

Division Plan
for
2009 and Beyond

Engineering Education and Centers

COMMITTEE of VISITORS

October 2007

A.L. Soyster

2004 COV Findings

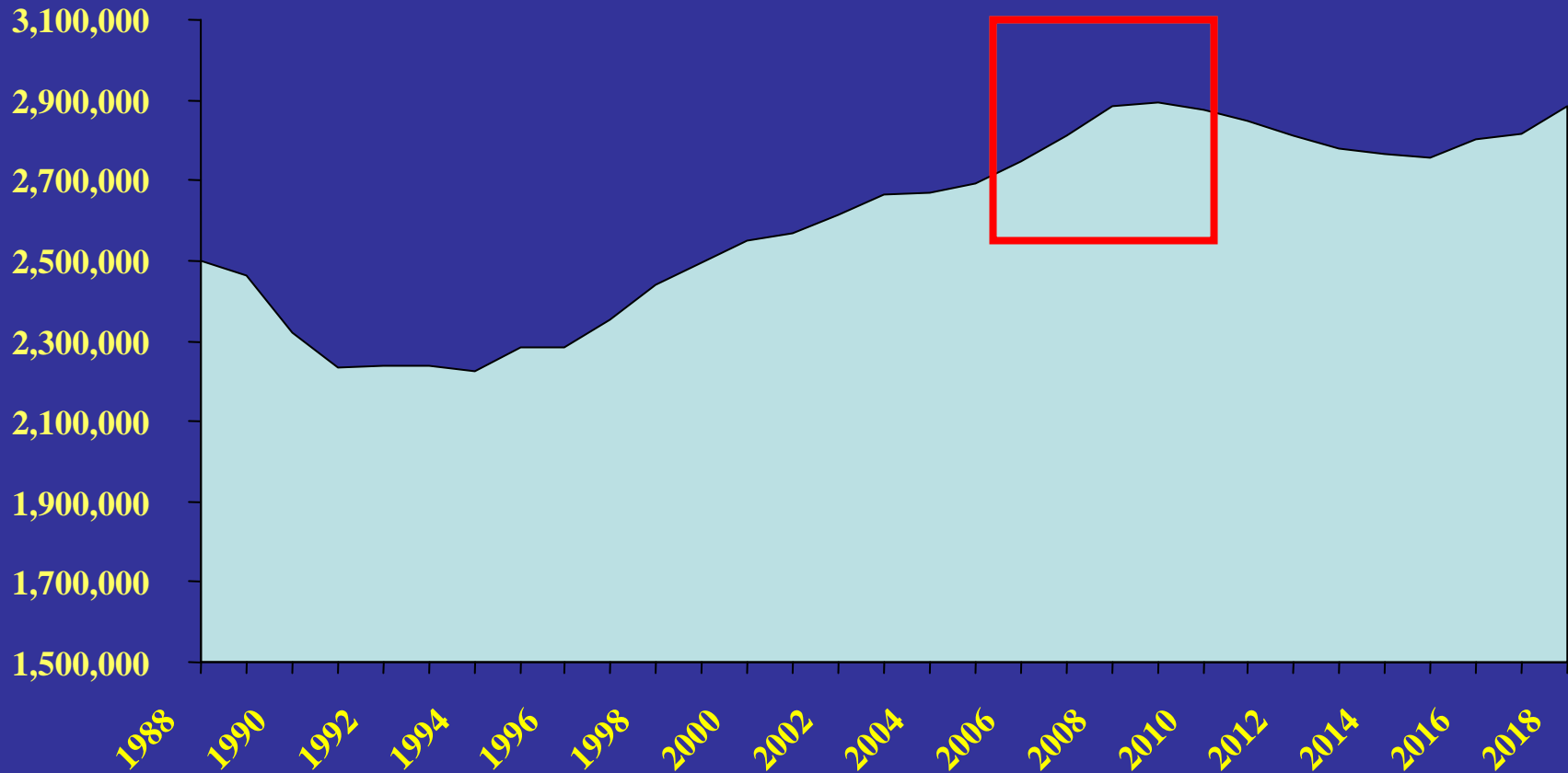
(1) EDUCATION and HUMAN RESOURCES

“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

EEC Objectives for 2020

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;
* 1000 Center-related students graduate annually
- Enabling Objectives**
5. Formalize Partnerships with Organizations both within and External to NSF; and
 6. Promote the Critical Importance of EEC Programs and optimize EEC Team (staff, panels, reviewers) performance

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



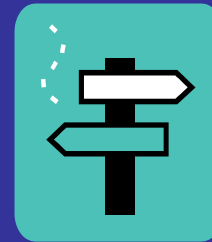
K-12

School
Board
Advisory



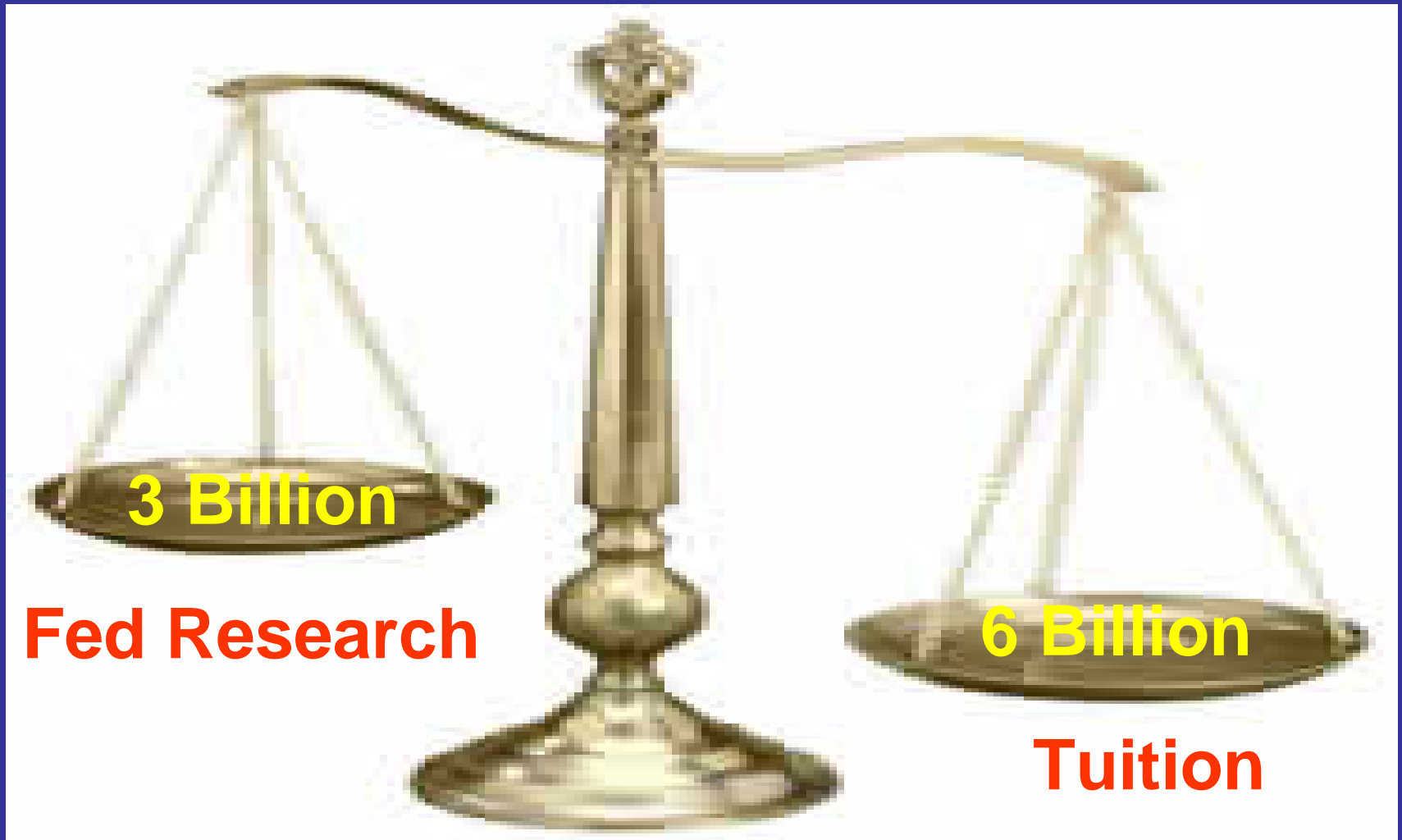
University

Industry
Advisory
Board



Industry

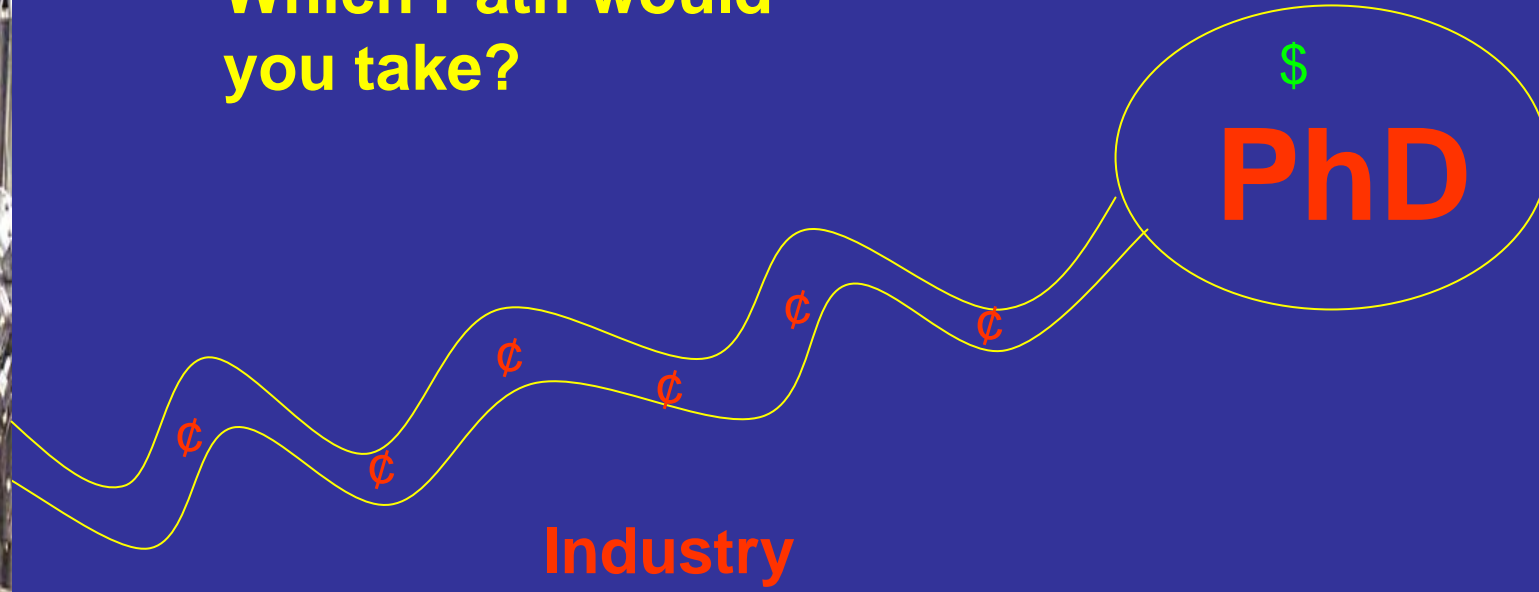
Eng College Revenues



Renaissance of PhD Education



Which Path would you take?



Industry



\$ \$ \$

\$\$\$\$
\$\$\$\$

**B.S.
ENG**

Engineering Research Centers



CENTERS

(A) Continuing Efforts

- **Preproposals in 07 exceed 05**
- **5 “Gen 3” Centers to be funded 2008**
- **Small business, Foreign partner**

ERCs

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.”

Human Resources
Strong Pathways



**GRADUATE
EDUCATION**
**World Class PhD
Programs**



EEC in 2020

**Undergraduate
Education**
Improve Retention



Centers
**Innovative
Graduates**

