

# Cornell Engineering College Council

## Meeting Notes - October 30, 2008

### Executive Summary

The goal for this Engineering College Council meeting was to provide feedback to the college and departments on solutions to challenges and on strategies to capitalize on opportunities. In addition, the impact of the promotion of Dean Kent Fuchs to Provost and President Skorton's announcement of Cornell's budget shortfall and associated actions to reduce expenses were discussed, particularly as they impact the primary meeting goal.

It is clear that the coming months will be challenging for the university and the College of Engineering. The most common challenges presented to the Council by the Department Chairs reflected concerns over budget, space, and faculty hiring. The broader economic crisis only makes these challenges more formidable.

The Council sees this situation more as an opportunity than as an insurmountable challenge. The situation is only a crisis if it causes the college and faculty to retreat from the strategic priorities and to delay work on becoming leaders in the solution to the global problems around energy, the environment and financial stability.

The opportunity centers on the recognition that positive change usually occurs when stimulated by external factors that make the status quo untenable. The College is now at a point where responding to the fiscal and hiring challenges by cutting back and delaying progress on strategic priorities until a new dean is in place would be a mistake. Instead, we urge the Dean and faculty to look for new approaches that improve efficiencies while still enabling progress toward your goals. We encourage the Dean to look closely at operations, organization and resource utilization as they contribute or inhibit promoting (1) teaching excellence, (2) an exhilarating learning environment, (3) excellence in research, and (4) Cornell's reputation as a leader in solving global problems and training leaders for the 21<sup>st</sup> century. We believe that an assessment of this sort could lead to changes that make the college better able to meet the near term local challenges we discussed and better able to contribute to the solutions to the problems the world faces around energy, the environment and global warming, sustainability and population growth, and global financial stability.

Members of the Council are ready and able to work with the Dean on this assessment in small work groups if there is a general recognition that far-reaching changes are the anticipated outcome. Our experience in similar situations in industry have taught us that it is better to plan for and rapidly implement changes that address the near-term needs as part of a strategic plan that incorporates the financial realities and their long-term implications. The alternative path may seem easier, to meet only the immediate requirements with a hope that a return to normalcy will come soon, but this approach is fraught with risk. The world is changing, and we must change with it to thrive.

The transition to a new dean during turbulent times will be challenging for the College. We urge you to look for ways that the Council can help. We build awareness, interest and engagement at the Council meetings. We could sustain that activity level and leverage the talent and knowledge of Council members if we are allowed to participate more actively.

## Detailed Comments and Recommendations

### College Overview

We applaud the formation of the Teaching Excellence Institute which we discussed in past meetings and the hiring of Dr. Kathryn Dimiduk as Director. We feel this area is of critical importance, and we encourage you to closely examine the best practices in this area at your peer institutions as you formulate the programs that will be a part of the institute. A close examination of your peers could also allow you to set goals and benchmarks for the institute as it moves forward.

We also are glad to see a number of DOE proposals for funding of energy research. The seed funding from the university and college was appropriate for jump-starting Cornell's energy program, but external funding, particularly in these difficult times, is critical to keeping the program strong and focused on key global problems.

Diversity in both faculty and the student body is something we have discussed before. It is critical to the long term success of Cornell, and it is a business imperative for us. Companies want and need a diverse workforce, and Cornell is one of the universities that provide the diverse candidate pool for our workforce. Several areas of concern over diversity come from your overview of the College:

- Four leadership appointments, none are women or URMs.
- Number of URM applications up about 50% in five years, but deposits are down.
- Percentage of URM admits dropped in last four years.
- Similarly for women, applications up 60%, admits up only 20%.
- Percentage women faculty is flat for 5 years, so the projected growth of 7% in ten years is not credible without making retention/hiring changes.

Research funding from business and industry at 11% appears to be below peer institutions. For example, RPI gets about 35% of their budget from industry. Cornell Engineering seems to be missing opportunities here. A comprehensive approach to industry is needed starting with targets for IP creation from current research, licensing targets, and more proactive communication of collaborative research opportunities. Alumni can be recruited to help with efforts in this area.

We applaud your work on branding and recognition for the College. The common look of the materials from department presentations gave us a good sense of how this alone can project a much more unified image for the college. We encourage the departments to carry this common approach into the content of their presentations. The College research strategy clearly spans departments, yet in the presentations to the Council and the posters prepared for the Council, inter-departmental collaboration was not stressed. The emphasis was tactical rather than strategic. The departmental connection to the Engineering College and therefore to opportunities for multidisciplinary research should be promoted as a strength. We anticipate many of the advances in energy, life science, and environmental research will come from multidisciplinary research efforts.

## The Budget

The budget situation was summed up well as the perfect storm; a decrease in the endowment investments, a decrease in philanthropy, and a decrease in funding from New York State. As you confirmed, the implications of this situation are decreased funding across the board for a number of years.

The Council recognizes that the budget will constrain what can be done in the next few years, but this situation also provides an opportunity to reexamine all processes and modify or eliminate those that do not contribute to the educational and research goals of the Engineering College. The Budget Advisory Committee should think out-of-the-box when they look at process and organizational efficiencies, faculty productivity and more efficient use of space.

Several points came out in the executive session:

- Take control of the College's destiny – avoid the perspective of a victim.
- Encourage the Provost to consider investing from the endowment to prepare for the upswing when the “perfect storm” ends.
- View the crisis as an opportunity to
  - Break long-standing barriers.
  - Reorganize in ways that might otherwise be considered impossible.
  - Prepare to be in a leadership position for the nation when the upswing comes.
- Are there too many small departments in the College? Would having fewer, larger departments make the College run more efficiently with less overhead? Would a different structure be more transparent and attractive to prospective new faculty?
- Delayed retirements were presented as an additional problem that further reduces your options. Consider offering retirement incentive packages to accelerate retirements as has been done in industry for years.
- Every department stated that sufficient space is a problem, particularly for new faculty and the associated priority research. This does not make sense to us. Is space being ‘protected’ in departments or by faculty where it is no longer productively used? From the charts you provided we see the following changes in the past decade:
  - Undergraduate enrollment up 11%
  - Graduate enrollment up 37%
  - Faculty FTE up 9%

Over this same period, space has increased:

- 1990 Rhodes Hall, net area 182,000 sq. ft.
- 2004 Duffield Hall, net area 129,000 sq. ft.
- 2008 Weill Hall, engineering net area ???

It appears construction has kept up with hiring and recruiting of students. Look closely at how current space is used. Create metrics for productive use of space. Reallocate space accordingly.

- When recruiting new faculty, it is traditional to avoid Cornell graduates to avoid in-breeding. Exceptions to this policy might be considered since it is less expensive to recruit people who already live in the Ithaca community.
- Is it possible to differentiate more within the faculty? Underperformers should not be comfortable. Link rewards (space, college support for graduate students and research, etc.) to results. This requires well defined productivity metrics.

### Proposal:

Call on alumni to form working groups to examine and propose changes in three areas:

1. Operations -- plan for increased efficiency and metrics to track efficiency
  - a. Include a facilities audit
2. Marketing – plan for the college specialized to target audiences
  - a. Prospective students and their parents
  - b. Potential industrial partners
  - c. Government funding agencies
3. Research and Industry outreach – plan for IP management,
  - a. Quantify opportunities for revenue
  - b. Formalize process for creating productive relationships

## **Feedback to Departments**

We did not discuss the departmental presentations in executive session beyond those comments included in the budget section above. Our feedback is well represented in the minutes of the meeting.

## **Vision**

Our session ended on a visionary note. We see Cornell as a place where faculty, students and their industrial partners can make a difference by solving the world's problems through education and research. If the Dean and faculty agree with this vision, they need to adopt a systems approach to making it real. Big problems cannot be solved by isolated efforts. Solutions are created by multidisciplinary teams that extend beyond individual centers and departments.

Cornell should strive to become the leader in real solutions to the world's problems. Each department and faculty member should identify their work as a piece of one or more solutions to these global problems. Cornell should be a magnet for people who want to make a difference in the world.