2007 Division of Engineering Education and Centers (EEC) COV Briefing

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Operations

- **Strengths**
  - Review processes good.
  - Selection of reviewers good.
  - Feedback generally good.
  - Division is moving in the right direction and often leading in the right direction.
  - Program managers operating very efficiently and working hard for the program.
  - Continuity of leadership in many programs.
- **Opportunities for Improvement**
  - Data– needs to be more comprehensive, more uniform, good in some areas, very poor in others.
  - (Depended on the program directors for the data rather than the EIS data).
- Comments: What is continuity plan for program leadership succession? Transitioning to the future?

Engineering 2020

- Engineering Research Center (ERC) and Industry/University Cooperative Research Centers (IUCRC) Programs were ahead of the curve. They addressed Engineering 2020 issues way before the reports were written. This helps to push change.
- EEC programs should work with universities deal with declining number of women undergrads in engineering.
- This division plays a leadership role, especially in the pipeline issues.
- NSF goal of integration of teaching and research done as well here as anywhere in the organization.

Education Issues

- EEC should take a leadership role in transforming engineering education.
- Over a 5-10 year period engineering education funding has not seen any significant growth.
- Need to take a look at the opportunity for an engineering pipeline solution for women, minorities.
- Innovation, pipeline, and retention issues will demand an increased investment in engineering education.
- Sustained programs in education are needed to establish and implement best practices (e.g. Department Level Reform (DLR) cut abruptly).
- Need to have a major program (collaborative, multi-PI, multi-university) effort to allow faculty to try high risk ideas and have national impact.
- Do not create a dichotomy where there are engineering educators and engineering researchers.

Human Resources Research Experiences for Teachers (RET), Research Experiences for Undergraduates (REU), NIBIB-NSF Bioengineering and Bioinformatics Summer Institutes (BBSI)

- Program officers doing a good job with good direction, working well, strong leadership.
- RET and REU have huge impact on pipeline issues.
- EEC should strongly support these programs and explore opportunities for scalability (pipeline issue).
  - Best practices, eg. team up with DoD to co-fund projects, others?
- International educational and research opportunities should be explored to develop programs that will sustain the long term health of US competitiveness.

Centers

- High visibility American Competitiveness Initiative (ACI) opportunity.
- Centers are the only place to have a critical mass that address some of the broader issues related to integrating research and education and pipeline issues.
  - Not something an individual investigator can do.
- Centers are critical for industry involvement.
- Managerial challenges-Avoid artificial partnerships, have true partnerships so partnerships are a leveraging opportunity.

Centers (continued)

- Centers provide students the “best” educational opportunity. Industry believes that Centers are a strong educational background for students. Students prepared to be productive right away. Best way for technology transfer by human capital.
- Support ERC-Lite Experimental Program to Stimulate Competitive Research (EPSCoR) concept.
- Centers need to be increased, not decreased. 25 ERCs (full ones) plus the “Lites.”

Industry/University Cooperative Research Centers (IUCRC)

- Another high visibility ACI opportunity.
- Small NSF funding leverages significant industry dollars.
- Industry supports these experiences.
- NSF contribution should be increased to around $100K.
- An international component should be considered.

Partnerships for Innovation (PFI)

- Funding in one place, management in another, might be in danger because of that. Good program, should keep this.
- Program is young, not a lot of metrics. Need funding to develop metrics. Think it's a good idea. Embryonic stage, not very visible. No continuity of Program Director or Division since inception (6 years), 3 different divisions since inception. Need funding to do proper marketing. "Stepchild" syndrome. Intended to try and involve state and local governments.

Marketing and Export

- Making results available.
- Knowledge transfer and dissemination.
- Need a pro-active effort for knowledge transfer and dissemination.
- Publications on highlights are excellent.