



OFFICE OF THE PRESIDENT

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September 5, 2006

**ACTION UNDER PRESIDENT'S AUTHORITY--AMENDMENT OF THE BUDGET FOR CAPITAL IMPROVEMENTS AND THE CAPITAL IMPROVEMENT PROGRAM AND APPROVAL OF EXTERNAL FINANCING FOR CENTRAL PLANT CHILLER RENEWAL AND ENERGY IMPROVEMENTS, DAVIS CAMPUS**

It is recommended that:

**Pursuant to Standing Order 100.4(q)**

- (1) The President amend the 2006-07 Budget for Capital Improvements and the Capital Improvement Program to include the following project:

Davis: Central Plant Chiller Renewal and Energy Improvements - preliminary plans, working drawings, and construction - \$7,837,000 to be funded from external financing.

**Pursuant to Standing Order 100.4(nn)**

- (2) The President approve external financing not to exceed \$7,837,000 to finance Central Plant Chiller Renewal and Energy Improvements, subject to the following conditions:
  - a. Interest only, based on the amount drawn down, shall be paid on the outstanding balance during the construction period;
  - b. Repayment of financing shall be from the Davis campus share of Federal Indirect Cost Recovery deposited to Fund 19933, which shall be in amounts sufficient to pay the debt service and to meet the related financing requirements; and
  - c. The general credit of The Regents shall not be pledged.
- (3) The Officers of The Regents be authorized to provide certification to the lender that interest paid by The Regents is excluded from gross income for purposes of federal income taxation under existing law.
- (4) The Officers of The Regents be authorized to execute all documents necessary in connection with the above.

A Key to the abbreviations and the project description are attached.

**KEY**  
Capital Improvement Program Abbreviations

<b>S</b>	Studies
<b>P</b>	Preliminary Plans
<b>W</b>	Working Drawings
<b>C</b>	Construction
<b>E</b>	Equipment
<b>-</b>	State Funds (no abbreviation)
<b>F</b>	Federal Funds
<b>G</b>	Gifts
<b>HR</b>	Hospital Reserve Funds
<b>I</b>	California Institutes for Science and Innovation
<b>LB</b>	Bank Loans or Bonds (External Financing includes Garamendi, Bonds, Stand-By, Interim and Bank Loans)
<b>LR</b>	Regents' Loans (Internal Loans)
<b>N</b>	Reserves other than University Registration Fee (Housing and Parking Reserves)
<b>R</b>	University Registration Fee Reserves
<b>U</b>	Regents' Appropriations (President's Funds, Educational Fund)
<b>X</b>	Campus Funds
<b>CCCI</b>	California Construction Cost Index
<b>EPI</b>	Equipment Price Index

Budget for Capital Improvements and the  
Capital Improvement Program  
Scheduled for  
Regents' Allocation, Loans, Income Reserves, University Registration Fee Reserves,  
Gift Funds, and Miscellaneous Funds

Campus and Project Title (Total Cost)	Proposed <u>2006-07</u>		
<u>Davis</u>			
Central Plant Chiller Renewal and Energy Improvements	P	\$119,000	LB
	W	\$131,000	LB
	C	\$7,587,000	LB
(\$7,837,000)			

**DESCRIPTION**

This project would replace three obsolete gas-fired chillers, in the Davis Campus Central Heating and Cooling Plant, with two 2,000-ton electric chillers. By replacing these inefficient and aging chillers, the campus would reduce the risk of a major system failure, restore its chilled water generating capacity, and gain long-term savings in its purchased utilities budget.

***Project Background***

The three existing “B-train” chillers, installed in the early 1970s, are now 11 to 15 years beyond the designed equipment useful life expectancy of 20 years. The three chillers are operating at less than 60 percent of their original installed capacity of 3,049 tons. Because these chillers comprise approximately 40 percent of the overall capacity of the campus chilled water system, continued reliance on these obsolete chillers presents a major risk of system failure. A failure in the chilled water system would seriously disrupt the instruction and research activities on the Davis campus and could lead to loss of valuable temperature sensitive resources. The new chillers would have an expected useful life of 20 years.

The two new chillers also would restore approximately 1,000 tons of capacity lost to equipment degradation in the “C-train” chillers. The original capacity of the three C-train chillers, installed in 1990, was 3,750 tons. Engineering tests run in 2003 indicated an actual operating capacity of 2,760 tons. Additional years of service have further reduced the operating capacity of these chillers.

All the existing chillers in the Central Plant are powered by turbines using steam from natural gas-fired boilers. The two replacement chillers would be powered by electricity. Because electric chillers are more efficient than steam-driven chillers and because the Davis campus has access to low-cost electricity through its U.S. Western Area Power Administration (WAPA) contract, operation of the new electric chillers would significantly reduce purchased utilities costs for the campus by minimizing high-priced gas purchases. At current gas and electricity prices, it is estimated that the annual savings in purchased utilities costs associated with operating the two electrical chillers would be approximately \$1.5 million.

The lead time for ordering the chillers is approximately six months. Construction work to prepare the site and install the chillers is anticipated to begin in April 2007, with completion by June 2007 so that the additional chilling capacity would be available for summer 2007.

### ***Funding Program Background***

In February 1998, The Regents approved a new multi-year funding approach to address the need for regular, systematic renewal of existing facilities and to reduce the backlog of deferred maintenance projects. This approach used external financing, with repayment of bonds to be made from a portion of the increase over the prior year's UC General Funds, specifically nonresident tuition funds. The amount of funding to be provided for debt service on an annual basis was limited to no more than 5 percent of the annual increase in UC and State General Funds. This new approach provided a significant level of funding for the systemwide program for the next several years, emphasizing a systems renewal rather than a repair approach in addressing the deferred maintenance backlog.

In the initial program year, 1998-99, this bond-financed program provided \$64.8 million for the systemwide deferred maintenance and capital renewal program. Additional debt was authorized by The Regents for the program in June 1999 (\$64 million), in May 2000 (\$66 million), and in May 2001 (\$45 million), resulting in an infusion of almost \$240 million for capital renewal over a four-year period. A total of approximately \$22 million per year in UC General Funds will be used to pay debt service for all four years of the programs. Only high priority projects with long-term benefits (minimum useful life of 15 years) were eligible to be funded through this mechanism.

In 2002-03, the systemwide debt-financing program for capital renewal and deferred maintenance was suspended because University funds used to support debt financing had to be redirected to offset State funding cuts. However, in order to allow individual campuses to continue to address their capital renewal and deferred maintenance needs, the University initiated a new funding program to authorize campuses to finance long-term debt for this program by pledging a portion of their UC General Fund income to fund high priority projects. Energy conservation projects are also eligible for financing through this program. Several campus debt-financed programs were approved during the four-year period 2002-03 to 2005-06, generating \$71 million in additional bond funding for this purpose.

The University is committed to continuing the deferred maintenance and capital renewal program, as well as its ongoing energy conservation efforts. This proposal would allow the Davis campus to direct a portion of its share of Federal indirect cost recovery deposited to Fund 19933 (known internally as part of University General Funds) to provide long-term financing for its capital renewal and energy conservation program.

### ***Environmental Classification***

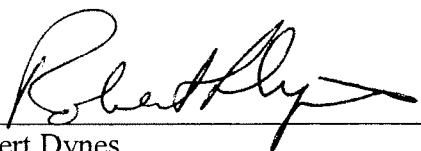
Appropriate California Environmental Quality Act documentation will accompany design approval for the project.

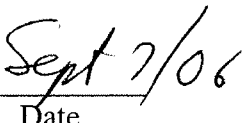
***Financial Feasibility***

The total cost for the Central Plant Chiller Renewal and Energy Improvements project is estimated to be \$7,837,000, to be funded from external financing. A summary of the financial feasibility analysis is presented in Attachment 2.

The Davis campus would use a portion of its share of the Federal Indirect Cost Recovery deposited to the campus's University General Funds as the pledged source of repayment for external financing. The projected annual debt service for the proposed project would be approximately \$795,000, calculated at an interest rate of 5.75 percent for 15 years. The total annual debt service pledged against this source of funds, including previously approved and pending deferred maintenance projects, would be approximately \$1,506,000, resulting in a debt-service coverage ratio of 6.08.

Approved by:

  
Robert Dynes  
President of the University

  
Date

Attachments

**PROJECT STATISTICS**  
**CENTRAL PLANT CHILLER RENEWAL AND ENERGY IMPROVEMENTS**  
**CAPITAL IMPROVEMENT BUDGET**  
**DAVIS CAMPUS**  
**CCCI 4890**

<u>Cost Category</u>	Amount	<u>% of Total</u>
Site Clearance	\$0	0.0%
Construction	\$6,733,000	85.9%
Exterior Utilities	\$0	0.0%
Site Development	\$0	0.0%
Fees	\$148,000	1.9%
A&E/PP&C	\$383,000	4.9%
Surveys, Tests, Plans	\$21,000	0.3%
Special Items *	\$215,000	2.7%
Contingency	\$337,000	4.3%
Total P-W-C	<u>\$7,837,000</u>	<u>100%</u>
Group 2 & 3 Equipment	\$0	
Total Project Cost	<u>\$7,837,000</u>	

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\* Special items include value engineering and independent reviews; agency review; interest during construction; and surveying.

**SUMMARY OF FINANCIAL FEASIBILITY ANALYSIS**

**Project Title: Central Plant Chiller Renewal and Energy Improvements**

**Total Estimated Project** \$ 7,837,000

**Proposed Sources of Funding**

External Funding \$ 7,837,000

**Proposed Financing Terms**

Interest Rate: 5.75%

Duration: 15 Years

**Pledged Source of Repayment:**

Federal Indirect Cost Recovery

Campus' allocation of Fund 19933 (actual 2005-06) \$ 9,158,000

Projected annual debt service (2008-09) (1)

Approved (Hunt Hall) \$ 92,000

Pending approval (2005-06 Deferred Maintenance program) \$ 619,000

Proposed Central Plant project \$ 795,000

Total \$1,506,000

Debt Service Coverage 6.08 X

(1) Second full year of principal and interest payments for the proposed project.