



OFFICE OF THE PRESIDENT

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January 22, 2007

**CHAIRMAN OF THE BOARD  
CHAIRMAN OF THE COMMITTEE ON GROUNDS AND BUILDINGS  
PRESIDENT OF THE UNIVERSITY**

**ACTION BY CONCURRENCE -- AMENDMENT OF THE BUDGET FOR CAPITAL  
IMPROVEMENTS AND THE CAPITAL IMPROVEMENT PROGRAM FOR UCDMC  
CENTRAL PLANT UTILITIES EXTENSION, DAVIS MEDICAL CENTER, DAVIS  
CAMPUS**

**EXECUTIVE SUMMARY**

Campus: Davis

Project: UCDMC Central Plant Utilities Extension

Action: Approval of Preliminary Plans, Working Drawings, and  
Construction

Total cost: \$11,057,000 to be funded from Hospital Reserves

Project Summary: The proposed project would extend primary distribution lines for hot and chilled water and normal and emergency power service from the Central Energy Plant to the Stockton Boulevard Research Center at the UC Davis Medical Center. This includes installation of communications conduit to support the Research Center and additional research or clinical facilities that would be sited in the Medical Center's southern campus zone. All piping would be direct buried with tie-ins and valves to accommodate future utility connections for structures planned in this area.

Issues: This project is included in the Five-Year Capital Program Non-State and State Funds 2006-2007 to 2010-2011.

It is recommended that:

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

- (1) The President, subject to the concurrence of the Chair of the Board and the Chair of the Committee on Grounds and Buildings, authorize that the 2006-07 Budget for Capital Improvements and the Capital Improvement Program be amended to include the following project:

Davis:            UCDMC Central Plant Utilities Extension - preliminary plans, working drawings, and construction - \$11,057,000, to be funded from hospital reserves.

A Key to abbreviations and the project description are attached.

KEY

Capital Improvement Program Abbreviations

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

Budget for Capital Improvements and  
the Capital Improvement Program  
Scheduled for  
Regents' Allocations, 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>			
UCDMC Central Plant Utilities Extension			
	P	\$350,000	HR
	W	\$521,000	HR
	C	\$10,186,000	HR
(\$11,057,000)			

**DESCRIPTION**

This action requests approval of the proposed UCDMC Central Plant Utilities Extension project at the Davis Medical Center campus in Sacramento. This project would provide necessary extensions of the hot and chilled water lines, normal and emergency electrical service from the central plant to the Stockton Boulevard Research Center (SBRC) with tie-ins for future connections to buildings that would be constructed in the southern zone of the medical center campus.

***Background***

The Central Energy Plant (CEP) at the UCD Medical Center was approved by The Regents in January 1994 and completed in July 1998. The initial CEP was sized to accommodate additional plant equipment through future expansions to meet the demand for utilities as new building construction projects were completed. Additional equipment foreseen included stand-by gas-fired boilers, emergency power generation, and chilling and cooling tower capacity.

The first CEP expansion was approved by the Chancellor in April 1998 and completed in June 2000. This included expansion of emergency power and cooling capacity and adding electrical cables for the emergency power distribution system. This also supported (1) the build-out of shelled space on the 3<sup>rd</sup>, 5<sup>th</sup>, 12<sup>th</sup> and 14<sup>th</sup> floors of Tower II, and (2) the Medical Investigation of Neurodevelopment Disorders (M.I.N.D.) Institute.

The second CEP expansion was approved as an “Action by Concurrence Item” in November 2002 and completed in February 2006. This provided a four-cell cooling tower and two additional chillers, upgraded a boiler to high pressure, and completed associated mechanical and electrical upgrades. This also supported utility services to (1) the 10 & 11<sup>th</sup> floors in the Tower II, (2) the Education Building (completed in December 2006), (3) the Cancer Center, (scheduled to commence construction in mid-2007), and (4) the Surgery and Emergency Services Pavilion (under construction and scheduled for completion in 2009).

### ***Project Need***

The Medical Center assessed the implications of alternatives to meet future expanded hot and chilled water needs in the research zone, including the cost of operating independent boilers, permitting fees, publicly sensitive air emissions issues and the additional maintenance. The Medical Center proposes that in-ground lines be extended from the CEP to the Stockton Boulevard Research Center (SBRC) in the research zone, rather than building new plant facilities in the research zone or connecting to the Sacramento Municipal Utility District (SMUD). The advantages of using utility services generated by the CEP are as follows:

- Avoids the payment of SMUD electrical and demand surcharges;
- Eliminates the need to purchase and maintain stand-alone heating/cooling units;
- Results in lower operating costs than installing stand-alone heating and cooling systems;
- Contributes to reducing emissions in the Sacramento Valley where air quality is a concern.

The central plant has hot water-generating capabilities and can capture the waste heat expelled by the electric-producing gas turbine to provide sufficient water to service the research zone.

The benefits of connecting the research zone to the CEP are:

- Avoids the 10-15 SMUD power outages normally encountered each year;
- Eliminates the chance of sustaining rolling blackouts during peak summer periods;
- Provides a higher power factor enabling HVAC and lab equipment to perform more efficiently;
- Provides utility infrastructure for future research buildings at today’s construction costs;
- Eliminates the need to purchase air emission offset credits for particulate matter;

- Uses more efficient co-generation system that is 80% efficient compared to the 30%-40% efficient systems used for standard methods in providing power, heating and cooling;
- Qualifies for co-generation rate for natural gas that is 60%-70% less than the Pacific Gas & Electric commercial rates paid to operate stand alone heating/cooling units;
- Provides extremely reliable power, heating and cooling.

A life cycle energy analysis performed in November 2005 indicated a payback of less than eight years for extending CEP services. This was based on the cost of a independent stand-alone energy center for the SBRC at approximately \$4 million versus the estimated cost of the CEP utilities extension of \$8.1 million. The yearly cost savings for utilities supplied by the CEP was projected to be \$557,000, based on current rates and the more efficient CEP equipment compared to stand-alone equipment. Since the energy analysis was prepared, the project cost has been increased to \$11 million, base on initial field surveys and preliminary planning activities. Although the total project cost is higher and payback is longer, proceeding with the proposed UCDCM Central Plant Utilities Extension is preferred because it would provide more reliable utility services to the SBRC and could provide service to additional research facilities that are planned for this area.

### ***Project Description***

This proposed project would extend utilities from the existing CEP to the campus research zone by means of an underground piping system and electrical conduit/ wiring system. The new lines would extend westward from a point near the central plant along the south edge of 2<sup>nd</sup> Avenue and turn south at the northeast corner of parking lot 14 and run directly south along the perimeter of the research zone.

Approximately 1,850 linear feet of underground utility distribution piping would be installed for both, the hot and chilled water lines, and conduits for the normal and emergency power lines. The hot water line would contain expansion loops as required. Four, four-inch conduits for communication cabling would be installed from a communications vault located near parking lot 14 and run parallel to the utility piping. At the SBRC termination point, transformers and electrical switchgear would be placed on a concrete pad enclosed with protective fencing. The entire utility system would be sized to accommodate additional development in this portion of the campus; however, any future development would be subject to environmental review and approval.

To allow easy maintenance and repairs, the new underground system would include service vaults and would connect to the existing infrastructure piping on the north side of the Central Plant. Tie-in connections would be provided and capped to allow planned research buildings to be connected directly to the utility distribution system.

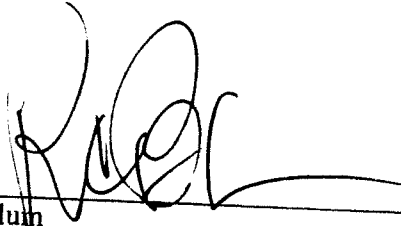
***CEQA Classification***

This project is not exempt from CEQA nor Categorical Exempt. An initial study will be prepared in conjunction with the Stockton Boulevard Research Center to evaluate the environment impact of the utility extension to that facility. The Chancellor's subsequent approval of the utility expansion project will be based upon the environmental documentation in the SBRC. The SBRC itself will require separate approval and LRDP amendment.

***Financial Feasibility***

The total project cost is \$11,057,000 at CCCI 4288 and would be funded from hospital reserves. Additional information on the project budget is included in Attachment I.

Approved:

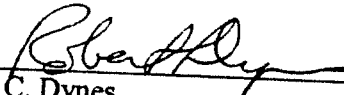


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Richard C. Blum  
Chairman of the Board

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Joanne C. Kozberg  
Chairman of the Committee on Grounds and Buildings



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President of the University

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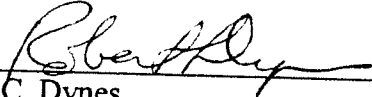
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Approved:

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**PROJECTS STATISTICS**  
**UCDMC CENTRAL PLANT UTILITIES EXTENSION**  
**CAPITAL IMPROVEMENT BUDGET**  
**DAVIS CAMPUS**  
  
**CCCI 4288**

<u>Cost Category</u>	<u>Amount</u>	<u>% of Total</u>
Site Clearance	59,000	0.5
Construction (Building)	0	0.0
Exterior Utilities	8,735,000	79.0
Site Development	526,000	4.8
Fees	775,000	7.0
Campus Administration	125,000	1.1
Surveys, Tests	200,000	1.8
Special Items*	171,000	1.6
Contingency	466,000	4.2
<b>Total</b>	<b>\$11,057,000</b>	<b>100.0</b>
Equipment		
<b>Total Project</b>	<b>\$11,057,000</b>	

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Statistics and comparison projects are not included due to the complex nature of this project.

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\*Special Items include EIR, cost estimates, value engineering, and special consultants.