

## COLLEGE OF ENGINEERING AND APPLIED SCIENCE

### FY2010 Case Statement

The College of Engineering and Applied Science shall continue its mission in a manner that assures distinction and renown in the 21<sup>st</sup> century. The central importance of technology to society produces a sustained strong demand for the College's graduates and expertise. The College's graduates consistently have an excellent reputation for the education they received, their "hands on" skills and strong work ethic. It is critical that the College builds on this reputation to provide the complete education for its graduates needed to address many of the contemporary issues and opportunities facing society.

One certainty is that the College's graduates are faced with ever-accelerating technological changes. Thus, a high priority is to educate students how to manage and facilitate such changes. An important attribute is that graduates acquire the skills and motivation to be "lifelong learners." The College's graduates extensively contribute to the rapidly growing information-based economy. Accordingly, graduates need to be equipped with the communication skills necessary to work in interdisciplinary teams, and the business skills to function in a global economic environment. In addition, the College faces the immediate challenge of educating engineers of all disciplines, computer scientists, and scientists who over the course of their careers see an acceleration of new technologies founded on fundamental discoveries in the energy, earth, life, environment and natural resources, material and information sciences.

#### MISSION

*The University of Wyoming's College of Engineering and Applied Science will provide excellent education, research, and service in chosen fields of engineering and applied science. The College emphasizes connectivity with society, life-long learning, and the essential problem-solving and collaborative skills needed to address the frontier challenges facing Wyoming, the nation and the world.*

#### VISION

The College will be recognized nationally and internationally for the excellence of its education and research programs, and for its central role in the economic development of Wyoming and the surrounding region. Wyoming and the College will thrive when they partner together to address –

- The frontier challenges facing Wyoming over the next 20 years;
- The roles of technology in addressing these challenges; and
- Collaboration with Wyoming's constituencies to pursue these roles.

The frontier challenges extend beyond Wyoming, and arise from pressing concerns regarding *regional and national economies, energy, infrastructure, health, climate change processes, poverty and security, and sustainability of natural and built environments.*<sup>1</sup> Viewed collectively, the challenges imply substantial needs

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<sup>1</sup> The challenges can be articulated in several ways; e.g., the National Academy of Engineers' Grand Challenges for Engineering (published in 2008) delineates 14 specific challenges encompassed by the concerns cited here.

for more technology educated people, technology innovation, and a “systems” approach. The challenges also imply that technology education and innovation fuse with developments in other expertise areas (e.g., business, health, agriculture, education) to resolve the complex issues the challenges entail.

## **COLLEGE DEVELOPMENTS**

To realize its Mission and Vision, the College will pursue the following development actions:

1. Deliver accredited contemporary programs of education that equip its students to lead projects integrating expertise from multiple disciplines and backgrounds;
2. Extend visible, synergistic partnerships with other University of Wyoming units, as well as with key state and national agencies and laboratories, industries, and other universities;
3. Increase undergraduate student numbers and diversity during the next five years;
4. Grow, in both size and quality, programs of research and graduate study;
5. Broaden and increase funding sources to provide the College greater fiscal capacity;
6. Configure and foster the College’s faculty and staff resources to facilitate growth in student numbers and expanded research and programs of graduate study; and,
7. Build up the College’s physical functionality and professional ambience to facilitate research and education addressing the frontier challenges.

The College’s mission requires high quality dedicated faculty and staff, qualified and eager students, support from the University and State, and contributions from individuals, corporations and foundations. The College’s advancement relies on these contributions to differentiate our programs from other schools, and it has been fortunate to be supported by a group of alumni, friends, corporations and foundations at levels that truly do enable excellence.

## **ADVANCEMENT OBJECTIVES**

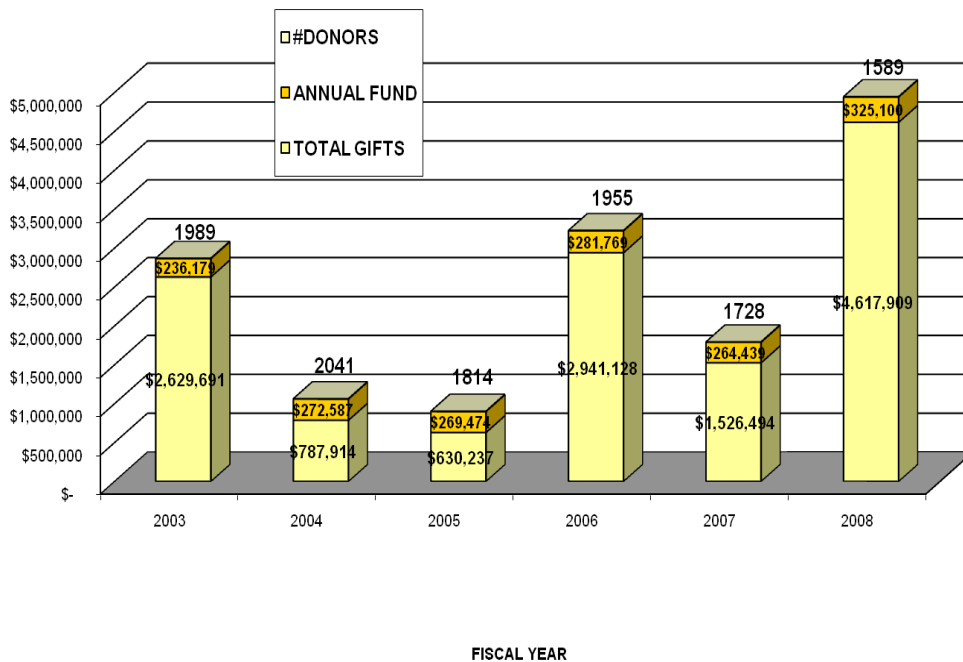
In support of the University of Wyoming Academic Plan for academic years 2010-2014, the College recognizes that philanthropy and research funding are key success factors for the achievement of this Plan and the College’s mission. Therefore, several advancement objectives have been established as follows:

- Support efforts to recruit, retain, and recognize talented faculty and staff, doing so by means of named faculty positions;
- Continue to work with the School of Energy Resources (SER), and the Haub School of Environment and Natural Resources (HSENR), to integrate the College’s strengths and opportunities with those provided through SER and HSENR;
- Continue to be involved in the planning for the National Center for Atmospheric Research (NCAR) Supercomputer to be located in Cheyenne with NCAR, the State of Wyoming and UW;
- Broaden the Next Generation Program to implement a contemporary, cohesive approach to preparing future engineers, computer scientists and atmospheric research scientists;
- Initiate fund raising activities in support of a renovation of the College’s 1926 building and other needed facilities and services;
- Pursue funding for specific college and departmental programs;
- Increase the participation of undergraduate students in research, internship, international, and other “beyond the classroom” experiences;

- Continue to augment State stipends for graduate students to assure competitive offers;
- Continue to support opportunities for faculty and students to interface directly with federal/state/local government programs including research, informational, and others;
- Continue to play a central role in bringing major blocks of energy-related research and education funding to the University, targeting issues that relate to state energy resources; and
- Work with the College’s National Advisory Board to develop a strategy to increase the visibility of the College of Engineering and Applied Science with regional and national industries and businesses.

**HISTORICAL GIVING TO THE COLLEGE OF ENGINEERING AND APPLIED SCIENCE, FY2003-2008**

The chart below depicts the historical view of giving to the College over the last six years. The spikes in year 2003, 2006 and 2008 represent either a focused campaign or a single large gift, which indicates that such events must occur every year to achieve our development goals.



**CORPORATE AND FOUNDATION GIVING**

The College historically is successful in acquiring research funding through the UW Research Office, with FY2008 research awards totaling \$11.2M. Key corporate gifts include \$2M from EnCana in FY06 and the FY08 BP gift of \$3M. It is important that the College increase its development efforts to increase Corporate and Foundation giving, not only to bring funds into the College, but also to increase name recognition in the various engineering industries for UW. Funding from energy corporations is critical to the College and UW to advance the College’s capabilities and reputation in energy education and research.

## DEVELOPMENT FOCUS AREAS

The above development objectives require philanthropic and research funding for faculty, students, facilities and programs. The College proposes to pursue such funding for the projects detailed below during the FY2010-2014 time period and beyond.

### Endowed Excellence Funds (\$20M)

- Next Generation Program – Recruiting/Retention/Quality (\$4M)
  - Center for Student Services - \$3M
  - Communications Center - \$1M
- Engineers Without Borders – UW Chapter (\$2M)
- CEAS International Program (\$2M)
- Henry R. Bauer Computer Science Excellence Fund (\$2M)
- Bio-Energy Excellence Fund (\$2M)
- Francis M. Long Bioengineering Excellence Fund (\$1M)
- Sutherland Mechanical Engineering Excellence Fund (\$2M)
- Civil and Architectural Engineering Excellence Fund (\$2M)
  - Visiting Professorship in Transportation Engineering - \$1M
  - Seminar series, faculty and student experience beyond the classroom - \$1M

### Faculty Endowments (\$14M/9M)

- H. T. Person Endowed Chair (\$1.5M)
- Chair/Professorship in Atmospheric Science for Cloud Modeling (\$1.5M/500K)
- Chair/Professorship in Chemical Engineering for Soft Materials Research (\$1.5M/500K)
- 3 Chairs/Professorships (\$4.5M/1.5M)
- Faculty Fellowships (\$5M)
  - 3 Assistant Professor Fellowships (~\$50K each / \$1M)
  - 2 Associate Professor Fellowships (~\$50K each / \$1M)

### Student Support (\$4.7M)

- Endowments and Gifts
  - 8 Graduate Fellowships (\$25K each / \$550K endowment each)
- Annual Fund
  - Student Professional Development (\$300K - no match included)

### Facility & Technology Enhancement (\$43M)

- Wind Energy Research Center Facility (\$4M)
- College 1926 Facility Renovation (\$30M)
- King Air Facility Enhancement (\$1.5M)
- Chemical Engineering Unit Operations Laboratory (\$500K)
- Electrical and Computer Engineering Research and Student Laboratories (\$1M)
- Computer Science collaborative project lab and research labs (\$500K)
- Soft Materials Laboratory: Energy Nanomaterials Cluster (\$2M)
- Mechanical Engineering Internal Combustion Teaching Lab (\$500K)
- Civil and Architectural Engineering lab upgrades (\$500K)
- High-resolution Quantitative Micro-Imaging Laboratory (\$2M)
- Coal-Bed Methane Water Production and Reuse Laboratory (\$500K)
- Naming Options (\$25M+ for College; \$10M+ for Department)