



2010 EEC COV
for
ENG AdCOMM

April 15, 2010
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Outline



- History, Background, Initiatives of EEC
- COV Objectives and Processes
- Performance, Participation, Evaluation
- Opportunities



EEC History



- EEC formed in 1992
 - Office of Engineering Infrastructure
 - Office of Cross-Disciplinary Research
- 1992-2001 Major Thrusts
 - Engineering Research Centers
 - Engineering Education Coalitions
- 2001-Present **New Thrusts**
 - Action Agenda for Systemic Reform (Education College Partner with Eng)
 - Nano Technology Undergraduate Education (NUE)
 - RET
 - NSECs, NIRTS
 - International Research and Education in Engineering (IREE)
 - Department Level Reform (DLR)
 - Innovation in Engineering Education, Curriculum and Infrastructure (IEECI)



EEC Budget



(1) 2009 – **115M** (includes 4 stipend programs at 20M)

a) GK-12

b) GRF

c) IGERT

d) BRIGE

(2) 2009 ARRA – **(32M)**

a) Education – 4 M

b) Centers – 9 M

c) REU/RET – 9 M

d) Post Doc – 3 M (ASEE)

e) Stipends/Other – 7 M



EEC Recent Strategy



Promote ERC Successes/New Partners

Expand Market Penetration of Engineering Education

Connect with External Constituents

a) Annual PI Meetings

b) Other Participants (SAT, FIRST, PLTW)

c) Visibility for EEC in Community (Lecture Series)

(4) Measure What We Do



ERC Innovations & Impacts - INVENTIONS -



CMU Data Storage Systems Center (1990-2001) – Invention of the NiAI underlayer made possible small, hi-capacity hard drives for laptops & MP3 players





Overall Metric

Of all 360 ABET accredited Engineering Schools,* how many did not submit a proposal to EEC in 2008 or 2009?

22

* (85 or more graduates)



Evaluations (2007-2009)



- (1) REU (SRI)
- (2) RET (SRI)
- (3) Engineering Education (STPI)
- (4) CAREER (ABT)
- (5) Centers (SRI, STPI, SciTech Comm.)
- (6) BBSI (SRI)

Building a collaborative community of scholars and practitioners



How do we bridge
the divide?



Engineering
education
researchers

Engineering
education
practitioners



: International Research and Education and Engineering (IREE)

- EEC research-based pilots in 2006, 2007
- 470 awardees (330 students; 140 faculty) Supplement-based Approach
- 3-month stay in 45 countries



IREE-S-2010 pilot

Purdue University

- Recruit 60 students-undergrad/grad
- 3 Approaches to pre-trip orientation:
 - (1) On-site in U.S. (Purdue)
 - (2) On-site in host country (Shanghai, China)
 - (3) Online
- Website at Purdue had over 11,000 visits in 3 weeks
- 400 applicants
- **Target---under 15k per student**



Other Role of Division: EEC Workshops and PI Meetings



- (1) Power Engineering and Education
- (2) PhD Education – Industry
- (3) PhD Education – University Presidents
- (4) GK-12 and Engineering
- (5) International Research in Engineering and Education (Newport RI)
- (6) **Healthcare and Engineering**
- (7) K-12 and SAT/ACT Opportunity
- (8) Design
- (9) Graduate Challenges
- (10) Women in Engineering Leadership
- (11) Post-Docs in Industry
- (12) Systems Dynamics in Forecasting Engineering Manpower needs
- (13) Planning for the GI Bill
- (14) SBIR/ERC Grantees
- (15) International Research Education PI Meetings



Community-Based Health Care and Health Information Technology

Stu Myer, Vice President Systems Analysis and Development

Ilaina Edison, Sr. Vice President Operations, Specialized Services



Visiting Nurse Service of New York
National Science Foundation Workshop

December 7, 2009



COV Objectives



- Review our Process (A)
- Evaluate our Outcomes (B)
- Recommend Changes/Improvements (C)



COV Process



- Every 3 Years (All NSF Divisions)
- EEC Foci
 - a)Centers
 - b)Engineering Education
 - c)Human Resources
- COV Report is a Living Document: Annual Updates



2007 EEC COV



Centers

(#5) COV strongly advises NSF to increase the number of ERCs to 25. (Target 18 and 2011, up from 15)

(#8) COV found centers to be severally understaffed (New Program Officer approved, search to begin)

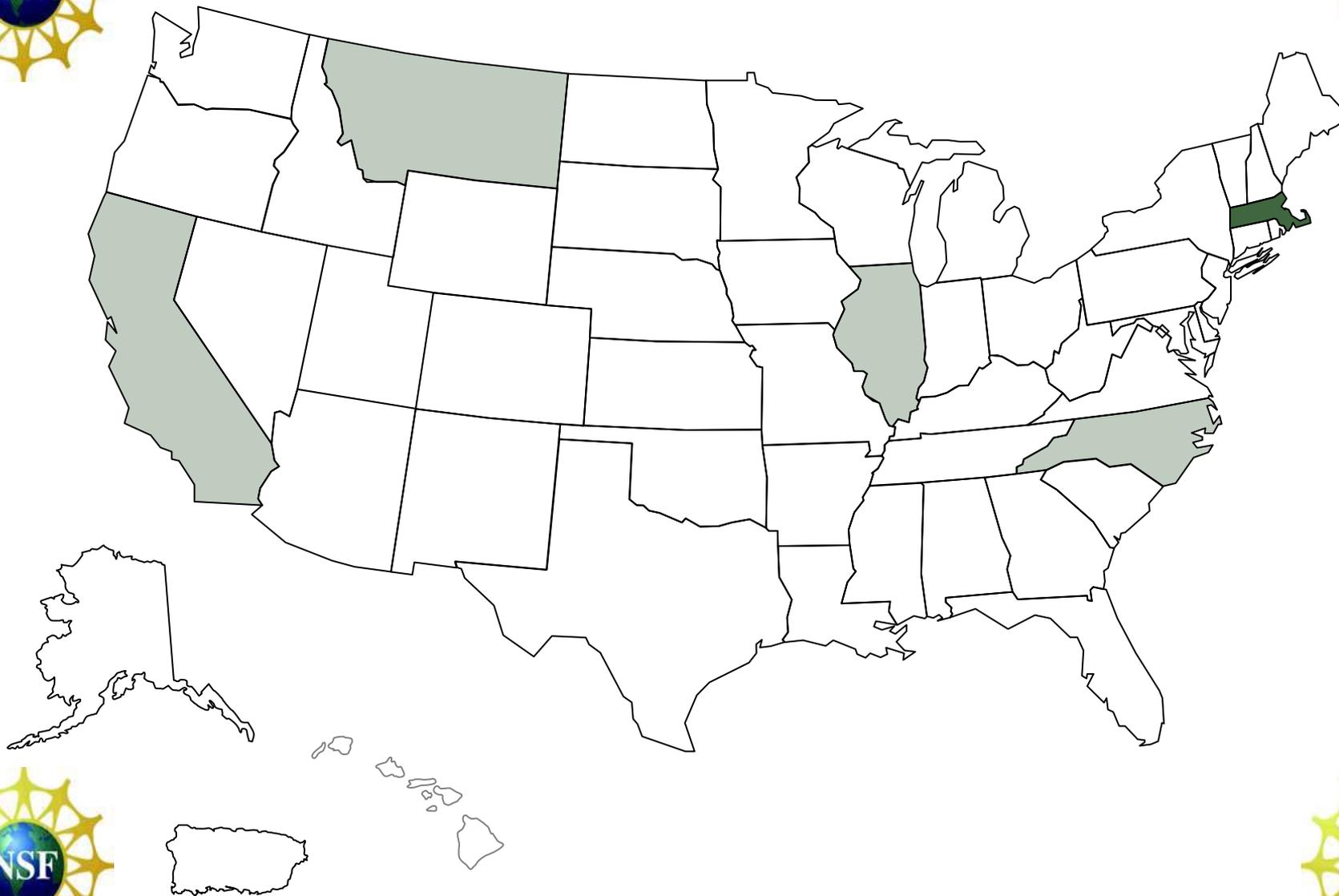
Engineering Education

(#9) Support funding for faculty who are both excellent educators and excellent discipline specific researchers (IEECI requires a tenured engineering Co-PI)

Human Resources

(#13) Increase participation from Community Colleges (Under review by Working Group)

Promote EEC Highlights





Design Squad

WGBH Educational Foundation, PI Kate Taylor



Design Squad is a PBS reality competition series-with an accompanying outreach campaign and Web site designed to inspire a new generation of engineers.

Over 10 weeks, six high school and college-aged kids learn to think smart, build fast, and contend with a wild array of engineering challenges-all for real-life clients. Targeted to 9- to 12-year-olds, and fun for people of all ages, this fast-paced TV series is the fuel behind a national, multimedia initiative designed to attract kids to engineering.





EEC Award Letters (2009 and Forward)



To assist NSF in evaluating the Engineering Education and Centers (EEC) Division programs and meeting the reporting requirements of the Government Performance and Results Act of 1993, the PI **must** also respond annually to the request for information about projects outcomes. These include research results, characteristics of students and educators that have been affected by the projects, the project's impact on workforce needs, awards and other measures of the quality of the project's products and activities, including project "**highlights.**" NSF will provide guidelines for the collection and reporting of data and project information.





EEC and Your Career





Opportunities



- (1) Expand Centers to 20 (and beyond)
- (2) Innovation Opportunities
 - a) ERC/SBIR and Translation
 - b) NSF GRF Supplements, NSF Innovation Fellows
 - c) ASEE Post Doc (Continuation ?)
- (3) Engineering Education
 - a) Partnership with SAT/ACT (Barometer of Future)
 - b) GI Bill (March 31, IEECI)
 - d) Evaluation /Assessment (March 31.IEECI)
- (4) Human Resources and NSB (2007)
 - a) REU/RET
 - b) Community College Partnerships
- (5) Global Connections