

B.10.1.1 (Procedure) Energy and Sustainability

Responsible Department: Chancellor's Office

Based on Board Policy: **B.10.1** Energy and Sustainability

Approved: 5-23-12

Last Amended: 8-19-26

The following are the procedures, guidelines and performance measures for promoting sustainability at all facilities within or operated by the College District. All College District expenditures shall comply with the sustainability policy.

Scope

The College District will achieve its sustainability goals by pursuing five pillars of an energy and sustainability strategic framework balanced with indoor air quality for employee health:

- 1) Advanced metering, monitoring, analytics, and visualization**
- 2) Utility Savings Projects for existing infrastructure footprint**
- 3) New Building Construction Standards**
- 4) Utility Management program**
- 5) Funding Innovation**
- 6) Indoor Air Quality**

These areas of focus are applicable to all campus and district department functions and activities.

1 Advanced metering, monitoring, analytics, and visualization

- 1.1 Install and update district metering with Advanced Metering, Monitoring, Analytics, and Visualization to form the backbone of ACD's energy and sustainability program. This comprehensive initiative is aimed at enhancing the efficiency and sustainability of ACD's operations through a variety of activities, including automating the utility billing data management process, leveraging data from Building Automation System (BAS) metering. Fund and execute projects to achieve building-level utility tracking which is vital for developing accurate benchmarks that compare the energy performance individual buildings to others across the district and national benchmarks. Building-level metering also enables the detection of anomalies in energy consumption at a much finer level, helping ACD address inefficiencies as they arise. Initial tracking and analysis will use utility billing data at the campus level (initial operating capability) until metering progress will allow remote telemetry and real-time, building-level, monitoring (full operating capability).
- 1.2 Automate utility billing data management. ACD will be able to significantly improve the accuracy and efficiency of tracking utility consumption. This is a critical step in enabling better decision-making and resource allocation.
- 1.3 The energy performance of major central plant, solar PV equipment, and recycled/collected water will be continuously monitored and analyzed. This real-time data allows for the early identification of performance degradation, enabling ACD to implement predictive maintenance strategies that can prevent costly equipment failures and downtime. Through this proactive

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approach, the O&M team will also be better equipped to resolve operational issues in buildings more efficiently, ensuring that systems continue to operate at peak performance.

- 1.4 The advanced metering program will enable the independent measurement and verification (M&V) of potential Energy Savings Performance Contract (ESPC) projects, decreasing or eliminating reliance on estimates. This will ensure that the energy baselines, savings and sustainability goals are being met as promised, adding an additional layer of accountability to the program. With these advanced tools in place, ACD is poised to set a new standard in energy and sustainability management.

2 Utility Savings Projects

- 2.1 At least annually, scan available opportunities for energy savings project opportunities. Update the list of utility savings projects and priorities.
- 2.2 Evaluate feasibility and develop rank priorities for candidate projects based on a combination of simple lifecycle payback/savings, Savings to Investment Ratio (SIR), and overall reduction of energy consumption.
- 2.3 Consider funding projects that may not have significant financial benefits if the overall energy footprint and greenhouse gas reduction are substantive. In other words, significant energy and greenhouse gas reduction is sufficient to carry forward a project that has break-even or limited financial return on investment. Projects can be executed through any viable and appropriate fund source for infrastructure work, maximizing use of federal, state, and local funding offset opportunities.
- 2.4 When programming and prioritizing institutionally funded Preventive Maintenance funded projects, elevate the priority of energy savings projects relative to similarly scored requirements that don't offer the cost or energy reduction.

3 New Building Construction Standards

- 3.1 Energy and sustainability improvements must begin at the earliest stages of new building projects, encompassing the planning, design, and construction phases. These early interventions are critical, as they establish the foundation for long-term energy efficiency and environmental responsibility. By prioritizing sustainability from the onset, ACD can reduce energy consumption, minimize environmental impact, and ensure that the buildings of tomorrow meet the highest standards of performance.
- 3.2 Architect/Engineer firms will submit project sustainability strategy for utilities (energy and water) at the schematic design (SD) phase, roughly equivalent to 30% design progress, for new buildings and full facility renovations. The feasibility of potential initiatives will be evaluated through design calculations during the project design. These recommended initiatives should surpass existing design codes and standards for energy efficiency. While building codes provide a baseline for energy performance, advocating for going beyond these minimum requirements create buildings that are future-proofed and optimized for energy savings. This includes adopting advanced technologies, materials, and design practices that exceed current benchmarks, leading to more sustainable and resilient structures. The sustainability strategy for a project should

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include scan of latest technologies including active and passive sustainable design features selecting the most effective. Examples include rainwater capture, graywater reuse (toilet flushing and irrigation), utility provider reclaimed water (irrigation/toilets), solar PV generation, passive solar design, geothermal/ground source heat pump, building alignment with wind/solar, shading, etc. Additionally, when exceeding energy code standards further produces lifecycle savings, those enhancements should be presented for potential inclusion in the project with explanation of incremental costs and operational savings, creating a net lifecycle cost reduction or neutral lifecycle cost impact but with significant sustainability benefits.

- 3.3 ACD will design and construct new buildings to LEED Silver standard with no requirement to complete the certification process and associated fees. It's essential to implement standardized rating systems to ensure consistency and transparency in measuring a building's energy performance. Utilizing established rating frameworks, such as LEED and Energy Star, provides a clear and objective way to assess energy efficiency and sustainability. These systems help design firms and builders track progress, compare performance, and identify areas for improvement, driving continuous enhancement in energy efficiency. Architect/Engineer firms will submit Energy Budget Figures (EBF) for new buildings at the Construction Document (CD) phase. EBF should include estimates for all energy and water consumption plus the Energy Use Intensity (EUI) in MBTU/SF per year.
- 3.4 All new buildings will have smart meters installed on all energy sources and water, compatible, connected, integrated, and commissioned with the ACD BAS system, or coordination with utility service meter that allows remote telemetry to be fed to the ACD BAS in addition to the utility provider. Cooling tower makeup and blowdown water will be sub metered. Irrigation water and domestic water will be both be metered. If on central plant for heating or cooling, the hot/chilled water, will have a thermal (BTU) meter installed. Mechanical equipment controls and automation with on-board/built-in meters will also be connected and integrated to the ACD BAS system for submetering.
- 3.5 A critical step in ensuring long-term energy performance is to prioritize full spectrum system commissioning. All new construction and major projects addressing Heating, Ventilation, Air Conditioning (HVAC) projects will include Commissioning Services of a registered commissioning agent. Commissioning Services shall be in place no later than the Design Development (DD) phase of design. Commissioning is a process that verifies whether a building's systems are designed, installed, and functioning as intended. By conducting thorough commissioning processes, building owners can ensure that energy systems operate at peak efficiency, reducing energy waste and operational costs over time. Engagement early in the design phase is critical to have impact on controls, sensors, and system design decisions that impact functionality, air quality, and sustainability. Many opportunities are lost if commissioning only occurs as a construction acceptance step when most work is complete.
- 3.6 Enable Inflation Reduction Act (IRA) credits for vendors (typically design firms) to provide a powerful incentive for firms to incorporate energy-efficient designs. Offering these tax credits which cannot be claimed by ACD directly can encourage widespread adoption of green building practices, making it financially viable for firms to push the envelope on sustainability. Financial

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incentives aligned to energy-efficient design will create a more robust and widespread commitment to sustainable development from designers and other contractors.

4 Utility Management program

- 4.1 Includes College operations, Facilities operations and maintenance, and behavioral elements of energy reduction and sustainability. Also includes creating visibility and awareness of utilities consumption for Colleges faculty, staff, and students via a utility dashboard comparing actuals to benchmarks. This level of monitoring allows ACD to closely track utilities, benchmark usage against peer institutions, and identify underperforming buildings and equipment that need attention. By continuously tracking and maintaining utility savings, the program ensures long-term performance improvements and cost savings.
- 4.2 Integrate energy reduction and sustainability into operations and maintenance, adding energy reduction and system optimization dimension to work orders and recurring scheduled preventive maintenance. Optimized Utility Management Program is designed to enhance performance throughout the entire lifecycle of facilities by implementing a continuous process of review, planning, implementation, and monitoring across all ACD locations. The optimized utility management approach ensures that facility performance improves consistently over time rather than degrading between construction and major renovations. By systematically following the steps of reviewing, planning, acting, and monitoring, the Utility Management Program drives a steady upward trend in facility performance, which helps to optimize energy use, reduce costs, and maintain sustainability. This iterative process emphasizes cumulative effect of many small improvements in daily O&M and continuous improvement, ensuring that facilities remain efficient and adaptable as needs evolve and new technologies emerge.
- 4.3 The program emphasizes Operations and Maintenance Optimization, ensuring that all systems run efficiently while minimizing downtime. It incorporates Energy and Sustainability Master Planning to provide a clear long-term vision and strategy for meeting ACD's energy goals. The importance of building commissioning is also highlighted, ensuring that systems function optimally throughout the lifecycle of the buildings.
- 4.4 The district will continue current operational and behavioral savings opportunities to include unoccupied setback, peak load shaving, summer/winter demand response initiatives, summer footprint consolidation, and look for opportunities expand the programs and identify others.
- 4.5 Temperature setpoints will be 69 DegF in the winter and 74 DegF in the summer with +/- 2 DegF variance allowed upon request for comfort in the learning environment and to compensate for specific facilities that may have afternoon sun, drafts, or humidity concerns that impact comfort or functionality of the space. Space set points will be automatically restored to baseline no less than seasonally.

5 Funding Innovation

- 5.1 Periodically conduct environmental scans to identify opportunities for financing, rebates, and incentives to successfully implement the Energy and Sustainability Master Plan and reduce financial operating budget constraints. Maximize use of federal, state, and local utility

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incentive programs.

- 5.2 Establish multi-year capital fund to collect utility related rebates, incentives, easements, savings, etc. for the purpose of funding additional energy savings initiatives. Manage the fund as self-sustaining when possible through payback of expenditures by verified energy savings from the utility billing account. After payback, the savings will appear as a reduction of required utility funding. Escalation for payback will be tied to construction cost index or US Energy Information Administration energy sector index, the Annual Energy Outlook (AEO).
 - 5.3 One of the current, key opportunities is the LoanSTAR Program from the State of Texas, which provides low-interest loans for qualifying work. These loans can be used to fund energy efficiency projects, making them an ideal financial tool to support improvements identified in the Preliminary Energy Assessment (PEA) and the Utility Assessment Report (UAR). The availability of low-cost capital through this program significantly reduces upfront financial barriers and ensures that energy savings projects can move forward more quickly.
 - 5.4 The Inflation Reduction Act (2022) offers a unique advantage for tax-exempt entities, such as educational institutions or local governments, by allowing direct payments. For solar energy projects, entities can receive up to 30% of the project cost covered, with an additional 10% for using domestic products, totaling 40% savings for installations under 1 MW. The act also provides incentives for energy storage projects, covering 30% of qualifying energy storage systems, including thermal energy storage (TES), which can play a critical role in optimizing energy use and reducing peak demand.
 - 5.5 Local utilities like CPS Energy and San Antonio Water System (SAWS) offer robust rebate and incentive programs that support energy efficiency, demand response, and water conservation efforts. These incentives can help fund the expansion of solar PV systems, promote the use of local contractors, and encourage participation in energy efficiency programs that reduce overall energy consumption. Similarly, water conservation measures are supported through rebates, making it easier to implement sustainable water management practices alongside energy initiatives.
 - 5.6 By leveraging these diverse funding sources and incentive programs, we can ensure that the Energy and Sustainability Master Plan is implemented in a financially viable manner, reducing both upfront costs and long-term operational expenses while driving sustainability across all aspects of operations.
- 6 Indoor Air Quality (IAQ) and Employee Health
 - 6.1 Purpose and Scope

Establishes standards for maintaining healthy indoor air quality (IAQ) for all District employees. It actively balances campus energy reduction goals with the physical well-being, comfort, and cognitive performance of students, faculty, and staff across all Alamo Colleges District facilities.
 - 6.2 Balancing Energy Efficiency and Ventilation

The university will optimize HVAC systems to ensure energy conservation measures never compromise employee health:

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- 6.2.1. Dynamic Ventilation Rates: Maintain ventilation rates that meet or exceed ANSI/ASHRAE Standard 62.1 while utilizing energy recovery ventilators (ERVs) to reclaim waste energy.
- 6.2.2. Carbon Dioxide (CO₂) Monitoring: Utilize indoor CO₂ levels as a primary indicator of ventilation adequacy. HVAC systems shall target steady-state indoor CO₂ concentrations of no more than 700 ppm above outdoor ambient air (typically targeting a threshold below 1,000 to 1,100 ppm total) during occupied hours.
- 6.2.3. Smart Automation: Implement demand-controlled ventilation (DCV) tied to real-time CO₂ and occupancy sensors to dynamically adjust fresh air intake, dropping to lower-energy baselines only when spaces are unoccupied and CO₂ thresholds are satisfied.
- 6.2.4. Filtration Standards: Standardize on MERV 11 (or higher) particulate air filters across all compatible campus air handlers. Facilities will maintain regular filter replacement schedules to optimize airflow efficiency, minimize fan motor energy draw, and capture fine airborne dust and allergens.

6.3 Low-Emitting Materials and Source Control

To protect employee health from airborne toxins, the District mandates source control for all facilities operations, ongoing renovations, and new construction:

- 6.3.1. Low-VOC Mandate: All interior architectural coatings, paints, adhesives, sealants, and flooring must meet South Coast Air Quality Management District (SCAQMD) or Green Seal standards for low or zero Volatile Organic Compound (VOC) emissions.
- 6.3.2. Furnishings and Composite Wood: All new campus office furniture and composite wood products must be certified compliant with ANSI/BIFMA X7.1 or TSCA Title VI to minimize formaldehyde off-gassing.
- 6.3.3. Flushing Protocol: Following any major renovation or paint application, facilities teams should execute a building "flush-out" using max outdoor air for a designated period before employees re-occupy the space but no more than 24 hours.

6.4 Maintenance and Green Cleaning

Daily operations will prioritize chemical source reduction to maintain baseline air purity:

- 6.4.1. Green Cleaning Products: Custodial services must source certified eco-friendly cleaning products to eliminate harsh chemical off-gassing in the workplace, Green Seal or EcoLogo certified cleaning products when possible.
- 6.4.2. Moisture Management: Facilities teams must respond to moisture leaks or water intrusion as soon as possible to prevent mold growth, which directly degrades employee respiratory health.