



CAPITAL IMPROVEMENT PROGRAM UPDATE

Bond Oversight Committee

November 27, 2007

"Facilities Excellence"

CIP Projects @ Cañada College

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- ❖ B16 & 18 Sciences (Swing/Construction)
- ❖ B7 FMC new construction (Bidding)
- ❖ B8 Admin. Phase 2 Renovation (Design)
- ❖ B5/6 University Center Renovation (Design)
- ❖ Utility Infrastructure Upgrade (Construction)

CIP Projects @ College of San Mateo

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- ❖ B2 Music Renovation (Design)
- ❖ B4 Fine Arts Renovation (Design)
- ❖ B14 and 16 Instructional Renovation (Design)
- ❖ CSM CIP2 Design Build Project
(Pending Approval)

CIP Projects @ Skyline College

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- ❖ B1 Fine Arts Phase 2 (Pre-design)
- ❖ B3 Physical Education Phase II (Design)
- ❖ B7 Allied Health (Construction)
- ❖ B30 FMC replacement (Bidding)
- ❖ SKY CIP II Design Build (RFP Process)

Sustainability in San Mateo CCD

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- **Board of Trustees goal (March 2007)**
- **Guiding principle in the 2006 Facilities Master Plan**
- **Economic & Financial Benefits**
- **State Mandate: Green Building Action Plan
(Governor's Executive Order 5/20/2004)**
- **IT'S THE RIGHT THING TO DO!**

Sustainability

Building Design Goals/Guidelines

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- LEED Certifications
- PG&E Savings by Design / CCC IOU Partnership
- Sustainable San Mateo County Guide
- Exceed Title 24 energy requirements
- Renewable energy sources
- Reduce Heat Island Effect
- Recovery of waste heat
- Re-use & diversion of construction materials
- Use of Recycled Materials



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Sustainability

Maintenance Goals

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- Minimize Cost of Operations
- Maximize Equipment Life
- Maximize Equipment Reliability
- Minimize Unscheduled Outages
- Minimize Loss of System Pressure or Capacity



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Sustainability/LEED Certification

Potential Programs / Resources already in place:

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- Capital Development Process
- Design Standards
- Campus Master Plan
- Alternative Transportation Program
- Pedestrian-Friendly Campus
- Comprehensive Recycling Program
- Campus Environmental Program
- Approved Planting List (Native Species)
- “No Net Loss of Forest Cover”



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Use of Green Construction Materials and Renewables

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- Window Treatments
- Carpet
- Acoustic Ceiling Panels
- Tarkett Linoleum Floorings
- Fiberglass Reinforced Panel Wainscot in Classrooms
- Furniture Specifications & Guidelines
- Energy Star Compliant Materials and Equipment

Energy Management/Efficiency

Need to Gather Data to Identify Trends

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- Energy Environment (Load Profiling)
- Infrastructure Condition
 - ▣ Age of Plant
 - ▣ Deferred Maintenance
 - ▣ Reliability Issues
 - ▣ Maintenance Issues

Utilities Groupings (Infrastructure)

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- Water
 - Potable Water
 - Non-Potable Water
 - Irrigation
 - Fire Protection
- Drainage
 - Sanitary Sewer
 - Storm Drain
 - Rain Water Collection
- Electrical
 - Electrical Power
 - Emergency Power
 - Exterior Lighting
- HVAC
 - Chilled Water
 - High Temperature Hot Water
 - Natural Gas
 - Instrument or Control Air
- Information
 - Telephone
 - Fire Alarm
 - Security
 - Cable TV
 - CCTV (Closed Circuit Television)
 - LAN
 - EMCS (Emergency Management & Control System)

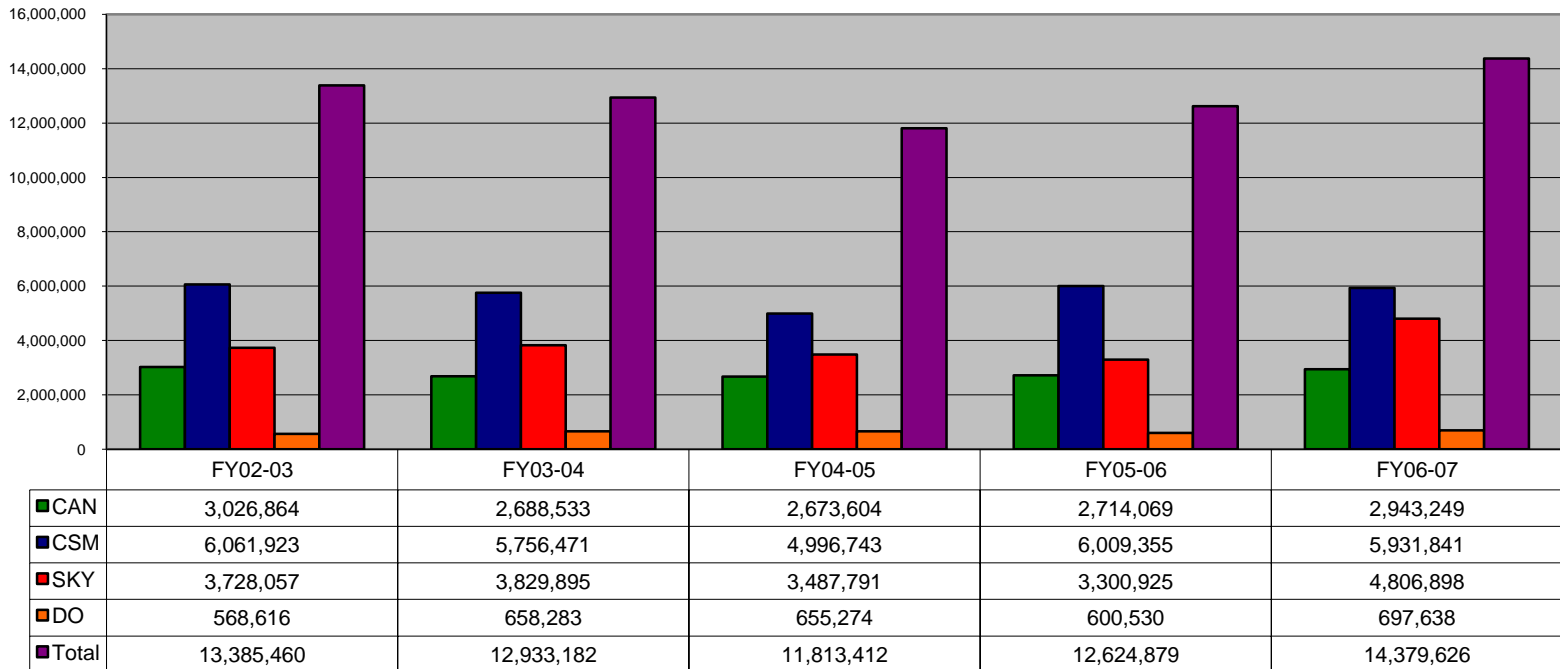
Metering and Billing (Load Profiling)

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- Do you know how much Energy your Campuses/Buildings are Consuming?
 - ▣ Identifies Energy “Hogs”
 - ▣ Identifies Distribution Losses
 - ▣ Identifies System Problems
 - ▣ Enables Square Foot Based Evaluations
 - ▣ Enables Month to Month & Year to Year Comparisons
 - ▣ Helps Manage Energy Consumption and Cost
 - ▣ Enables Benchmarking

Energy Management/Efficiency

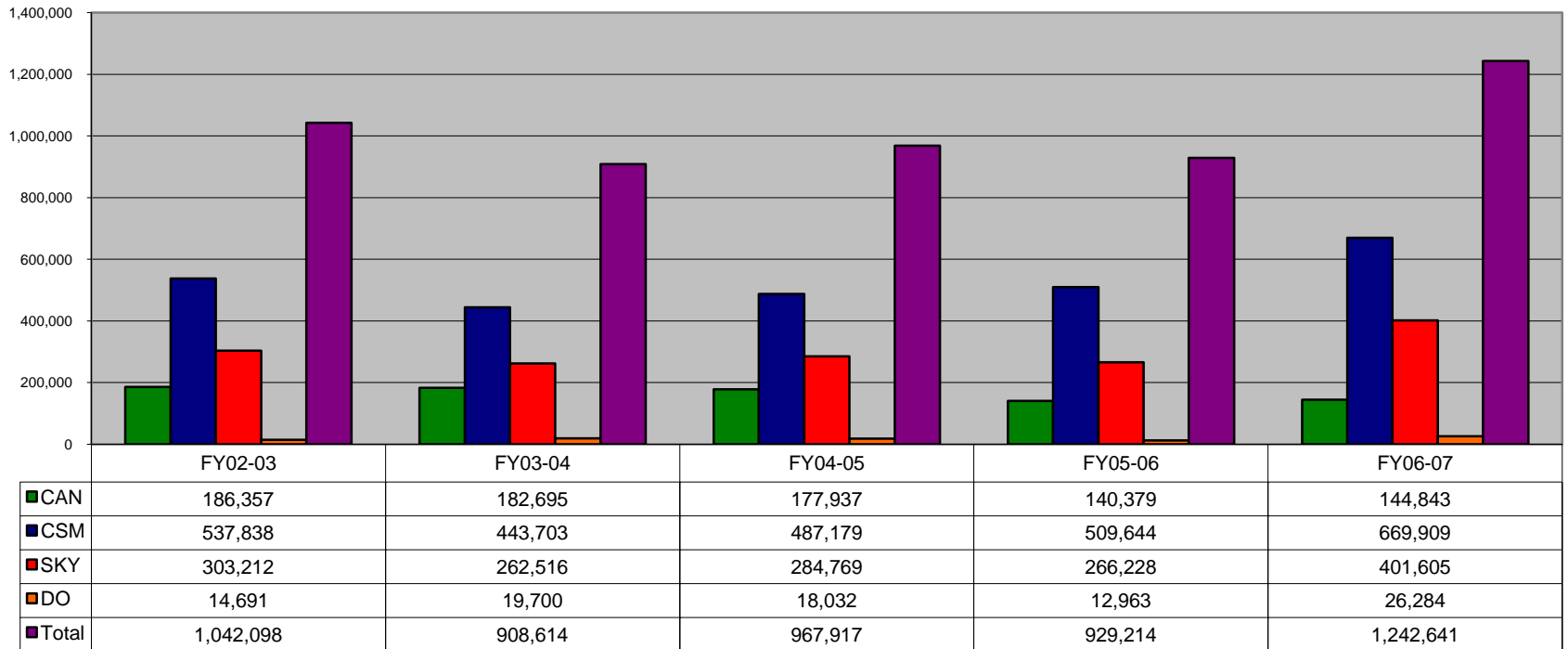
Electricity Usage by Site (in kWh)



Note: 226,788 additional square feet

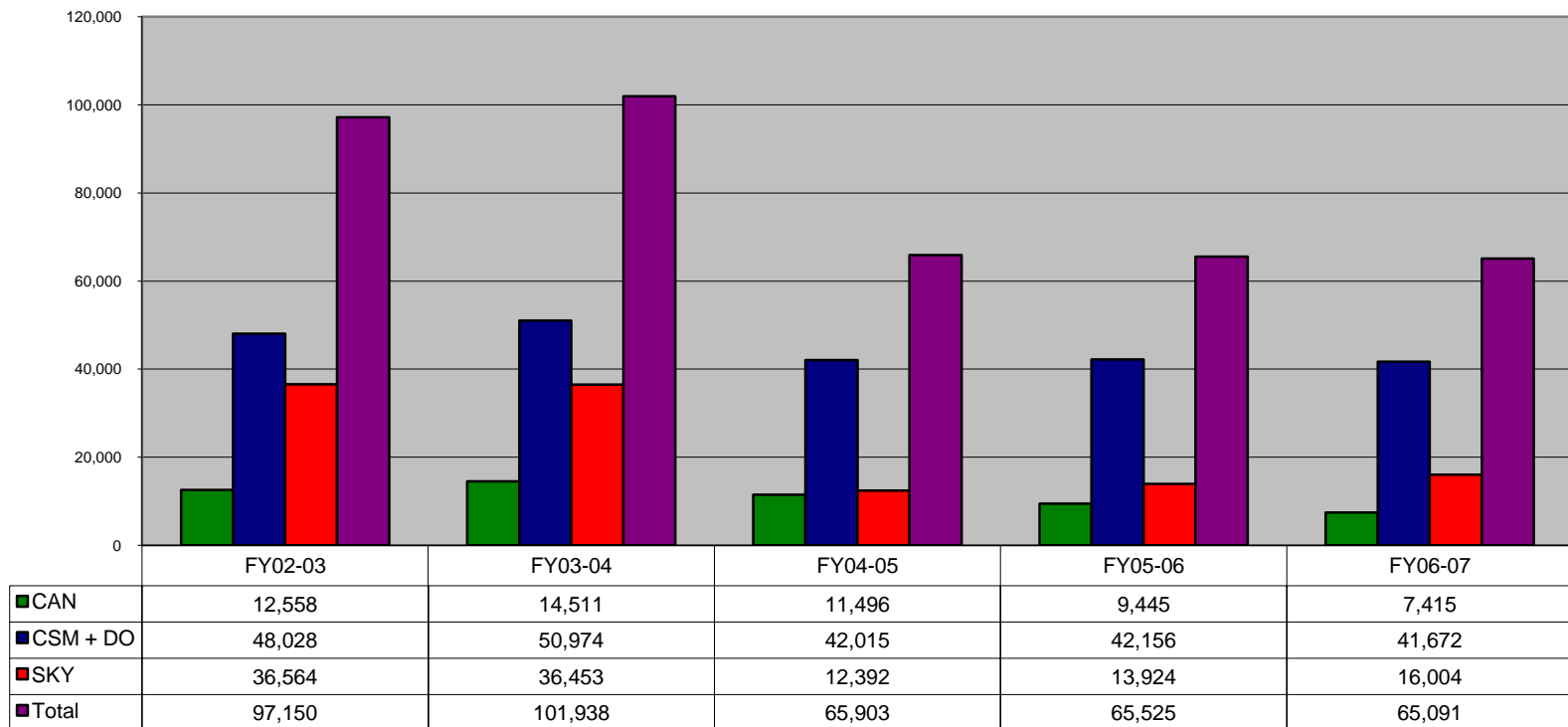
Energy Management/Efficiency

Natural Gas Usage by Site (in therms)



Energy Management/Efficiency

Water Usage by Site (in Ccf)



Note: 8 New Synthetic Fields
 - \$100K Savings Annually

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Affecting Factors

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- Funding Pressures
- Aging Facilities and Infrastructure
- Year Round Operation
- Environmental Laws
- Changing Roles of Utility & Energy Management
- Changing Role of Trustees
- Internet and use of other technologies
- Out-Sourcing

Sustainability and Energy Efficiency

Outcomes

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Work completed

- Installation of new energy management control system at all campuses
- Comprehensive systems commissioning at all campuses
- Cañada College chilled water plant expansion
- Heating / Hot water variable flow pumping at all campuses
- Primary / Secondary variable-flow pumping retrofits
- Electrical distribution system repairs
- Installation of Utility Vision real-time monitoring and metering platform at all campuses
- Air handling system refurbishments at all campuses

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Sustainability and Energy Efficiency

Outcomes

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Work Completed

- Underground piping repairs at all campuses
- Lighting retrofits : Lighting controls and circuit upgrades at all campuses
- Boiler repairs and preventative maintenance at all campuses
- Variable flow pumping retrofits at all campuses
- Co-gen plants: CSM (560 KW) & Skyline College (375 KW)
- Installation of new CO2 Sensors at all Gymnasiums

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Sustainability and Energy Efficiency

Outcomes

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Work Completed By the Numbers...

- Light Fixtures Retrofitted – Phase 1 & 2
 - Cañada 4,065
 - Skyline 668
 - CSM 4,818
- Air Handlers Refurbished
 - Cañada 27
 - Skyline 32
 - CSM 54
- Heat/Vent Units Refurbished
 - Cañada 26
 - Skyline 163
 - CSM 117

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Sustainability and Energy Efficiency Outcomes

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Work Completed

- Boilers Re-tubed
 - Skyline 2
 - CSM 2
- Underground Piping Replacement
 - Skyline 160 feet of pipe, 4 valves
 - CSM 46 feet of pipe, 54 valves, 9 expansion compensators
- EMS Control Points Connected & Functioning
 - Cañada 704
 - Skyline 633
 - CSM 1,555
- Commissioning
 - Skyline Buildings 3, 6, 7A and 8
 - Cañada Building 9
 - College of San Mateo Buildings 1, 8, 35 and 36

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Water Efficiency

8 Synthetic Turf Fields at Cañada, CSM and Skyline

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Water Efficiency

8 Synthetic Turf Fields

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□ Outcome

- Water usage
 - Synthetic Turf Savings = 3,400 ccf/month and \$106K per year
- Pesticides
- Herbicides
- Fuel / Oil
- Man power
- Paint / Chalk
- Low Maintenance

□ Safety

- Low injury rate
- Maximum Usage

□ Recycled Rubber



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Building Design

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□ CSM Science Bldg. 36 & Planetarium



42% MORE ENERGY EFFICIENT THAN REQUIRED BY CODE

Total Project Cost: \$28 Million

GSF: 60, 904 SF

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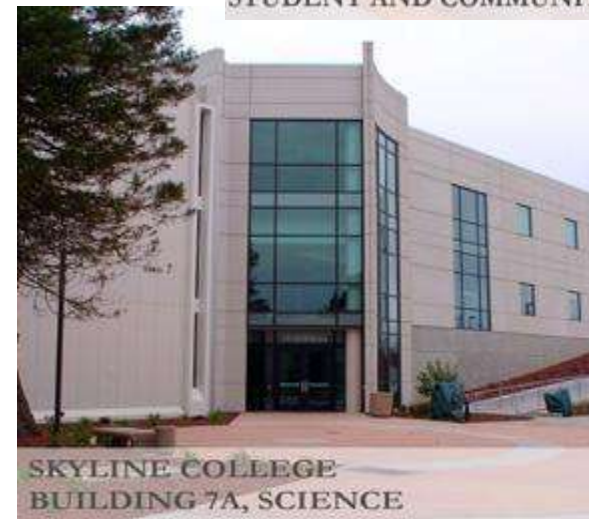
Building Design

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- Skyline Bldg. 6 Student Union
- Skyline Bldg 7A Science Annex



SKYLINE COLLEGE, BUILDING 6
STUDENT AND COMMUNITY CENTER



SKYLINE COLLEGE
BUILDING 7A, SCIENCE

28% MORE ENERGY EFFICIENT
THAN REQUIRED BY CODE

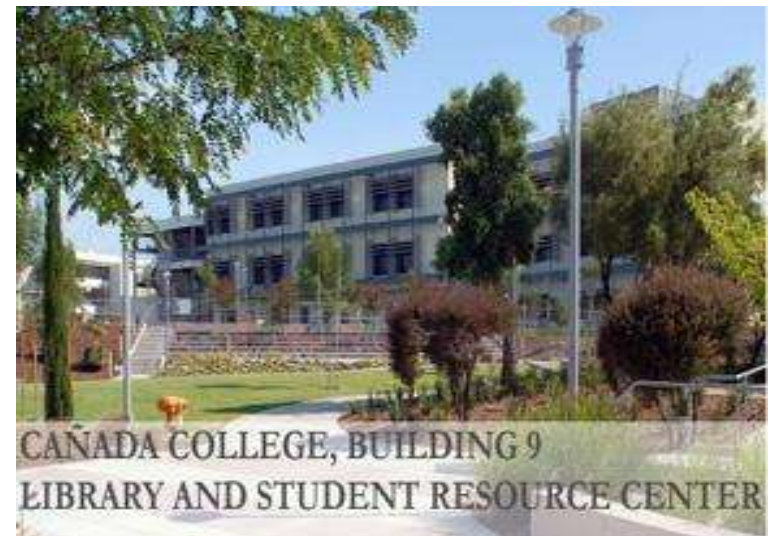
Total Project Cost: SKY 6 - \$14.1M, SKY 7A - 19M
GSF: SKY 6 - 28, 975 SF , SKY 7A - 38,828 SF

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Building Design

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□ Canada Bldg. 9 Library / Learning Resource Center



30% MORE ENERGY EFFICIENT THAN REQUIRED BY CODE

Total Project Cost: \$31.7M
GSF: 72,526 SF

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Waste Reduction and Management

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- Double-sided copiers
- Recycling programs
- Electronic forms
- Reducing/recycling grass clippings and tree trimmings
- compost
- Donate and resale program for unwanted furniture and equipment
- Construction material diversion

Indoor Air Quality (IAQ) Management Program

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- Outreach/Education through web site
- Written IAQ Training Program
- Review and adjustment of maintenance protocols for alignment with best IAQ practices
- <http://www.smccd.edu/accounts/facilities/maintenance/EnvironmentalHealth.html>
- IAQ Testing of all New/Modernized Bldg. 5

District Benefits

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- ❖ District energy use reduced by half
- ❖ Useful life of infrastructure extended at much lower cost
- ❖ Increased monitoring of building systems and usage
- ❖ Reduced dependency on energy grid
- ❖ Reduction in ozone depletion
- ❖ Reduction in waste stream
- ❖ Reduction in overall utility costs (gas, water, electricity, waste)
- ❖ Increased indoor environmental comfort
- ❖ Increased recycling
- ❖ Creates potential for future improvements and savings
- ❖ Sets good example for students
- ❖ IT'S THE RIGHT THING TO DO!

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The Cost of Not Being Green

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- ❑ Diminished indoor air quality
- ❑ Higher energy, maintenance & operating costs
- ❑ Lost productivity & performance
- ❑ Lost public relations opportunities
- ❑ Diminished occupant health
- ❑ Diminished student achievement
- ❑ High maintenance & operations cost

Summary

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- The Green Future is here
- Affirm commitment to achieving Board's goal of sustainability
- Encourage sustainability at all campuses

Question & Answer

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www.smccd.edu/facilities

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CSM Bldg. 36 & Planetarium

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