The Regents of the University of California

COMMITTEE ON EDUCATIONAL POLICY
COMMITTEE ON GROUNDS AND BUILDINGS
COMMITTEE ON FINANCE
January 18, 2001

The Committee on Educational Policy, the Committee on Finance, and the Committee on Grounds and Buildings met jointly on the above date at UCSF-Laurel Heights, San Francisco.

Members present: ***Representing the Committee on Educational Policy***: Regents Atkinson, Bagley, Connerly, Davies, Fong, O. Johnson, S. Johnson, Lansing, and Preuss; Advisory members T. Davis, Morrison, and Seymour

Representing the Committee on Grounds and Buildings: Regents Atkinson, Connerly, Davies, Fong, Hopkinson, O. Johnson, S. Johnson, Khachigian, Kohn, and Kozberg; Advisory members T. Davis, Morrison, and Seymour

Representing the Committee on Finance: Regents Atkinson, Bagley, Connerly, Davies, Fong, Hopkinson, S. Johnson, Kozberg, Lee, Miura, and Preuss; Advisory member Morrison

In attendance: Regent Marcus, Faculty Representatives Cowan and Viswanathan, Secretary Trivette, General Counsel Holst, Provost King, Senior Vice Presidents Darling and Mullinix, Vice Presidents Broome, Drake, Gomes, Gurtner, Hershman, and Saragoza, Chancellors Berdahl, Bishop, Carnesale, Cicerone, Dynes, Orbach, Tomlinson-Keasey, Vanderhoef, and Yang, Laboratory Director Browne, and Recording Secretary Nietfeld

The meeting convened at 11:15 a.m. with Committee on Finance Chair Preuss presiding.

1. **REPORT ON THE CALIFORNIA INSTITUTES FOR SCIENCE AND INNOVATION**

Provost King recalled that on December 7, 2000 Governor Davis had announced the selection of the first three California Institutes for Science and Innovation. The funding for a fourth institute was included in the Governor's 2001-02 budget, which was recently released. He introduced Ms. Suzanne Huttner, the Director of the Industry-University Cooperative Research Program and announced her new position of Associate Vice Provost for Research for Industry-University Relations.

Ms. Huttner outlined the aims which the University had pursued with respect to the institutes. The first was to ensure that the Governor's goals were achieved for the State of California. The campuses were asked to explore the most visionary opportunities in all fields of science and

education. Another goal was to promote industry participation in research and education at the University. Throughout the process, emphasis was placed on rigorous peer view and a careful analysis of the budgets of each of the proposals. The proposal process had two phases. Eleven preliminary proposals were submitted by May 31, and six final proposals were received by October 6. All ten campuses participated in both phases. The Industry-University Cooperative Research Program attempted to foster cooperation with the faculty who were formulating the proposals. President Atkinson convened an All-UC Conference in March to inform interested individuals about the program. Subsequent to the preliminary proposal review process, the teams that wanted to submit final proposals were called together and coached on successful strategies. Following submission of the final proposals, Vice President Hershman provided advice on budgetary concerns. The process was overseen by a working group of vice presidents which was guided by Assistant Vice President Arditti. The proposals were submitted by the chancellors and all involved more than one campus.

Ms. Huttner described the core elements required for the proposals. Each had to have a clear vision of a unique, multidisciplinary research focus. Each should offer new opportunities for students that were integrated with the research focus. Meaningful participation by California industry was required, and this participation should engage industry in the day-to-day activities of the institute. The proposers were asked to have viable plans for leveraging their capital and operating budgets beyond the State funding to meet the Governor's two-to-one matching requirement. Reviewers from throughout the state were asked to perform the review process. They included individuals from industry and academia. The final proposals were reviewed in the University's peer-review and budget-evaluation process and by the Governor's selection committee, which received the findings of the University's review panels to assist the committee in making the final recommendations. Ms. Huttner noted that the entire process encompassed seven months from the enabling legislation in February to the final proposal deadline in early October. Each institute was required to indicate clear sources of the $200 million in matching funds in order to qualify for $100 million from the State. The six proposals brought in 327 companies as partners in the new institutes, 212 of which are based in California. The budgets for the six projects totaled nearly $2 billion. Of that, only $525 million was being requested from the State. The remaining $1.4 billion is in the form of matching funds.

California Institute for Telecommunications and Information Technology (Cal–(IT)^2)

Chancellor Dynes observed that the institute on telecommunications and information technology, which consists of a team from the San Diego and Irvine campuses, is particularly suited to southern California because the corridor between the two campuses is home to some of the world's leading high-technology companies. Many of these pioneering companies will be the institute's partners.

Professor Larry Smarr, director of the institute at UCSD, recalled that fifty years ago the radio had played a central role in transmitting information, but listeners were required to be stationary to receive this information. The invention of the transistor made it possible to take a radio throughout the physical world. Today, the personal computer asks its users to look through its screen into cyberspace. The goal of the institute will be to develop a new internet uncoupled from the personal computer using radio waves through wireless technology. The response to the proposal was overwhelming, with more than forty companies committing over $140 million over the next four years. The two campuses already have world-class structural engineering departments working on such projects as the retrofitting of the infrastructure following an earthquake. One of the institute's projects will involve the installation of wireless sensor arrays on bridges which will be linked to crisis management control rooms. When a cataclysmic event occurs, it will be possible to know which bridges have been damaged. These sensors will have to be reduced to small silicon devices which will provide information throughout the "high-tech coast" of southern California on such things as pollution, earthquakes, and traffic. Professor Smarr reported that 220 faculty members at UCI and UCSD would be engaged in the institute, working in multidisciplinary teams with students, industry, and the community.

Regent Hopkinson raised the issue of competition between the companies that will be involved in the institute. Professor Smarr reported that the leadership of most of the industrial partners is not interested in the details of the partnership. Rather, these companies believe that UC students are the most important product for their future. The San Diego campus has $12 million in fellowships pledged from industry over the next four years, with no strings attached. These funds could support up to 45 top students per year.

In response to a question from Regent S. Johnson regarding funding sources, Professor Smarr expected that the institute would receive a further $100 million to $200 million in federal funds. The issue of the operating budget will need to be addressed.

California NanoSystems Institute

Ms. Huttner reported that the California NanoSystems Institute is based at the Los Angeles and Santa Barbara campuses. Chancellor Carnesale explained that nanosystems are on the order of one-billionth of a meter. Studying these systems offers new knowledge to both science and technology. The Chancellor introduced the director of the institute, Ms. Martha Krebs, a former associate director at the Lawrence Berkeley National Laboratory.

Ms. Krebs discussed the research that will be undertaken at the institute. The work will focus on the building blocks of nature and attempt to put them to practical use. This use will include computers that are smaller, faster, and have more memory. New medical diagnostic tools will identify which molecule needs treatment and the medicine that should be used, given an individual's

genetic make-up. Ms. Krebs gave a slide presentation intended to convey the magnitude of the systems that the institute will hope to study and the ways in which the results may be used. These applications will be particularly useful in health care and in information technology. She observed that Governor Davis' vision will enable researchers to pursue the next generation of science and to train the next generation of scientists and engineers. The initiative will provide the opportunity for scientists to work cooperatively in ways that have not been possible before, as well as funding for laboratories and equipment.

Chancellor Yang commented on some of the advancements that might result from this new technology, including the ability to perform surgery outside of a hospital.

Institute for Bioengineering, Biotechnology and Quantitative Biomedical Research (QB3)

Ms. Huttner reported that the QB3 institute was a project of the San Francisco, Berkeley, and Santa Cruz campuses. Chancellor Bishop noted that the institute would take biomedical research beyond the cutting edge, into a world where physical scientists will work with medical scientists and physicians in critical areas of medicine. This research will have a salutary effect on the economic health of the campus, the Bay Area, and the State of California, as well as on human health.

Professor David Agard, the director of the institute at UCSF, explained that the institute's theme would be to develop the technologies that will allow scientists to understand living systems at a molecular level and to use that knowledge to understand how these components work together in a living system. The complexity of biological systems presents a great challenge. Traditional science has sought to understand systems by breaking them down into their smallest parts. Recent developments will enable researchers to look at whole systems. Over the past decade, a combination of techniques has led to a better understanding of the make-up of cells. The sequencing of the human genome will provide a vocabulary of life. The institute will integrate physical, mathematical, and engineering sciences to create new techniques for attacking biological problems of such complexity that they remained unapproachable until now. Technologies that function at the molecular level will be used to analyze the entire human body. New educational programs will need to be created, as well as new links to industry. UCSF's high-field Magnetic Resonance Imaging system will delineate the boundaries of diseased tissue and refine new techniques for identifying the composition and concentration of chemicals in tumors. It will be possible to combine imaging techniques to obtain maps of biochemical activity within regions of diseased tissue. In order for the institute to develop the necessary new technologies, it must work together with industry. Traditionally, researchers in the biological sciences have not tended to seek industrial interaction. One mission of the institute will be to facilitate such partnerships. These relationships will lead to technology development and transfer to industry. The institute will also involve technology in educational programs. Professor Agard was hopeful that QB3 would be successful in creating an entire new industry, which would be a hybrid of bio-technology and

information technology. He noted the intention of combining the knowledge created by all of the institutes for science and innovation. The institute will train a new generation of students who are fluent in both biology and the hard sciences. It will link the Berkeley, San Francisco, and Santa Cruz campuses to provide a unique multidisciplinary educational environment, with students taking advantage of the best of what each campus has to offer. By attracting the best students, the program should improve faculty recruitment and retention.

Center for Information Technology Research in the Interest of Society (CITRIS)

Chancellor Berdahl observed that the presentations had underscored the connectivity that joins the four institutes. CITRIS will involve participation from the Berkeley, Davis, Merced, and Santa Cruz campuses. It will focus on using information technology to improve transportation systems, emergency and disaster preparedness, the transmission of medical information, and environmental monitoring.

Professor Richard Newton, Dean of the College of Engineering at the Berkeley campus, reported that, in addition to the four campuses, CITRIS will involve the participation of more than thirty industrial partners, government agencies, and national laboratories. CITRIS will focus on information technology solutions to difficult problems that affect people's lives. The institute will involve faculty in disciplines throughout the UC system. Dean Newton reported that 170 faculty members on the Berkeley campus had responded to the initial request to participate in the institute. Ninety faculty were chosen, including 24 from Davis and Santa Cruz. Dean Newton noted the need for a strong educational component in order to educate people on how to implement the results of CITRIS's research. The undergraduate information technology program at Berkeley will be established at the Merced campus to help develop the new campus faster than would otherwise be possible. Turning to healthcare, Dean Newton reported that CITRIS will develop monitoring systems that will allow people to delay their transition to assisted living. The National Institutes of Health has estimated that 60,000 lives could be saved annually through this type of technology. Another potential technological development will be personalized use of cell phones for mass communications during emergencies. In making its proposal, CITRIS reported $250 million in matching funds, of which $170 million was committed by companies and individuals, including 11 founding corporate members. The corporate members understand the value of solving large societal problems. They also recognize the high quality of the CITRIS team.

Regent Hopkinson expressed the appreciation of The Regents to the Governor for his leadership in establishing a program that will have an impact on the state and the country and will prove to be a legacy of his era of governorship.

President Atkinson recalled that when the Governor served on the Board of Regents in the capacity of Lieutenant Governor, he was an active participant on the Board and was interested in the

industry-University partnerships that were being developed. He gained a sense of the importance of these programs to the restructuring of the state's economy. The President stressed that the California Institutes for Science and Innovation were the Governor's idea in the deepest sense of the term. He expressed appreciation to Director Huttner for her leadership in the process.

Mr. Tal Finney of the Governor's staff emphasized the Governor's belief that he will be best remembered for establishing these institutes. He expressed the Governor's appreciation to the University for accepting the challenge that they represent.

Regent Lee observed that the Riverside campus was not represented in any of the institutes. President Atkinson expressed the opinion that the Governor might wish to support a fifth institute which would be focused on agricultural genomics and would involve the Berkeley, Davis, and Riverside campuses. He stressed that the selection had been made based upon the quality of the proposals.

Ms. Huttner reported that the issue of ongoing operating support for the institutes would be of concern.

2. **AMENDMENT OF THE BUDGET FOR CAPITAL IMPROVEMENTS AND THE CAPITAL IMPROVEMENT PROGRAM, CALIFORNIA INSTITUTES OF SCIENCE AND INNOVATION, OFFICE OF THE PRESIDENT**

The President recommended that:

A. The Committee on Grounds and Buildings recommend, subject to the concurrence of the Committee on Finance, that the 2000-01 Budget for Capital Improvements and the 2000-03 Capital Improvement Program be amended to include the following projects:

Institute for Bioengineering, Biotechnology and Quantitative Biomedical Research

San Francisco: Mission Bay Building 24C – predesign studies and preliminary plans – $4.7 million to be funded by the State through the California Institutes of Science and Innovation program.

Berkeley: Stanley Hall – preliminary plans – $5,787,000 to be funded by the state through the California Institutes of Science and Innovation program.

Santa Cruz: Physical Science Building Upgrade – preliminary plans, working drawings, and construction – $500,000 to be funded by the State through the California Institutes of Science and Innovation program.

Santa Cruz: Engineering Building Addition A – predesign studies and preliminary plans – $192,000 to be funded by the State through the California Institutes of Science and Innovation program.

California NanoSystems Institute

Los Angeles: Court of Sciences Building – predesign studies and preliminary plans – $2,995,000 to be funded by the State through the California Institutes of Science and Innovation program.

Los Angeles: CNSI/Engineering 1 Replacement Building – predesign studies and preliminary plans – $1,424,000 to be funded by the State through the California Institutes of Science and Innovation program.

Santa Barbara: CNSI Building – predesign studies and preliminary plans – $3,051,000 to be funded by the State through the California Institutes of Science and Innovation program ($1,971,000), gift funds ($80,000), and parking reserves ($1,000,000).

California Institute for Telecommunications and Information Technology

San Diego: Cal-$(IT)^2$ Facility at San Diego – predesign studies and preliminary plans – $3,644,000 to be funded by the State through the California Institutes of Science and Innovation program.

Irvine: Cal-$(IT)^2$ Facility at Irvine – preliminary plans – $2,153,000 to be funded by the State through the California Institutes of Science and Innovation program.

B. The Committee on Finance concur with the recommendation of the Committee on Grounds and Buildings to include this project as described in A. above.

It was recalled that, as detailed in the presentations, the California Institutes for Science and Innovation represent an unprecedented three-way partnership between the State, industry, and the University of California. Each focuses on a research field which is essential to the future of California's economy, bringing together UC's world-class scientists and students with industry

researchers in a cooperative research and education effort that will produce both new knowledge and the next generation of scientists and technological innovators. The California Institutes for Science and Innovation will undertake basic, multidisciplinary research on complex problems requiring the kind of scope, scale, duration, equipment, and facilities that they uniquely provide. The cooperative UC-industry effort will speed the delivery of public benefits through new products, technologies, services, and jobs.

Vice President Hershman reported that $400 million will be allocated to the University by the State over the next four years. The University will be responsible for managing the money. At the end of the four-year period, the University will develop an agreement with the State for long-term operating funds to support core research. In addition, each campus will submit items for individual projects to The Regents to request both the amendment of the Budget for Capital Improvements and the Capital Improvement Program for the total project cost and approval of external financing, if required, when each specific project is ready for action. Further information concerning funding sources will be provided at that time. As appropriate, environmental documents prepared pursuant to the California Environmental Quality Act will be presented to The Regents for review and consideration at the time of project design approval.

The 2001-02 Governor's Budget includes the first year of funding for the Center for Information Technology Research in the Interest of Society. Subsequent funding will be provided for two additional years in the 2002-03 and 2003-04 budgets, for a total of $100 million. The administration anticipates seeking Regental approval for the planning of the fourth institute in July 2001 following the passage of the 2001-02 Budget.

Institute For Bioengineering, Biotechnology and Quantitative Biomedical Research

The Institute for Bioengineering, Biotechnology and Quantitative Biomedical Research is allocated $100 million in State funds through the California Institutes of Science and Innovation program, with matching operating and capital funds of $418 million of federal and private research funds and $40 million from federal overhead funds using the Garamendi financing mechanism.[1]

San Francisco: Mission Bay Building 24C

[1] Under Garamendi financing, incremental indirect cost recovery generated by federal contracts and grants made possible as a result of the project is used to pay for operations and maintenance of the project and for debt service.

At the UCSF Mission Bay campus, institute scientists in the bioinformatics and structural/chemical biology programs will occupy a new five-story research building of approximately 91,000 assignable square feet, to be constructed contiguous with Genentech Hall. The new building will house research laboratories for structural and chemical biology, bioengineering, bioinformatics or computational research, and specialized research support. It will also include instructional and support facilities. A major feature of the building will be a magnetic resonance imaging facility on the first floor. The total project cost is estimated at $92.5 million, to be funded by the State, Garamendi financing, and private contributions.

Berkeley: Stanley Hall

The new facility will provide a 240,000 gross square feet (gsf) building on the present site of Stanley Hall to house research and teaching laboratories and other functions to bring together physical, biological, and health scientists and engineers working at the intersections of their disciplines. The building will include offices and laboratories for the newly established bioengineering department as well as portions of the departments of molecular and cell biology, chemistry, and physics; ultra-high-field Nuclear Magnetic Resonance facilities; a bionanotechnology center; a multi-media center; meeting rooms; and other research and administrative support space. The total project cost of the facility is estimated at $121.4 million to be funded by the State, Garamendi financing, and private contributions.

Santa Cruz: Physical Science Building Upgrade

This project will improve 4,287 assignable square feet (asf) of office, work area, and laboratory space in the new Physical Sciences Building to support computer-intensive functions. The work includes the upgrade of power and data networks, air conditioning to control equipment heat load, and the provision of a high-speed data connection. The Physical Science Building will house five faculty and four postdoctoral students associated with the institute and working in areas such as computational biology, microarray technology, robotics, functional genomics in a vertebrate model organism, and combinatorial chemistry. The total project cost is estimated at $500,000 to be funded by the State. The project is planned for completion in spring 2003.

Santa Cruz: Engineering Building Addition A

This project will add 5,000 asf of new space as a partial floor to the separately planned Engineering Building which will accommodate 11 new faculty and 22 postdoctoral students associated with the program. The total project cost is estimated at $3.5 million.

California NanoSystems Institute

The California NanoSystems Institute (CSNI) is allocated $100 million in State funds through the California Institutes of Science and Innovation program, with matching operating and capital funds of $196 million from federal and private research funds and $59 million from federal overheard using the Garamendi financing mechanism.

Los Angeles: Court of Sciences Building

The principal building of the institute will be located on the Court of Sciences. It will consist of a new 76,200 asf structure with four above-grade levels of approximately 8,450 asf each and two below-grade levels of approximately 21,200 asf each. The above-grade levels will provide wet laboratories, offices, conference rooms, and classrooms. Flexible laboratory spaces will accommodate the needs of organic chemistry, biology, engineering, and physics. Incubator laboratories will be provided for concept development and testing. The two basement levels will provide low-vibration space to house core imaging and microscopy facilities. The total project cost is estimated at $96.5 million to be funded by the State, Garamendi financing, and private contributions.

Los Angeles: CNSI/Engineering 1 Replacement Building

The second core facility will consist of 38,100 asf of engineering-related space occupying three levels of a new 140,000 gsf replacement building for Engineering 1. It will accommodate fabrication facilities for bio-molecular materials and devices, optical and electron microscopies, and computational facilities for nanosystems visualization. In addition, the facility will provide multidisciplinary laboratories, incubator laboratories, and office space for researchers that would be interchangeable with the spaces proposed for the Court of Sciences building. The total project cost is estimated at $44.5 million to be funded by the State, Garamendi financing, and private contributions.

Santa Barbara: CNSI Building and Parking Structure

The CNSI Building will provide a total of 65,995 asf of space to accommodate approximately thirty faculty from engineering, physical and biological science, and humanities and fine arts, administrative and technical staff, visiting scholars and artists, post- and pre-doctoral student offices, and graduate teaching assistant offices. The total project cost is estimated at $74.9 million to be funded by the State, Garamendi financing, and private contributions.

Programming and conceptual planning for the facility have been informed by the following objectives: (1) development of cutting-edge and unique core-shared facilities in bio-nanofabrication, imaging, spectroscopy, and digital media computing and display that will promote interdisciplinary research and enable participants to pursue new and varied paths of discovery; (2) inclusion of spaces that will allow discoveries from basic research to be tested in applied settings; (3) maximum flexibility in laboratory design to facilitate adaptation to future changes in direction and needs in nanoscience research; (4) provision of spaces that will promote interaction among institute participants, including researchers from the Los Angeles and Santa Barbara campuses and business/industry collaborators; and (5) leveraging facilities between campuses, without duplication.

California Institute for Telecommunications and Information Technology

The California Institute for Telecommunications and Information Technology is allocated $100 million in State funds through the California Institutes of Science and Innovation program, with matching operating and capital funds of $227 million from federal and private research funds and $30 million from funds from federal overheard using the Garamendi financing mechanism.

San Diego: Cal-$(IT)^2$ Facility at San Diego

The San Diego campus has proposed a 127,000 asf facility for the California Institute for Telecommunications and Information Technologies. The total project cost is estimated at $102.5 million to be funded by the State, Garamendi financing, and private contributions. Specialized space and equipment includes a high-quality "clean room" and a nanoscale fabrication laboratory to research areas in semiconductors and circuits, down to a molecular level of precision. Cal-$(IT)^2$ will undertake the scientific research and technological development required to expand the reach and capacity of the Internet through strategic partnerships in telecommunications and information technologies to ensure California's competitiveness within the emerging global information infrastructure. Construction of this facility is scheduled to begin in June 2002, with occupancy in May 2004.

Irvine: Cal-$(IT)^2$ Facility at Irvine

The Cal-$(IT)^2$ building program accommodates a variety of research areas focused on wireless telecommunication and information technologies. The building will provide 68,700 asf to accommodate laboratories and support spaces, clean-room facilities, and academic and administrative support space for a multidisciplinary team of researchers. The telecommunications infrastructure in the building will include comprehensive wireless capabilities consistent with the mission of the institute. In addition to this new space, UCI has committed the use of an existing 10,000 asf clean-room facility in the Engineering Gateway building to support Cal-$(IT)^2$.

The total project cost is estimated at $54.3 million, to be funded by the State, Garamendi financing, and private contributions. The project site is within the Engineering/Computer Science Quadrangle of the campus, directly adjacent to the Engineering Gateway building. Easily accessible from all academic areas on campus, the location of the proposed building is ideal for research involving a variety of disciplines.

Upon motion duly made and seconded, the Committee on Grounds and Buildings approved the President's recommendation and voted to present it to the Board. The Committee on Finance concurred with the recommendation.

The meeting adjourned at 12:30 p.m.

Attest:

Secretary