).

• As noted by the Board, the cost of PV panels has dropped in the last several years. However, the incentives that once existed for owners to install PV and offset the cost of installation have gone away. So while the cost of panels is less, no incentives means the cost to an owner for installing PV has essentially remained the same.

• Photovoltaic systems offer no added value other than generating electricity from a renewable source. If the District decided to only use energy from renewable sources, it could purchase “green” energy directly from SMUD for about 11.5 cents per kWh. This would increase our annual electric cost by about 4 to 5 percent but would still be a more economical alternative when compared with designing and building a new PV system.

**Water Conservation Measures:**
Due to the current drought conditions, Los Rios Community College District has undertaken a variety of water conservation efforts to drastically reduce the amount of water we use in our landscape irrigation and domestic water systems. District-wide, irrigation systems have typically comprised more than 65 percent of the District’s total water usage. We have reduced the amount of water we use on our turf and landscape areas by 50 percent in order to achieve the Governor’s statewide goal of a 25 percent reduction in total overall water usage.

**Landscaping Irrigation Systems:** While we are not subject to local agency water restrictions, we feel that in the interest of conserving our precious resources and being responsible members in our community, we currently adhere to the watering requirements of the city, county or water district in which each of our campuses reside. Since early 2014, our irrigation systems operate only two days a week (except for newly seeded, planted areas and athletic fields). For example, the cities of Sacramento and Folsom allow only two days of watering. We are currently mirroring that requirement on the SCC campus and on the FLC campus.

At ARC, all water (domestic and irrigation) is supplied by wells. At CRC, all landscaping water is also supplied by a well. Because these two campuses utilize groundwater for much of their water needs, they are far less affected by our current drought conditions. However, with a prolonged drought, even the water tables that we tap into will begin to be affected. Therefore, despite our independence from municipal or water district sources at ARC and CRC, we still enforce the same two-day water rationing as we do at all other Los Rios sites.
The District has 12 separate sites where we maintain landscapes, sports fields and irrigation systems. Previously, many of these irrigation systems were old irrigation timers that were set to water on pre-determined days of the week and pre-determined station run times. Run times had to be adjusted manually at each timer in order to reduce irrigation times and conserve water.

Approximately three years ago, we began installing “SMART” irrigation timers at all our main campuses and EDC. These timers take into account the soil type, plant species, exposure, type of sprinkler and root depth of the plant. The controller is connected to a local weather station and can automatically adjust the watering as it receives the weather data. Usually, the timer receives these updates once per day and will then adjust the watering schedule according to the weather. The amount of water necessary for each plant is determined by the “ET” evapotranspiration of each individual type of plant (turf grass, groundcovers, shrubs, or trees). The clocks can be programmed to water any amount of ET percentage as desired. One hundred percent of ET will give the plants all the water they need to grow well all season long. However, since water reduction is the goal during this drought period, we have manipulated the ET percentages to save water and still keep the plants alive, though maybe not in an optimum state.

Currently, these SMART systems are operating at the following facilities:

- FLC’s softball field, baseball field, track and surrounding landscape.
- CRC’s softball field, baseball field, “J” parking lot, new berms on Cosumnes River Boulevard and Center Parkway, stadium south field and surrounding berms, and landscape areas surrounding new parking structure, Winn Center and Northeast Technology Building.
- ARC’s landscape areas surrounding the parking structure and the new Student Services building.
- SCC’s Hughes Stadium south field.
- Davis Center
- Elk Grove Center
- Facilities Management Office
- District Office

Additionally, we are in the process of installing SMART systems at the following facilities:

- ARC - Child Day Care, Horticulture / Tech area, Southwest bookstore, Current Office area, Glass patio, Howard Hall, Theater, Art Faculty, Science and East Science.
- FLC – All campus landscape areas.
- SCC - Tennis court area, Panther Parkway, Bookstore, Parking Structure, Lusk Hall, pedestrian mall, South Quad, Rodda Hall North, Cosmetology and Tech quad, Liberal Arts and front area of the Performing Arts Center.
- Natomas Center
- Rancho Cordova Center

As of today, 50 percent of our irrigation timers are considered SMART timers and can adjust watering to the current weather and/or drought conditions. The District has budgeted $500,000 in
program development funds to complete the installation of all SMART timers throughout the District by the end of May 2016.

The District is also retrofitting several of its irrigation systems. For example, we are currently installing flow meters at FLC irrigation system to monitor water usage and assist in leak detection. Additionally, approximately 250 sprinkler nozzles are being replaced with more efficient mini rotator nozzles that use less water and reduce overspray.

Additionally, because Los Rios has established green and sustainable design standards equivalent to the United States Green Building Council’s LEED Silver certification level when modernizing existing facilities or constructing new facilities, the landscape areas surrounding these buildings include low water usage and drought resistant plantings. We also use similar water-saving plantings when refurnishing our existing stand-alone landscaped areas on our campuses.

**Domestic Water Systems:** As part of the District’s capital building program funded through Measure A and M, new and modernized facilities delivered since 2002 have included numerous LEED Silver equivalent water conserving features. In addition to water efficient landscape irrigation systems, our new facilities include lower water use plumbing fixtures in restrooms, classrooms and locker rooms; and closed loop hot/cold water hydronic systems to heat and cool our buildings.

Also, the District recently completed a comprehensive survey of all building water fixture in every District facility. In FY15-16, the District will utilize approximately $500,000 in PDF funds to replace all fixtures that do not meet the most current Title 24 gallons per minute (gpm) requirements. This will bring all District buildings (new and old) up to current code requirements. To date, all District non-compliant water closets have been upgraded to meet the new standard and we expect to complete the replacement of all sink faucet fixtures by the end of June 2016, which will reduce our water usage by 70 percent. Future phases will address urinal and shower fixtures.

**New Technologies and Opportunities:** Los Rios continues to explore new opportunities that new technology can provide. This technology includes centrally controlled flow sensors, master valves, water conservation sprinkler nozzles and ever-improving SMART irrigation controllers. These systems have the ability to monitor the flow of water continually. If there is an irrigation break or a problem, the system can recognize too much water flow and turn off the entire system. All these systems have the ability to be monitored and adjusted from a central location using a web-based application from a desktop computer, tablet or smart phone. Sub-metering of domestic water systems that can also be centrally monitored will also allow the District to identify line breaks or major leaks and execute the necessary repairs quickly minimizing waste. Once meters and sub-meters are installed, we plan to use the Lucid system to monitor these meters which will provide us the ability to set thresholds for real time water consumption and send email alerts when thresholds are exceeded.

As the State budget improves and facilities maintenance funds are restored, we will continue to implement and expand our water conservation efforts throughout the District.

**Organizational Changes:**
In addition to creating the Director of Energy and Utility Resources, the District has made several other operational and organizational changes to its staff over the last few years in the following areas in order to enhance its District-wide sustainability efforts:
HVAC System Efficiency: In 2012, the District added an additional HVAC Low Voltage Technician position. This position allows the District to engage in a more robust predictive maintenance program for all its major HVAC systems. Predictive maintenance helps determine the condition of in-service equipment in order to predict when maintenance should be performed. It is based on equipment’s actual performance and can be planned which then reduces incidents of unplanned stoppages by making equipment more efficient and reliable. Other advantages include increased equipment lifetimes, increased plant safety and optimized spare parts handling. This position has also greatly enhanced our in-house expertise in maintaining and managing our automated energy management systems, which has also helped increase the efficiency of our HVAC systems. The District can now trouble-shoot, repair and maintain these systems with quicker response times and be less dependent on third party entities to resolve system issues.

Building Operation Systems: In 2014, the District converted one of its electrician positions to a Building Operation Systems Technician. This position allows the District to better manage its building intrusion, EMS and access systems creating greater integration between these systems. For example, with the new card access systems being installed throughout the District, a building user can leave at the end of a workday and by simply swiping an access card over a reader, lock the main entries, set the security system and ramp down HVAC systems. This helps conserve energy and reduce equipment run-times thereby extending equipment lifetimes.

Landscape Irrigation Systems: To further increase its water conservation efforts, this year the District converted one of its groundskeeper positions to an additional irrigation specialist. This position will add to our existing ability and further assist the District in reducing the water usage on our many landscaped areas and athletic fields. This increased capability will also allow greater responsiveness in repairing line leaks and improved maintenance and monitoring of irrigation water systems. This position will also be responsible for remotely monitoring watering systems using a web-based system that will help the District manage irrigation water usage and provide early leak detection.

EMS Functionality: In the coming months, the District will be converting an existing maintenance position to create an in-house EMS software programming capability. This position will assist the District in directly modifying and addressing EMS system programming issues and further reduce, and eventually eliminate, our dependence on third party servicing of our Energy Management Systems. This position will allow for better control and adjustment to our building systems so that they can operate at optimum levels ensuing occupant comfort and maximum energy efficiency.

CONCLUSION: For the last two decades, the Los Rios Community College District’s sustainability and resource conservation efforts have been numerous and far reaching. In addition to the tens of millions of dollars the District has spent on the green and sustainable features designed and built into our bond projects, we have spent more than $24 million in conservation efforts during this period and earned $1.5 million in utility company incentives and $5 million in energy grants. Additionally, as shown below, the District had received several awards for its leadership.
<table>
<thead>
<tr>
<th>Award</th>
<th>Year</th>
<th>Organization</th>
</tr>
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<tbody>
<tr>
<td>Transit Oriented Development of the Year – Transit/Action Award</td>
<td>2016</td>
<td>Sacramento Regional Transit District</td>
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<tr>
<td>Sacramento Sustainable Business of the Year Award</td>
<td>2009</td>
<td>Sacramento County, Business Environmental Resource Center</td>
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<tr>
<td>Board of Supervisors Resolution</td>
<td>2009</td>
<td>Sacramento County of Board of Supervisors</td>
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<tr>
<td>Community Energy Award 2009</td>
<td>2009</td>
<td>SMUD</td>
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<tr>
<td>Sustainable Operations Best Practices</td>
<td>2008</td>
<td>UC/CSU/CCC Sustainability Conference</td>
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<tr>
<td>Environmental Recognition Award</td>
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<td>Business Environmental Resource Center (BERC) Award</td>
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<td>Certificate of Special Congressional Recognition</td>
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<td>Community Energy Award 2006</td>
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<td>Flex Your Power</td>
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<td>BERC Award</td>
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As technology in this field continues to improve, we will continue to work closely with our partners at SMUD, PG&E and our regional water districts to evaluate new programs and methods to further enhance our efforts in reducing our demand on energy and natural resources. These efforts will also include increased “informed participation” and more direct involvement by our facility users - students, faculty and staff – to ensure we remain responsible stewards of community and environment.