

# Semi-Annual Report: Progress on Recommendations from the 4/21/06 Engineering Advisory Council Meeting

Prepared 9/15/06 by Robert H. Davis, Dean & Patten Professor  
College of Engineering & Applied Science, CU-Boulder

## 1. Introduction

This report summarizes actions taken and plans made over the past half year by the College of Engineering and Applied Science at the University of Colorado at Boulder, in response to recommendations made by the Engineering Advisory Council (EAC) at its previous meeting on 4/21/06. The recommendations and previous reports are available at [http://engineering.colorado.edu/overview/advisory\\_boards.htm](http://engineering.colorado.edu/overview/advisory_boards.htm).

## 2. Investment in CU-Engineering (I-CUE)

The first phase of I-CUE has been completed: Ten proposals were received from the College's departments and programs, and four modified proposals were selected for funding from reallocated college budget:

*Mining the Diverse Engineering Student Populations on our Doorstep*

*Training for Space: An Initiative for Hands-on Education and Research*

*Advancing Materials Science and Engineering: Fundamentals and Applications*

*Promoting Energy Independence: Improved Resources and Utilization*

The second step, seeking additional support for these initiatives from campus, is underway, with proposals due 9/25/06. For the third step, seeking private support, the needs include undergraduate scholarships for underrepresented graduates from partner high schools, graduate fellowships and assistantships in energy, materials and space, earn-learn and discovery-learning apprenticeships, and faculty fellowships to attract top new talent.

Responses to specific recommendations from the 4/21/06 EAC meeting after the Dean's presentation on I-CUE are provided below.

*For faculty with lower output, provide for reassignment of duties, incentives to retire, and phase-out roles* – A recently revised college policy on differentiated workloads provides for reassignment of duties or roles to emphasize areas of strength, especially for faculty near retirement. A campus program with incentives for phased retirement is already in place, and it will be more widely communicated. The post-tenure review process has been updated, so that faculty with repeated evaluations below expectations develop and implement an improvement plan or chose to retire.

*Focus efforts on attracting and nurturing top faculty* – Named chairs and professorships are key tools for attracting, supporting and retaining top faculty, and the number of these

positions has increased from 12 to 20 in the past two years. The College's Faculty Excellence Program, established two years ago, includes awards, faculty fellowships, mentoring of junior faculty, and seed support to nurture faculty.

### 3. Campus Update

Bud Peterson, former RPI provost and Texas A&M engineering dean, was hired as Chancellor of CU-Boulder starting in July 2006. Interim Chancellor Phil DiStefano has returned to his position as Provost, Interim Provost Susan Avery has returned to her prior position as Interim Vice Chancellor for Research, and the Interim (Interim!) Vice Chancellor for Research Stein Sture has been appointed as Faculty Director of Special Projects by the Graduate School.

### 4. College Update

Updates in research, education, and resources are provided in the next section as part of the respective subcommittee reports. Responses to suggestions made during the college updates presented on 4/21/06 are provided below.

*Scott Donnelly recommended sending letters and web links to top students beyond Colorado, such as those receiving high ACT/PSAT scores – We have purchased lists of such students this year, and are reviewing how to parcel the list and what to send students.*

*Frank Figueroa recommended focusing on specific partnerships, such as with the Denver School of Science and Technology, to encourage minority students to major in engineering – One of the I-CUE proposals selected for funding is to strengthen our partnerships with the Denver School of Science and Technology and with the Lafayette Pre-Engineering Academy, both with high minority enrollments.*

*Track and encourage faculty participation in review and program panels of the National Science Foundation and other federal agencies – The orientation portion of our New Faculty Program includes the value of serving on such panels. The annual Faculty Report of Professional Activities includes a section where faculty report panel participation. We will track it this year and formulate a plan to encourage further participation where needed.*

*Include industrial biotechnology, such as biomass conversion for renewable energy and chemicals, in addition to health-care applications (in the proposed biotechnology building) – The Department of Chemical and Biological Engineering is establishing the Colorado Center for Biorefining and Biofuels, which will be part of the new building.*

*Include some bench/lab space for the initial stage of technology transition (in the proposed biotechnology building) - While the new building will have an academic focus, rather than serving as a corporate incubator, the initial stages of technology transition from academic labs will be an appropriate use of some of the lab space.*

## 5. Subcommittee Reports

### ***5.1 Education and Outreach Committee***

There were three major recommendations identified at the Spring 2006 EAC meeting.

*Host Honors Program/Engineering Fellows Industry Night in September 2006* - This event is intended to provide a forum for Honors Students and Fellows to interact with industry leaders. It will take place from 5:00 – 7:00PM on September 28, 2006 at the home of John Bennett (located near the home of Rob Davis, so individuals attending both the Industry Night and the pre-EAC dessert at the Davis residence will be able to easily attend both events).

*Prepare plan for engagement with DSST and Centaurus High Schools* - This recommendation grew out of an extensive discussion among the Education Subcommittee involving K-12 outreach. The components of the proposed engagement include building a partnership with Denver Public Schools, using DSST and Centaurus as prototypes to learn how to work with pre-collegiate engineering programs, involving both parents and students in the recruiting process, using proven marketing techniques to influence, and in some cases to change, perceptions of CU Engineering among parents and students, and creating scholarship and internship opportunities for prospective CU engineering students. Progress has been made in all of these areas. Associate Dean John Bennett met with both DPS Superintendent Michael Bennet and Denver Mayor Hickenlooper over the summer. Dan Hernandez has prepared a framework from which to launch the marketing effort. Barbara Bauer and Jackie Sullivan have worked on the DSST relationship. Jackie Sullivan continues to strengthen the Centaurus relationship. A promising internship idea has emerged involving the use of cohorts or “pods”. In this model, groups of approximately four high school students would be joined by an undergraduate engineering student during an internship experience. The undergraduate provides leadership and focus, serves a role model for the younger students, and lessens the burden to the employing company. The possibility of tying CU scholarship awards to participation in such a program is being considered. An I-CUE grant was awarded by the Dean to fund this engagement with DSST and Centaurus High Schools.

*Prepare for Fall EAC discussion by reading “Attracting Rural Children to Undergraduate Engineering”, “The Engineer of 2020”, and “Educating the Engineer of 2020”* - All subcommittee members have received copies of these materials.

### ***5.2 Research and Corporate/Government Relations Committee (RCRC)***

Key recommendations from the 4/21/06 Research and Corporate/Government Relations Committee (RCRC) meeting are given in *italics* below, followed by actions taken or planned.

*The DLC Task Force will finish its job over the summer and present its recommendations at the next EAC meeting* - The Discovery Learning Center (DLC) is viewed by the RCRC as a building with excellent laboratory space potential. It has been recommended by the RCRC that the faculty should take advantage of the available/potential space, and the focus of activity should be on research that crosses schools and departments on campus. On 4/28/06, Dean Davis formed the College’s Discovery Learning Initiative (DLI) Task Force, with the

charge “to define a vision, structural model, and resource needs for a vibrant discovery learning initiative, both within our Discovery Learning Center and throughout the College.” The DLI Task Force met twice, and the final report of recommendations was submitted to the Dean on 8/2/06. The report reflects views and recommendations of the RCRC and the faculty. Kevin Coyne and Merc Mercure represented the EAC on the DLI Task Force. The key recommendations include to (i) not restrict the focus areas of the DLC, but instead issue a call for participants aligned with college and campus initiatives, (ii) reallocate space to provide more faculty and student offices, (iii) expand the discovery learning vision throughout the College and provide multiple ways and incentives for faculty, undergraduates, and graduate students to participate, and (iv) appoint a part-time faculty director of the discovery learning initiative.

*The RCRC will finish the white paper for TTO, and the TTO will review it and provide comments at the next EAC meeting* - It has been commented by the RCRC that the CU’s policies on technology transfer and intellectual property are too restrictive and differ from peer universities. The RCRC members under the leadership of Scott Donnelly have been working on a set of recommended changes to be presented for consideration by the College and CU Technology Transfer Office (TTO). An outline of the white paper was presented at the 4/21/06 EAC meeting, at which it became clear that the RCRC members did not fully understand the current TTO “standard terms” and policies. It was agreed then that the TTO will prepare a draft document of their “standard” terms, which would be circulated among the RCRC members and their respective company legal offices. The RCRC would then provide its feedback to the TTO at the 9/29/06 meeting. The outcome of that discussion may then form the basis of recommendations prepared by the RCRC on how the RCRC would help to market the “user friendly” tech transfer aspects of CU. This approach was agreed on as a more flexible solution to validate TTO corporate practices. A set of TTO documents has been put together and forwarded to the RCRC, including: Intellectual Property FAQ – University of Colorado, Article 6 – Intellectual Property, and a set of example items on which University has shown flexibility in the past. The RCRC will review these documents, validate them with their respective legal offices, and provide feedback comments at the 9/29/06 EAC meeting.

*The Interim Provost will talk to the University of Michigan and other universities that employ an advocate for government agencies, to guide a decision in defining such a position for CU* – Limited progress on this recommendation has been made. CU’s government relations office is benchmarking what some peer schools do, but its report is not complete. From our discussions with campus leadership, the emerging plan is to not have a CU employee located full-time in Washington, DC to build relations with federal agencies but instead for the Faculty Director of Special Projects (Stein Sture) and Interim Vice Chancellor for Research (Susan Avery) to each visit the key federal agencies at least six times this year. Also, after the November elections, the possibility of hiring a lobbying firm may be considered by Chancellor Peterson. The current RCRC view is that this advocacy should be effective not just at the federal funding agencies level but also at the policy and budget level within the federal and state governments.

*RCRC members will facilitate contacts with individuals within their companies who interact with government agencies* - In relation to the previous item, Scott Donnelly offered to organize a meeting with GE’s Washington contacts that work advanced technology programs

with different federal funding agencies. Similar help can be expected from other RCRC members. It is also noted with gratitude that several EAC members have been of tremendous help in facilitating collaborations of their companies with the College. For example, a recently formed DARPA center on Nanoscale Science and Technology for Integrated Micro/Nano-Electromechanical Transducers has GE, Lockheed Martin and Raytheon among its corporate partners, and several energy companies have met with college faculty to discuss support for a new energy center.

### ***5.3 Resource Development Committee***

Giving results credited through the University of Colorado Foundation for CU-Engineering in FY06 totaled \$4.7M (new cash and pledges). Gifts processed through the University's finance office added a further \$1.7M to total \$6.4M in funds committed from private sources to college priorities. On the basis of Foundation processed gifts, alone, the College ranked first in giving results among Boulder campus academic units for FY06.

Giving results for the year are encouraging and prospect of continued growth into FY07 is promising with the introduction of the I-CUE campaign in the fall of 2006. I-CUE is an exciting mini-campaign initiative that will feature selected projects designed to help the College seize and optimize special opportunities and strengths. Funds to realize I-CUE projects will be sought from external donors, as well as from allocation of new campus funds.

The Program Plan for the proposed Systems Biotechnology Building was approved by the CU Regents in June 2006 and will be brought before the Colorado State legislature for approval in late spring 2007. A search is underway for a full-time fundraiser for this major capital project, and a leadership team of CU-Boulder and CU-Foundation personnel has been formed to plan for and assist with the private fundraising.

At the 4/21/06 RDC meeting, members offered several recommendations to enhance the College's development outreach activities. The following is a summary of various actions the College has pursued since the spring meeting to advance the intent of RDC members' recommendations.

*1. Establish a reunion giving program and further cultivate the donor pipeline* – Development staff is targeting all alumni of the Class of 1957 to request a personal visit in FY07. To this end, each member of the development team has accepted calling responsibility for a group of '57 alums. If the Class of '57 outreach is determined to be succeeding by November, the effort will be broadened to include silver anniversary alums (Class of 1982).

*2. Think outside the box on resources* – Agreed. Moving the Engineering Management Program and the Interdisciplinary Telecommunications Program to a cash-funded enterprise is a past example of innovative resource management, while the I-CUE process and a proposal to establish a financial and personnel service center in the College to collectively help the departments and programs, with economy of scale, are current examples.

*3. Introduce passionate faculty and staff to prospective donors* – Director of Corporate and Foundation Relations Pat Sullivan is working closely with Dr. Jackie Sullivan on efforts to

enhance the College's admissions pipeline for diverse students. To illustrate, they visited the Charles Gates Foundation in the spring and will be receiving a visit from the Bill & Melinda Gates Foundation in the fall. Pat also visited Lockheed Martin in Colorado Springs in the summer with WIEP director, Dr. Bev Louie. John Mabley visited corporate prospect Barber-Nichols Inc. in the summer with MechE Chair, Dr. Marty Dunn. The principle of bringing individual prospects together with faculty is facilitated, whenever possible, by development staff when alumni visit campus.

*4. Ask the two candidates for governor to visit the College and industry leaders in the early fall and ask them to support major initiatives* – The University's government-relations staff was asked to explore the possibility, and the Dean personally spoke with one of the candidates. However, both candidates declined.

*5. Create a work fund program, where students work in industry at low wage and company donates to College* – We have not pursued this possibility, as it would be financially disadvantageous to students who presently have good opportunities to perform internships and co-ops in industry at high wages. Nevertheless, we have found that helping companies hire our students leads to improved relations and more corporate donations.

*6. Identify and reach out to donors with \$25 million capacity* – For the upcoming campaign, a cabinet is envisioned that will help reach out to wealthy prospective donors in tandem with current efforts of the development staff and Dean to foster relationships over time.

*7. Market the Earn-Learn program as an opportunity for younger alums to contribute* - The number of donors to the College has declined slightly over the past two years. It is essential that more young graduates become giving participants for Earn-Learn and other approved priorities. To that end, the College's annual fund letter outreach in 2006-07 will invite support over the signature of a young Aero graduate, Chris Gilmer. Chris is passionate in his advocacy for the College, and development staff is looking forward to involving him personally in fundraising. As was the case in the FY06 annual fund appeal, the FY07 appeal will include an explanation for the value of the Earn-Learn program to students and an invitation to give to that purpose. Members of the development staff team will also continue to personally seek opportunities to advocate for Earn-Learn in their prospect visits. As noted by one of the RDC members, annual gifts are viewed as a key starting point in the continuum of annual gifts leading to major gifts and, ultimately, substantial legacy gifts or bequests.

*8. Increase the size of the professional fundraising staff and cultivate younger alums to build for the future* – In June 2006 the development team returned to a full staff complement for the first time in many years. New staff members are being trained and once established in their roles, the situation will be ripe to continue to build team numbers in accordance with growth in the cultivated prospect constituency. Personal contacts are expected to continue to grow, as they have over the past two years. Concentrated effort to enroll more young alumni as donors is addressed in the above point.

*9. Seek partnership and support from energy companies* – A new *Colorado Center for Biorefining and Biofuels*, led by faculty in the Department of Chemical and Biological Engineering, is being actively explored with several energy companies. An initial planning

meeting with corporate representatives is set for November 2006. College researchers have also met with individual oil companies to discuss a broader energy center located at the College.

*10. More faculty should start companies, with CU sharing in stock ownership* – Technology transfer efforts at CU-Boulder are on the rise, with faculty in the College of Engineering and Applied Science leading the way (see [www.cu.edu/techtransfer](http://www.cu.edu/techtransfer)). Specific efforts to improve technology transfer are being considered by the Research and Corporate/Government Relations Committee.