Division Plan for 2009 and Beyond

Engineering Education and Centers

COMMITTEE of VISITORS

October 2007
A.L. Soyster
2004 COV Findings

(1) EDUCATION and HUMAN RESOURCES

“Strong sense that there is no overarching plan to specify goals and directions.”

(2) ENG RESEARCH CENTERS

“.... The COV observes that an overwhelming majority of EEC Awards are made to research intensive institutions and that more capacity needs to be built at other institutions.”
U.S. Public High School Graduates 1988 to 2018

Source: “Knocking at the College Door – 2003”
Western Interstate Commission for Higher Education
Enhance the K-12 Pathway and its Diversity;

1. Enhance the K-12 Pathway and its Diversity;
   * 10% of all matriculates study engineering.

2. Promote the Success of the Undergraduate Learning Experience;
   * 3 of 4 students complete BS in engineering.

3. Improve the Pathway to Graduate Engineering Programs for US and Permanent Residents;
   * 5000 PhDs granted to domestic students.

4. Build a Culture of Discovery and Innovation in Engineering through Multi-Disciplinary Centers;
   * 3 of 4 students complete BS in engineering.

5. Improve the Pathway to Graduate Engineering Programs for US and Permanent Residents;
   * 5000 PhDs granted to domestic students.

6. Promote the Critical Importance of EEC Programs and optimize EEC Team (staff, panels, reviewers) performance

**Enabling Objectives**

- Formalize Partnerships with Organizations both within and External to NSF;
- 1000 Center-related students graduate annually
- Enabling Objectives
REU/RET FY07

A) REU
   a) 126 Sites Supported (41 new)
   b) 1500 Students
   c) SRI Study Underway

B) RET
   a) 37 Sites (8 new)
   b) 400 Teachers
Partnerships and Visibility

A)
  a) EHR---4 Career Awards
  b) ENG, OISE-----INT Research and Education in Engineering (IREE)
  c) ASEE------Council on Engineering

B)
  a) EEC- PI Workshop (Sept 07)
  b) EEC Distinguished Lecture Series (October 07)
  c) IREE Workshop—Purdue (November 07)
  d) ERC Workshop-Dean Kamen (November 07)
Engineering Education

B) New Initiatives

• “Business of Engineering Education”

• Renaissance of PhD Education
  (Too long, too narrow and too insulated)

• K-12 Pathway and Diversity
STUDENT PATHWAYS

K-12

School Board Advisory

University

Industry Advisory Board

Industry
Eng College Revenues

3 Billion
Fed Research

6 Billion
Tuition
Renaissance of PhD Education

Which Path would you take?

PhD

Industry

B.S. ENG

$ $ $ $
Engineering Research Centers
(A) Continuing Efforts

- Preproposals in 07 exceed 05
- 5 “Gen 3” Centers to be funded 2008
- Small business, Foreign partner
B) New Initiatives (2004 COV Recommendations)

⇒ “While praising the ERC Program…, the COV recommends that smaller interdisciplinary teams be funded…”
⇒ “The COV observes that an overwhelming majority of EEC Awards are made to research intensive institutions and that more capacity needs to be built at other institutions.”