California Community College Summit

Sustainability through energy and resource efficient construction, rehabilitation, and operation of campus facilities

Fred Harris - CCC Chancellor’s Office
Jose Nunez – San Mateo County CCD
Bob Bradshaw – Citrus CCD
Ron Beeler – North Orange County CCD
Mike Miller – Butte/Glenn CCD
Lisa Hannaman - Southern California Edison
California Community Colleges

A System Perspective

Fred Harris
Assistant Vice Chancellor for Finance and Facilities Planning
California Community Colleges System Office
The Big Picture

Challenges and Opportunities for the California Community Colleges

- Evolving public policy and public opinion
- Environmental benefits of using less energy
  - Resource conservation, reduced air and water pollution
  - “Meeting the needs of future generations”
- Reduction of Greenhouse Gas emissions (AB 32)
  - Energy savings = Greenhouse Gas reduction
- Governor’s Green Building Initiative (Executive Order S20-05)
- CCC Board of Governors Sustainability Policy includes energy efficiency goals
- Integration with District Sustainability policies
- Economic benefits of Sustainability
System-wide Facilities Needs

Total system-wide unmet facilities needs are $30 Billion over 10 years

- Need 12 million new ASF to support enrollment growth
- Need to modernize 27 million ASF of existing space
  - 74% of total inventory over 25 years old
  - 45% of total inventory over 40 years old
There will NEVER be enough money!

Need to continuously LEVERAGE current and future assets with other resources & process improvements to maximize benefits for our students, through:

- Better Planning & Facility utilization
- Streamlined project delivery systems
- Forming strategic partnerships
- Benchmark to industry best practices
- Achieve Life cycle vs. first-cost savings
The Cost of Doing Nothing

Retail Price of Natural Gas 1980 - 2006

Source: U.S. Energy Information Agency

Retail Price of Electricity 1980 - 2005

Source: California Energy Commission

Dollars spent on energy are dollars taken out of the classroom!
Estimated minimum 10-Year Life Cycle Benefits from proposed 2009-11 Partnership

- **10-Year Cumulative Energy Impacts**
  - Electricity Savings: 725,562,048 kWh
  - Natural Gas Savings: 23,080,884 therms

- **$1 for sustainable facilities yields $2 energy savings**
  - Every $1 invested by a district for sustainable facilities improvements thru the 2009-11 Partnership will yield $2 in energy savings over the next 10 years
  - **Result:** Capital outlay investment *now* provides continuing relief to district support budget
CCC Board of Governors
Energy and Sustainability Policy

- CCC Board of Governor’s adopted an Energy and Sustainability Policy in January 2008
- Goal to reduce energy consumption from 2001-02 baseline consumption by 15% by the end of fiscal year 2011-12.
- Designed as a template for CCC Districts
- Beginning in 2010-11, incentive funding available for state funded projects:
  - 2% of construction costs for New Buildings that exceed Title 24 by 15%
  - 3% of construction costs for Modernization Projects that exceed Title 24 by 10%
Campus Best Practices

San Mateo Community College District

Jose Nunez
Vice Chancellor,
Facilities Planning and Operations and Maintenance
San Mateo Community College District

CSM Science Bldg. 36 & Planetarium

42% MORE ENERGY EFFICIENT THAN REQUIRED BY CODE

Total Project Cost: $28 Million
GSF: 60,904 SF
San Mateo Community College District

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

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
San Mateo Community College District

Canada Bldg. 9 Library / Learning Resource Center

30% MORE ENERGY EFFICIENT THAN REQUIRED BY CODE

Total Project Cost: $31.7M
GSF: 72,526 SF
San Mateo Community College District
Energy Usage Trending

Electricity Usage by Site (In kWh)

<table>
<thead>
<tr>
<th></th>
<th>FY02-03</th>
<th>FY03-04</th>
<th>FY04-05</th>
<th>FY05-06</th>
<th>FY06-07</th>
<th>FY07-08 (thru April 2008)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAN</td>
<td>3,026,864</td>
<td>2,988,533</td>
<td>2,673,604</td>
<td>2,714,089</td>
<td>2,043,249</td>
<td>2,054,159</td>
</tr>
<tr>
<td>CSM</td>
<td>8,081,923</td>
<td>6,758,471</td>
<td>4,098,743</td>
<td>8,006,355</td>
<td>5,031,841</td>
<td>3,438,880</td>
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<tr>
<td>DQ</td>
<td>598,818</td>
<td>658,285</td>
<td>655,274</td>
<td>600,530</td>
<td>897,838</td>
<td>570,884</td>
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<tr>
<td>Total</td>
<td>13,985,480</td>
<td>12,633,162</td>
<td>11,813,412</td>
<td>12,624,879</td>
<td>14,379,826</td>
<td>10,309,521</td>
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</tbody>
</table>

Note: 226,788 additional square feet
College of San Mateo Cogen: Maximum capacity 580 kw
Skyline College Cogen: Maximum capacity 375 kw
San Mateo CCD
Energy Usage Trending

<table>
<thead>
<tr>
<th>Site</th>
<th>FY02-03</th>
<th>FY03-04</th>
<th>FY04-05</th>
<th>FY05-06</th>
<th>FY06-07</th>
<th>FY07-08</th>
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<tbody>
<tr>
<td>CAN</td>
<td>$215,037</td>
<td>$303,281</td>
<td>$326,711</td>
<td>$374,200</td>
<td>$302,431</td>
<td>$359,516</td>
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<td>CSM</td>
<td>$451,061</td>
<td>$538,941</td>
<td>$592,199</td>
<td>$625,435</td>
<td>$676,810</td>
<td>$414,159</td>
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<tr>
<td>SKY</td>
<td>$318,787</td>
<td>$471,693</td>
<td>$412,670</td>
<td>$475,542</td>
<td>$595,550</td>
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<td>DDO</td>
<td>$54,295</td>
<td>$81,303</td>
<td>$96,140</td>
<td>$83,389</td>
<td>$83,918</td>
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<td>Total</td>
<td>$1,037,158</td>
<td>$1,408,198</td>
<td>$1,418,020</td>
<td>$1,798,589</td>
<td>$1,718,517</td>
<td>$1,257,878</td>
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</table>
San Mateo Community College District
Energy Usage Trending

<table>
<thead>
<tr>
<th>Site</th>
<th>FY02-03</th>
<th>FY03-04</th>
<th>FY04-05</th>
<th>FY05-06</th>
<th>FY06-07</th>
<th>FY07-08 (thru April 2008)</th>
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<tr>
<td>CAN</td>
<td>$132,758</td>
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<td>$157,870</td>
<td>$170,845</td>
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<tr>
<td>CSM</td>
<td>$355,870</td>
<td>$504,587</td>
<td>$383,643</td>
<td>$450,353</td>
<td>$814,279</td>
<td>$530,824</td>
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<tr>
<td>EKY</td>
<td>$189,079</td>
<td>$239,434</td>
<td>$224,709</td>
<td>$231,582</td>
<td>$398,043</td>
<td>$343,867</td>
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<tr>
<td>DO</td>
<td>$11,084</td>
<td>$16,598</td>
<td>$17,653</td>
<td>$15,005</td>
<td>$29,254</td>
<td>$32,599</td>
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<tr>
<td>Total</td>
<td>$577,788</td>
<td>$707,140</td>
<td>$783,535</td>
<td>$878,785</td>
<td>$1,177,190</td>
<td>$1,030,110</td>
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</table>
San Mateo Community College District
Energy Usage Trending

Natural Gas Usage by Site (in therms)

<table>
<thead>
<tr>
<th>Site</th>
<th>FY02-03</th>
<th>FY03-04</th>
<th>FY04-05</th>
<th>FY05-06</th>
<th>FY06-07</th>
<th>FY07-08 (thru April 2008)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAM</td>
<td>186,357</td>
<td>182,905</td>
<td>177,037</td>
<td>140,370</td>
<td>144,943</td>
<td>129,841</td>
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<tr>
<td>CSM</td>
<td>637,633</td>
<td>443,703</td>
<td>457,179</td>
<td>508,844</td>
<td>689,809</td>
<td>938,747</td>
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<tr>
<td>SKY</td>
<td>303,212</td>
<td>262,518</td>
<td>284,789</td>
<td>266,228</td>
<td>401,805</td>
<td>338,742</td>
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<tr>
<td>DCO</td>
<td>14,591</td>
<td>18,700</td>
<td>18,032</td>
<td>12,503</td>
<td>28,284</td>
<td>14,701</td>
</tr>
<tr>
<td>Total</td>
<td>1,042,068</td>
<td>608,514</td>
<td>667,917</td>
<td>626,214</td>
<td>1,242,641</td>
<td>1,090,031</td>
</tr>
</tbody>
</table>
San Mateo Community College District
Project Highlights

Energy Efficiency Rebates / Savings (to date)

- **Annual Operational Savings** (Performance Based Contract)
  - $1.5m for entire district (electric, gas and water)
- **PG&E Energy Efficiency**
  - CAN Air Handler Retrofits: Jan 2002 - $27,000
  - DW High Efficiency Lighting Systems: July 2002 – $102,600
  - CSM & SKY Co-Generation: November 2004 – $878,557
- **CCCCCO / IOU / EE Partnership**
  - CSM Gym VAV Retrofit Project, CSM Lobby Chiller Replacement Project, and SKY Gym VAV Retrofit Project: December 2006 - $81,051
- **Savings by Design**
  - CSM B35: Summer 2006 - $2,400
  - CSM B36: November 2006 - $56,117
  - SKY B6/7A: May 2007 - $38,546
  - CAN 9: March 2008 - $24,927
  - CAN FMC: Estimated $5,810
  - SKY FMC: Estimated $2,130
San Mateo Community College District
Project Highlights

Energy Efficiency (LEED / Savings by Design)

- **Upcoming New Buildings**
  - **Cañada College: Facilities Maintenance Center (FMC)** – 18,899 gsf
    - Total Contract Amount: $9.8M
  - **Skyline College: Facilities Maintenance Center (FMC)** – 13,491 gsf
    - Total Contract Amount: $8.3M
  - **CSM Design Build (2 Bldgs)**
    - Workforce / Wellness / Aquatic Center (5N) - 88,374 gsf
    - Student Services / Admin. / Student Activities (10N) – 104,149 gsf
    - Overall Campus Landscape & Hardscape
    - Total Contract Amount: $142.5 Million
  - **SKY Design Build (2 Bldgs)**
    - Cosmetology & Administration/Wellness Center (4N) – 70,310 gsf
    - Automotive Technology Building (11N) – 8,800 gsf
    - Overall Campus Landscape & Hardscape
    - Total Contract Amount: $60.4 Million
San Mateo Community College District
Project Highlights

Energy Efficiency

- CCC / IOU Partnership
  - Cañada 16/18 – Estimated PG&E Incentive $18,720
  - Cañada 5/6/8 – Form 2 submitted
  - College of San Mateo 2/4 – Form 2 submitted
  - College of San Mateo 14/16 – Form 2 submitted
  - Skyline 5 Lighting – Form 2 submitted
  - Skyline 7 – Estimated PG&E Incentive $12,211
  - District Wide Parking Lot Lighting – Estimated PG&E Incentive $28,127
Campus Best Practices

North Orange County Community College District

Ron Beeler
Facilities Director
North Orange County Community College District

CCC/IOU Partnership Approved Projects

- Replace campus cooling equipment with central plant
- Replace gym lighting with fluorescent
- Replace outdoor lighting with pulse start metal halides
- Install VFDs on fans in several buildings

Total District Savings – 3,585,934 kWh/yr
Total District Incentive – $1,059,653
North Orange County Community College District

Fullerton College – Central Plant

Life Cycle Cost Analysis Summary
25 Year Project Life

- Capital Investment: $12,006,000
- Annual Electricity Savings: 1,300,000 kWh
- Annual Electricity Savings (Year 1): $182,004
- Avoided Capital Investments: $10,679,475
- Life Cycle Electric Savings: $6,977,753
- Life Cycle Maintenance Savings: $311,500

Total Life Cycle Savings: $17,968,728
Net Life Cycle Benefit: $5,962,728
25-Year Net Present Value*: $1,507,003

*Assumptions:
3.85% Escalation for Electricity and O&M savings
4% Discount Factor for NPV
North Orange County CCD
Interval Metering Program

Fullerton College
800-Library

Increased "Cooling" Load
{2/7 degrees hotter}

Night Savings

Friday, May 16, 2008
Total kWh 3,250 -- Low: 63° -- High: 102°

Friday, May 18, 2007
Total kWh 3,515 -- Low: 50° -- High: 75°

Still Saved kWh
North Orange County CCD
Interval Metering Program

**Schedule changes generated the savings outlined in green.**

**Targeted savings are shaded in blue. These savings are dependant on cooperation from the custodians, as they have override ability with the lights.**

**Fullerton College 800-Library**

<table>
<thead>
<tr>
<th>Outdoor Temp</th>
<th>Lo</th>
<th>Hi</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/2/2008</td>
<td>55</td>
<td>88</td>
</tr>
<tr>
<td>4/25/2008</td>
<td>52</td>
<td>92</td>
</tr>
</tbody>
</table>

**Week of Friday, May 02, 2008**
Total kWh 20,822

**Week of Friday, April 25, 2008**
Total kWh 26,866
North Orange County CCD Interval Metering Program

Fullerton College 800-Library

<table>
<thead>
<tr>
<th>Outdoor Temp</th>
<th>Lo</th>
<th>Hi</th>
<th>Lo</th>
<th>Hi</th>
<th>Lo</th>
<th>Hi</th>
<th>Lo</th>
<th>Hi</th>
<th>Lo</th>
<th>Hi</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/26/2008</td>
<td>50</td>
<td>63</td>
<td>53</td>
<td>73</td>
<td>52</td>
<td>74</td>
<td>54</td>
<td>76</td>
<td>56</td>
<td>77</td>
</tr>
<tr>
<td>5/28/2007</td>
<td>61</td>
<td>73</td>
<td>59</td>
<td>75</td>
<td>59</td>
<td>75</td>
<td>58</td>
<td>74</td>
<td>60</td>
<td>75</td>
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</tbody>
</table>

Week of Monday, May 26, 2008
Total kWh 13,328

Week of Monday, May 28, 2007
Total kWh 20,484

Significant Holiday, Night and Weekend Savings Achieved through Lighting and HVAC changes = 7,156kWh (35% reduction)

Total Annual Electricity Consumption 1,100,000kWh
Annual Savings of 35% = 384,280kWh
North Orange County CCD Interval Metering Program

**Fullerton College**

<table>
<thead>
<tr>
<th>Outdoor Temp</th>
<th>HVAC for the 100, 300, 500, 1100 and 1300 Buildings</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/26/2008</td>
<td>300 Lo 69, 300 Hi 73, 500 Lo 74, 500 Hi 76, 1100 Lo 77, 1100 Hi 77, 1300 Lo 75, 1300 Hi 76</td>
</tr>
<tr>
<td>5/20/2007</td>
<td>50 Lo 61, 50 Hi 73, 75 Lo 59, 75 Hi 75, 74 Lo 58, 74 Hi 74, 77 Lo 60, 77 Hi 76, 75 Lo 62, 75 Hi 63, 76 Hi 63</td>
</tr>
</tbody>
</table>

**Total Annual Electricity Consumption**: 917,000 kWh

*Annual Savings of 48% = 442,860 kWh*
North Orange County CCD
Interval Metering Program

Fullerton College
900-Machining/Printing/Auto/Welding

2 Weeks Beginning Monday, May 19, 2009
Total kWh 14,865
2 Weeks Beginning Monday, May 21, 2007
Total kWh 17,383

Significant Night and Weekend Savings Achieved through Lighting and HVAC changes = 2,518kWh (14.5% reduction)

Total Annual Electricity Consumption 412,518kWh
Annual Savings of 14.5% = 59,755kWh
Campus Best Practices

Citrus Community College District

Bob Bradshaw
Construction Program Manager
Citrus Community College District

Partnership Projects Approved

- New central plant with thermal energy storage
- Replace HVAC units with VAV system, upgrade controls
- Replace exit signs with LEDs
- New boilers

Total District Savings – 1,113,621 kWh/yr and 18,495 th/yr
Total District Incentive – $318,982
Citrus Community College District

New Central Plant Floor Plan
**Central Plant Project**

**Life Cycle Cost Analysis Summary**

20 Year Project Life

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital Investment</td>
<td>$11,308,408</td>
</tr>
<tr>
<td>Annual Electricity Savings</td>
<td>1,000,007</td>
</tr>
<tr>
<td>Annual Gas Savings</td>
<td>18,495</td>
</tr>
<tr>
<td>Annual Energy Savings (Year 1)</td>
<td>$255,036</td>
</tr>
<tr>
<td>Avoided Capital Investments</td>
<td>$12,300,000</td>
</tr>
<tr>
<td>Life Cycle Electric Savings</td>
<td>$3,104,445</td>
</tr>
<tr>
<td>Life Cycle Maintenance Savings</td>
<td>$1,986,202</td>
</tr>
<tr>
<td>Total Life Cycle Savings</td>
<td>$17,390,647</td>
</tr>
<tr>
<td>Net Life Cycle Benefit</td>
<td>$6,082,239</td>
</tr>
<tr>
<td>20-Year Net Present Value*</td>
<td>$4,032,898</td>
</tr>
</tbody>
</table>

*Assumptions:*
- 3% Escalation for energy savings
- 2.85% Escalation for O&M savings
- 6% Discount Factor for NPV
Citrus Community College District

Cool Roofs
New Efficient Stadium Lights
Artificial Turf
Citrus Community College District

PIER-CCC Pilot Program

- Integrated Classroom Lighting Project at Citrus College
- Estimated to save 50% more than Title-24 requirements
Campus Best Practices

Butte College

Mike Miller
Director of Facilities Planning and Management
Butte College

Leadership In Sustainability

Butte College was founded in 1967 and is situated on a 500-acre wildlife refuge nestled within the Sierra Nevada foothills of Northern California. We are dedicated to the principles of environmental stewardship, community partnerships, and educational excellence.

Butte College serves an annual student population of 20,000 students and employs 1,800 faculty and staff. Because of our size, one of the largest community college campuses in California and our relatively remote and rural location in the center of Butte County, Butte College functions much like a small city: providing our own water and transportation systems, waste treatment facility, police department, and much of our own energy generating capacity.

Butte College’s Board of Trustees, administration, faculty, staff, and students honor our College’s legacy of existing in balance with nature by committing ourselves in the 21st Century to Sustainability Education, partnering with students, community, and the living biosphere to reduce emissions and create a healthy and prosperous world for present and future generations.
Butte College

Using an existing developed site with native landscape, Blue Oak preservation.
Typical Hard Bid
‘By Nature of Individual Interests – Adversarial, Parties Have Different Goals’

Owner

Architects

General Contractors

Project Success

Best Building Best Value

Building Meet Plans and Specs at the Highest Value (Change Orders)
Butte College

Construction Manager (CM) @ Risk GMAX (guaranteed maximum price)

Owner

Architect

Building CM

Subcontractors

Set and insist on standards especially Title 24 – 15%
Butte College

Chico Center

Exceeds Title 24 by 19%. Day lighting in all classroom spaces, and lighting and air conditioning occupancy sensors.
The Learning Resource Center (LRC) was State funded with Measure A component
- Size: 72,000 square feet
- Includes classrooms, the Center for Academic Success, computer labs, and offices
- Total project cost: $21,700,000
- Completed January 2006

Change Orders = 3.5%
30% better than Title 24
Library Renovation/Expansion

- Originally 100% funded by Measure A; now funded by State (Prop 55) and Measure A.
- Includes 10 small classrooms, 3 large classrooms, TV studio, radio/TV/film program lab, and double library space and significantly increase access to online resources.
- Total project cost: $19,700,000
- Construction began March 2006 and will be completed July 2007.

Change Orders = 2.7%
29% better than Title 24
When we are all done with IA & SGS buildings, we will have added 300K sq ft new space.
Butte College

Instructional Arts Building

Goal – LEED Certified
Two story, 72,000 square feet
Butte College

**Instructional Arts Building**

- LEED costs money but payback is fast and on-going
- $18.6 million - construction costs
- $265K - LEED certification, measurement and verification
- Now Title 24 – 30%
- Payback is 3.5 years – ongoing savings of $75.6K/year
- Utility savings and life cycle cost of equipment
- Energy savings - $0.20 cents/sq ft/year = $14,400.00
- Facilities lifecycle mechanical savings - $0.85 cents/sq ft/year = $61,200.00

**LEED** Certified Silver **Gold!!!**

$258 per sq. ft
UC/CSU/CCC Sustainability Conference

Butte College

Butte Instructional Arts

Document Date: 7/16/2006

Prepared By: Lindsey Pauls
Butte College

Student and General Services

Three story, 56,000 square feet
Goal – LEED certified
Butte College

Student and General Services

- LEED costs money but payback is fast and on-going
- $13.7 million construction costs
- $265K LEED costs
- Title 24 – 30% or higher
- Payback is 4.5 years - on-going savings of $58,800/yr
- Utility and life cycle cost
- LEED Certified Silver Gold Platinum (maybe)

$242 per sq. ft
## UC/CSU/CCC Sustainability Conference

### Butte College

#### Total Rating System Possible Points

<table>
<thead>
<tr>
<th>Category</th>
<th>Points Achieved</th>
<th>Points Targeted or Possible</th>
<th>Points Questionable that need further review</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sustainable Sites</td>
<td>69</td>
<td>41</td>
<td>1</td>
</tr>
<tr>
<td>Materials &amp; Resources</td>
<td>95</td>
<td>Possible Points</td>
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<tr>
<td>Total Points Available to this project</td>
<td>42</td>
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#### Sustainable Sites

<table>
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<tr>
<th>Credit</th>
<th>Possible Points</th>
<th>Notes</th>
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<tbody>
<tr>
<td>1</td>
<td>Construction Activity Pollution Prevention</td>
<td>Site Selection</td>
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<tr>
<td>2</td>
<td>Brownfield Redevelopment</td>
<td>Site Selection</td>
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<tr>
<td>3</td>
<td>Alternative Transportation, Public Transportation Access</td>
<td>Site Selection</td>
</tr>
<tr>
<td>4</td>
<td>Alternative Transportation, Bicycle Storage &amp; Changing Rooms</td>
<td>Site Selection</td>
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<tr>
<td>5</td>
<td>Alternative Transportation, Low-Emitting &amp; Fuel Efficient Vehicles</td>
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<tr>
<td>6</td>
<td>Alternative Transportation, Parking Capacity</td>
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<td>7</td>
<td>Stormwater Design, Maximize Open Space</td>
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<tr>
<td>8</td>
<td>Stormwater Design, Quality</td>
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<tr>
<td>9</td>
<td>Stormwater Design, Quantity Control</td>
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<td>10</td>
<td>Stormwater Design, Controllability of Systems</td>
<td>Site Selection</td>
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<tr>
<td>12</td>
<td>Stormwater Design, Daylight &amp; Views, Views for 80% of Space</td>
<td>Stormwater Design, Controllability of Systems</td>
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<tr>
<td>13</td>
<td>Stormwater Design, Controllability of Systems</td>
<td>Stormwater Design, Daylight &amp; Views, Views for 80% of Space</td>
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<td>14</td>
<td>Stormwater Design, Compost &amp; Agrifiber</td>
<td>Stormwater Design, Controllability of Systems</td>
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<td>Stormwater Design, Low-Emitting Materials</td>
<td>Stormwater Design, Compost &amp; Agrifiber</td>
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#### Materials & Resources

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<td>1</td>
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<td>Building Reuse, Minimize 70% of Existing_FINISHED</td>
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<td>Construction Waste Management, Over 50%</td>
<td>Building Reuse, Minimize 50% of Existing Non-Structural Deteriorated Materials</td>
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#### Water Efficiency

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#### Innovation & Design Process

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#### Innovation in Design

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<td>2</td>
<td>Innovation in Design</td>
<td>Green Building Design</td>
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<td>3</td>
<td>Innovation in Design</td>
<td>Sustainable Energy 17.5%</td>
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<tr>
<td>4</td>
<td>Innovation in Design</td>
<td>LEED™ Accredited Professional</td>
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### Butte College - Student & General Services

**Document Date:** 02/16/08

**Prepared By:** Trish Timothy

Total Rating System Possible Points: 69

Total Points Available to this project: 42
Butte College

Projects from Now to 2010

“What are we planning on doing…”

- *Construct New Instructional Arts Facility- Steel going up in June!
- Construct New Student/General Services Facility – Bid open on June 10, 2008!
- Student Center Renovation (CC) – Start planning fall 2008
- Complete Campus Wide Landscaping, Master Plan – 2009/10
- Upgrade Electrical System – 2009/10
- Network/Fiber Optic/Telecommunications – In Planning
- Upgrade Campus Intersections/Traffic Light – summer 2008
- Roadway Lighting – 2009/10
- Bus Terminal – 2009/2010

*State funding for Library, LRC and IA = $39,547,000.00
Butte College
Three Reasons for Success

1. Collaboration
2. Collaboration
3. Collaboration

*It is all about Leadership!*
The CCC / IOU Partnership

Program Overview and Status

Lisa Hannaman
Account Executive
Southern California Edison
The 2006-2008 CCC-IOU Energy Efficiency Partnership is designed to
- Identify energy savings opportunities
- Provide funding and support for energy efficiency projects
- Provide a framework and mechanism for the implementation of a comprehensive sustainability policy

The Partnership is comprised of four key elements
- Retrofit projects – \textit{Includes IT Energy Efficiency Projects}
- Monitoring-Based / Retro-Commissioning (MBCx / RCx) projects
- New Energy Efficient Construction (e.g. Central Plants)
- Training and Education activities

Anticipate continued funding in 2009 – 2011
- But need active involvement from CCC Districts to ensure ongoing IOU investment; portfolio will be “project based” using FUSION and actual district input
- Integration of all New Construction through the Partnership program
Who is involved?

- All four Investor-owned Utilities
  - SCE, SDG&E, SCG, PG&E
- CCC Chancellor’s Office
- All CCC Districts
- Newcomb | Anderson | McCormick
  - Program administration and management
## 2008 Incentive Levels

<table>
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<th>Measure</th>
<th>Incentive Rate</th>
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<tbody>
<tr>
<td>Electric</td>
<td></td>
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<tr>
<td>Packaged HVAC, HVAC Controls, Motors, Drives</td>
<td>$0.24/kWh</td>
</tr>
<tr>
<td>(Note: IOUs record HVAC savings from IT projects but pay no incentive)</td>
<td></td>
</tr>
<tr>
<td>Lighting, Lighting Controls, Daylighting</td>
<td>$0.15/kWh</td>
</tr>
<tr>
<td>Central Plants, Chiller Retrofits, Whole Building, and other major</td>
<td>$0.32/kWh *</td>
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<tr>
<td>Energy Efficiency Infrastructure Projects</td>
<td></td>
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<tr>
<td>MBCx</td>
<td>$0.32/kWh *</td>
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<tr>
<td>Plug and Process Loads - IT Project Savings Incentive</td>
<td>$0.15/kWh</td>
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<tr>
<td>Gas</td>
<td>$1.00/therm</td>
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</table>

* $0.24/kWh in SCE territory
Be a LEADER in Energy Efficiency!

How to Participate

Work in Partnership with the Utilities to:

- Develop a local Sustainability / Energy Policy
- Brainstorm ideas for energy savings opportunities at your campus with your Staff and Utility representative
  - New Construction Bonds are a significant opportunity to “design in” energy efficiency
- Consider performing an Energy Audit at your campus
- Attend a Partnership training and education session
- Contact local utility representative and request assistance with Project Application form for CCC-IOU Partnership
- Engaging other departments on campus that may have energy saving opportunities (such as IT and Foodservice)

Act now to make the most of these BENEFITS to your District.
The Partnership Team is here to help!
Estimated Life Cycle Benefits of Targeted Portfolio Implementation

**10-Year Cumulative Energy Impacts**
- Energy Cost Savings: $86,896,938
- Electricity Savings: 725,562,048 kWh
- Natural Gas Savings: 23,080,884 therms

**10-Year Overall Costs**
- Business as Usual: $6,447,469,907
- With Efficiency Projects: $6,405,745,461
- Overall Benefit to CCC: $41,724,446

Notes:
1) SMSR, Capital Outlay, energy costs
2) Includes reduction in energy costs and incentives
3) All figures are 10-year NPV, 2008 dollars
Partnership Process – *how to get the money!*

- Develop energy savings calculation
- Submit Project Application (Form 2 or NRR-DR) to IOU
- Pre-construction field verification
- Project Implementation
- Notification to IOU of completion
- Post-construction field verification
- IOU payment of incentive check
Process Details

- **Project Application**
  - Two parts:
    - Incentive application
    - Project information

- **Energy Savings Calculations**
  - Calculation subject to audit by CPUC
  - IOUs have developed Excel-based calculator for Server Virtualization projects
    - Calculates energy savings
    - Calculates estimated incentive
  - May use own calculation, if desired

*Your local IOU Account Representative can assist you with these steps!*
Savings By Design – New Construction

Proposed Changes for 2009-2011

- New Construction included in the Partnership program
- Owner Incentive from $150,000 to a maximum of $500,000
- Design team: $50,000 max, based on Owner Incentive, for a whole building project (something substantial or LEED)
- $5,000 Design Team Stipend for Integrated design
- 10% additional incentive for LEED certification
- 10% additional incentive for commissioning agents (enhanced-yes)
- 10% additional incentive for Measurement and verification after completion of the building.
- To summarize "kickers": a project can earn an additional 10% - 30% on top of their calculated Incentive.
SAVINGS BY DESIGN is a program to encourage high-performance nonresidential building design and construction. Sponsored by four of California's largest utilities under the auspices of the Public Utilities Commission, Savings By Design offers building owners and their design team a wide range of services:

- **Design Assistance** provides information and analysis tailored to the needs of your project to help you design the most efficient building possible.

- **Owner Incentives** help offset the costs of energy-efficient buildings.
  - Two Approaches for Participation:
    - Whole Building Approach
    - Systems Approach

- **Design Team Incentives** reward designers who meet ambitious energy efficiency targets under integrated design or Whole Building Approach.

Owners and design team members are eligible to participate. Contact your utility New Construction Representative early in the design process to determine funding availability, to learn about other program options, and to enhance your project’s energy efficiency potential.

Project must be located within the **service territories** of:

- Pacific Gas and Electric Company
- San Diego Gas and Electric
- Southern California Edison Company
- Sacramento Municipal Utility District
Additional Resources

- **Utility Program Portfolio**
  - California Solar Initiative (CSI)
  - Self Generation Incentive Program (wind, fuel cells)
  - Savings by Design (SBD)
  - Demand Response
  - Energy Watch Partnerships
  - Third-Party Programs
  - Utility Sponsored Climate Change Programs

- **Utility resource centers**
  - PG&E Pacific Energy Center (PEC)
  - SCE's Customer Technology Application Center (CTAC)
  - Agriculture Technology Applications Center (AGTAC)
  - SCE Ag Center in Tulare
  - Vocational Training (PG&E Stockton Training Center)
  - PG&E Food Service Technology Center
  - Sempra Energy Resource Center - Downey

*Talk to your Utility Account Representative for more info!*
How to Find the Money

- Historical level of utility spending on utility programs = $2 billion statewide over 3 years!!
- Energy $Mart
  - Contact: Patrick Mullen, Department of General Services, (916) 375-4617
- CEC Loan Program
  - Contact: Virginia Lew, California Energy Commission, (916) 654-3838
- Performance contracting – ESCO’s
  - Customize approach to meet campus needs
  - Best source of information is from other CCC Districts
- Local and State Bonds
- Scheduled Maintenance Budget and Block Grant Funding
- Many projects pay for themselves in 3 - 5 years through avoided costs
# Contact Information – *how can we help you?*

<table>
<thead>
<tr>
<th>Name</th>
<th>Organization</th>
<th>E-mail</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dan Estrada</td>
<td>CCCCO</td>
<td><a href="mailto:destrada@cccco.edu">destrada@cccco.edu</a></td>
<td>(916) 324-8901</td>
</tr>
<tr>
<td>Laura Wetmore</td>
<td>PG&amp;E</td>
<td><a href="mailto:llwe@pge.com">llwe@pge.com</a></td>
<td>(415) 973-8993</td>
</tr>
<tr>
<td>Dave Hather</td>
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<td><a href="mailto:dth2@pge.com">dth2@pge.com</a></td>
<td>(916) 386-5007</td>
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<tr>
<td>Lisa Hannaman</td>
<td>SCE</td>
<td><a href="mailto:lisa.hannaman@sce.com">lisa.hannaman@sce.com</a></td>
<td>(714) 895-0616</td>
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<tr>
<td>Michael Lo</td>
<td>SCE</td>
<td><a href="mailto:michael.lo@sce.com">michael.lo@sce.com</a></td>
<td>(626) 302-3818</td>
</tr>
<tr>
<td>Sheri Gates</td>
<td>SDG&amp;E/SCG</td>
<td><a href="mailto:SLGates@semprautilities.com">SLGates@semprautilities.com</a></td>
<td>(858) 654-1232</td>
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<td>(626) 857-4113</td>
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<td>(714) 808-4893</td>
</tr>
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<td>Larry Eisenberg</td>
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<td><a href="mailto:eisenblh@email.laccd.edu">eisenblh@email.laccd.edu</a></td>
<td>(213) 891-2366</td>
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<tr>
<td>Jose Nunez</td>
<td>San Mateo CCD</td>
<td><a href="mailto:nunezj@smccd.edu">nunezj@smccd.edu</a></td>
<td>(650) 358-6836</td>
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<tr>
<td>Mike Miller</td>
<td>Butte-Glenn CCD</td>
<td><a href="mailto:millermi@butte.edu">millermi@butte.edu</a></td>
<td>(530) 895-2381</td>
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<tr>
<td>Jo Ann Higdon</td>
<td>Cerritos CCD</td>
<td><a href="mailto:jhigdon@cerritos.edu">jhigdon@cerritos.edu</a></td>
<td>(562) 860-2451</td>
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<tr>
<td>Jeff Kingston</td>
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<td><a href="mailto:JKingston@clpccd.org">JKingston@clpccd.org</a></td>
<td>(925) 485-5244</td>
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<tr>
<td>Ann McCormick</td>
<td>NAM</td>
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<tr>
<td>Matt Sullivan</td>
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For more information check Program Web Site at: [www.cccutilitypartnership.com](http://www.cccutilitypartnership.com)