

Application for Federal Assistance SF-424

Version 02

* 1. Type of Submission: <input type="radio"/> Preapplication <input checked="" type="radio"/> Application <input type="radio"/> Changed/Corrected Application	* 2. Type of Application: <input checked="" type="radio"/> New <input type="radio"/> Continuation <input type="radio"/> Revision	* If Revision, select appropriate letter(s): _____ * Other (Specify) _____
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* 3. Date Received: 04/01/2008	4. Applicant Identifier: _____
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5a. Federal Entity Identifier: _____	5b. Federal Award Identifier: _____
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State Use Only:

6. Date Received by State: _____	7. State Application Identifier: _____
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8. APPLICANT INFORMATION:

* a. Legal Name: University of Pittsburgh

* b. Employer/Taxpayer Identification Number (EIN/TIN): (b)(4) EK-4	* c. Organizational DUNS: 004514360
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d. Address:

* Street1:	139 University Place
* Street2:	350 Thackeray Hall
* City:	Pittsburgh
* County:	Allegheny
* State:	PA: Pennsylvania
* Province:	
* Country:	USA: UNITED STATES
* Zip / Postal Code:	15260

e. Organizational Unit:

Department Name: Office of Research	Division Name: _____
--	-------------------------

f. Name and contact information of person to be contacted on matters involving this application:

Prefix: Ms.	* First Name: Heide
Middle Name: _____	
* Last Name: Eash	
Suffix: _____	

Title: Grants and Contracts Officer

Organizational Affiliation:
University of Pittsburgh

* Telephone Number: 412-624-7400	Fax Number: 412-624-7409
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* Email: pfres@ofres.pitt.edu

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9. Type of Applicant 1: Select Applicant Type:

Other (specify):

Type of Applicant 2: Select Applicant Type:

Type of Applicant 3: Select Applicant Type:

* Other (specify):

PrivateNon-Prof St-Rel Ed-Inst

* 10. Name of Federal Agency:

U.S. Nuclear Regulatory Commission

11. Catalog of Federal Domestic Assistance Number:

77.008

CFDA Title:

U.S. Nuclear Regulatory Commission Nuclear Scholarship/ Fellowship Program

* 12. Funding Opportunity Number:

HR-FN208-NED01

* Title:

U.S. Nuclear Regulatory Commission Nuclear Education Program Scholarship and Fellowship Announcement of Opportunity, Fiscal Year 2008

13. Competition Identification Number:

Title:

14. Areas Affected by Project (Cities, Counties, States, etc.):

Pittsburgh; Allegheny, Pennsylvania

* 15. Descriptive Title of Applicant's Project:

NRC Undergraduate Scholarship Program, Swanson School of Engineering, University of Pittsburgh

Attach supporting documents as specified in agency instructions.

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16. Congressional Districts Of:

* a. Applicant: PA-014

* b. Program/Project: PA-014

Attach an additional list of Program/Project Congressional Districts if needed:

17. Proposed Project:

* a. Start Date: 09/01/2008

* b. End Date: 09/31/2010

18. Estimated Funding (\$):

* a. Federal	200,000.00
* b. Applicant	0.00
* c. State	0.00
* d. Local	0.00
* e. Other	0.00
* f. Program Income	0.00
* g. TOTAL	200,000.00

* 19. Is Application Subject to Review By State Under Executive Order 12372 Process?

- a. This application was made available to the State under the Executive Order 12372 Process for review on
- b. Program is subject to E.O. 12372 but has not been selected by the State for review.
- c. Program is not covered by E.O. 12372.

* 20. Is the Applicant Delinquent On Any Federal Debt? (If "Yes", provide explanation.)

- Yes
- No

21. *By signing this application, I certify (1) to the statements contained in the list of certifications** and (2) that the statements herein are true, complete and accurate to the best of my knowledge. I also provide the required assurances** and agree to comply with any resulting terms if I accept an award. I am aware that any false, fictitious, or fraudulent statements or claims may subject me to criminal, civil, or administrative penalties. (U.S. Code, Title 218, Section 1001)

** I AGREE

** The list of certifications and assurances, or an internet site where you may obtain this list, is contained in the announcement or agency specific instructions.

Authorized Representative:

Prefix: Mr. * First Name: Allen
Middle Name: A.
* Last Name: DiPalma
Suffix:

* Title: Director

* Telephone Number: 412-624-7400 * Fax Number: 412-624-7409

* Email: offres@offres.pitt.edu

* Signature of Authorized Representative: Allen DiPalma * Date Signed: 04/01/2008

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Prescribed by OMB Circular A-102

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Applicant Federal Debt Delinquency Explanation

The following field should contain an explanation if the Applicant organization is delinquent on any Federal Debt. Maximum number of characters that can be entered is 4,000. Try and avoid extra spaces and carriage returns to maximize the availability of space.

[Empty text input field]

ASSURANCES - NON-CONSTRUCTION PROGRAMS

OMB Approval No. 4040-0007
Expiration Date 04/30/2008

Public reporting burden for this collection of information is estimated to average 15 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0040), Washington, DC 20503.

PLEASE DO NOT RETURN YOUR COMPLETED FORM TO THE OFFICE OF MANAGEMENT AND BUDGET. SEND IT TO THE ADDRESS PROVIDED BY THE SPONSORING AGENCY.

NOTE: Certain of these assurances may not be applicable to your project or program. If you have questions, please contact the awarding agency. Further, certain Federal awarding agencies may require applicants to certify to additional assurances. If such is the case, you will be notified.

As the duly authorized representative of the applicant, I certify that the applicant:

1. Has the legal authority to apply for Federal assistance and the institutional, managerial and financial capability (including funds sufficient to pay the non-Federal share of project cost) to ensure proper planning, management and completion of the project described in this application.
2. Will give the awarding agency, the Comptroller General of the United States and, if appropriate, the State, through any authorized representative, access to and the right to examine all records, books, papers, or documents related to the award; and will establish a proper accounting system in accordance with generally accepted accounting standards or agency directives.
3. Will establish safeguards to prohibit employees from using their positions for a purpose that constitutes or presents the appearance of personal or organizational conflict of interest, or personal gain.
4. Will initiate and complete the work within the applicable time frame after receipt of approval of the awarding agency.
5. Will comply with the Intergovernmental Personnel Act of 1970 (42 U.S.C. §§4728-4763) relating to prescribed standards for merit systems for programs funded under one of the 19 statutes or regulations specified in Appendix A of OPM's Standards for a Merit System of Personnel Administration (5 C.F.R. 900, Subpart F).
6. Will comply with all Federal statutes relating to nondiscrimination. These include but are not limited to: (a) Title VI of the Civil Rights Act of 1964 (P.L. 88-352) which prohibits discrimination on the basis of race, color or national origin; (b) Title IX of the Education Amendments of 1972, as amended (20 U.S.C. §§1681-1683, and 1685-1686), which prohibits discrimination on the basis of sex; (c) Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. §794), which prohibits discrimination on the basis of handicaps; (d) the Age Discrimination Act of 1975, as amended (42 U.S.C. §§6101-6107), which prohibits discrimination on the basis of age; (e) the Drug Abuse Office and Treatment Act of 1972 (P.L. 92-255), as amended, relating to nondiscrimination on the basis of drug abuse; (f) the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970 (P.L. 91-616), as amended, relating to nondiscrimination on the basis of alcohol abuse or alcoholism; (g) §§523 and 527 of the Public Health Service Act of 1912 (42 U.S.C. §§290 dd-3 and 290 ee-3), as amended, relating to confidentiality of alcohol and drug abuse patient records; (h) Title VIII of the Civil Rights Act of 1968 (42 U.S.C. §§3601 et seq.), as amended, relating to nondiscrimination in the sale, rental or financing of housing; (i) any other nondiscrimination provisions in the specific statute(s) under which application for Federal assistance is being made; and, (j) the requirements of any other nondiscrimination statute(s) which may apply to the application.
7. Will comply, or has already complied, with the requirements of Titles II and III of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646) which provide for fair and equitable treatment of persons displaced or whose property is acquired as a result of Federal or federally-assisted programs. These requirements apply to all interests in real property acquired for project purposes regardless of Federal participation in purchases.
8. Will comply, as applicable, with provisions of the Hatch Act (5 U.S.C. §§1501-1508 and 7324-7328) which limit the political activities of employees whose principal employment activities are funded in whole or in part with Federal funds.

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9. Will comply, as applicable, with the provisions of the Davis-Bacon Act (40 U.S.C. §§276a to 276a-7), the Copeland Act (40 U.S.C. §276c and 18 U.S.C. §874), and the Contract Work Hours and Safety Standards Act (40 U.S.C. §§327-333), regarding labor standards for federally-assisted construction subagreements.
10. Will comply, if applicable, with flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973 (P.L. 93-234) which requires recipients in a special flood hazard area to participate in the program and to purchase flood insurance if the total cost of insurable construction and acquisition is \$10,000 or more.
11. Will comply with environmental standards which may be prescribed pursuant to the following: (a) institution of environmental quality control measures under the National Environmental Policy Act of 1969 (P.L. 91-190) and Executive Order (EO) 11514; (b) notification of violating facilities pursuant to EO 11738; (c) protection of wetlands pursuant to EO 11990; (d) evaluation of flood hazards in floodplains in accordance with EO 11988; (e) assurance of project consistency with the approved State management program developed under the Coastal Zone Management Act of 1972 (16 U.S.C. §§1451 et seq.); (f) conformity of Federal actions to State (Clean Air) Implementation Plans under Section 176(c) of the Clean Air Act of 1955, as amended (42 U.S.C. §§7401 et seq.); (g) protection of underground sources of drinking water under the Safe Drinking Water Act of 1974, as amended (P.L. 93-523); and, (h) protection of endangered species under the Endangered Species Act of 1973, as amended (P.L. 93-205).
12. Will comply with the Wild and Scenic Rivers Act of 1968 (16 U.S.C. §§1271 et seq.) related to protecting components or potential components of the national wild and scenic rivers system.
13. Will assist the awarding agency in assuring compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. §470), EO 11593 (identification and protection of historic properties), and the Archaeological and Historic Preservation Act of 1974 (16 U.S.C. §§469a-1 et seq.).
14. Will comply with P.L. 93-348 regarding the protection of human subjects involved in research, development, and related activities supported by this award of assistance.
15. Will comply with the Laboratory Animal Welfare Act of 1966 (P.L. 89-544, as amended, 7 U.S.C. §§2131 et seq.) pertaining to the care, handling, and treatment of warm blooded animals held for research, teaching, or other activities supported by this award of assistance.
16. Will comply with the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. §§4801 et seq.) which prohibits the use of lead-based paint in construction or rehabilitation of residence structures.
17. Will cause to be performed the required financial and compliance audits in accordance with the Single Audit Act Amendments of 1996 and OMB Circular No. A-133, "Audits of States, Local Governments, and Non-Profit Organizations."
18. Will comply with all applicable requirements of all other Federal laws, executive orders, regulations, and policies governing this program.

* SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL Allen DiPalma	* TITLE Director
* APPLICANT ORGANIZATION University of Pittsburgh	* DATE SUBMITTED 04-01-2008

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BUDGET INFORMATION - Non-Construction Programs

OMB Approval No. 4040-0006
Expiration Date 04/30/2008

SECTION A - BUDGET SUMMARY						
Grant Program Function or Activity (a)	Catalog of Federal Domestic Assistance Number (b)	Estimated Unobligated Funds		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
1. Year 1	77.008			\$100,000.00	\$100,000.00	\$200,000.00
2. Year 2	77.008					\$0.00
3.						\$0.00
4.						\$0.00
5. Totals		\$0.00	\$0.00	\$100,000.00	\$100,000.00	\$200,000.00
SECTION B - BUDGET CATEGORIES						
6. Object Class Categories	GRANT PROGRAM, FUNCTION OR ACTIVITY				Total (5)	
	(1) Year 1	(2) Year 2	(3)	(4)		
a. Personnel					\$0.00	
b. Fringe Benefits					\$0.00	
c. Travel					\$0.00	
d. Equipment					\$0.00	
e. Supplies					\$0.00	
f. Contractual					\$0.00	
g. Construction					\$0.00	
h. Other	\$100,000.00	\$100,000.00			\$200,000.00	
i. Total Direct Charges (sum of 6a-6h)	\$100,000.00	\$100,000.00		\$0.00	\$0.00	\$200,000.00
j. Indirect Charges	\$0.00					\$0.00
k. TOTALS (sum of 6i and 6j)	\$100,000.00	\$100,000.00		\$0.00	\$0.00	\$200,000.00
7. Program Income		\$0.00	\$0.00			\$0.00

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SECTION C - NON-FEDERAL RESOURCES					
(a) Grant Program	(b) Applicant	(c) State	(d) Other Sources	(e) TOTALS	
8. Year 1				\$0.00	
9. Year 2				\$0.00	
10.				\$0.00	
11.				\$0.00	
12. TOTAL (sum of lines 8-11)	\$0.00	\$0.00	\$0.00	\$0.00	
SECTION D - FORECASTED CASH NEEDS					
13. Federal	Total for 1st Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
	\$0.00				
14. Non-Federal	\$0.00				
15. TOTAL (sum of lines 13 and 14)	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
SECTION E - BUDGET ESTIMATES OF FEDERAL FUNDS NEEDED FOR BALANCE OF THE PROJECT					
(a) Grant Program	FUTURE FUNDING PERIODS (Years)				
	(b) First	(c) Second	(d) Third	(e) Fourth	
16.					
17.					
18.					
19.					
20. TOTAL (sum of lines 16-19)	\$0.00	\$0.00	\$0.00	\$0.00	
SECTION F - OTHER BUDGET INFORMATION					
21. Direct Charges:			22. Indirect Charges:		
23. Remarks:					

Nuclear Regulatory Commission (NRC) – Undergraduate Scholarship Program
Funding Number: HR-FN208-NED01

EXECUTIVE SUMMARY

Undergraduate Scholarship Program

Swanson School of Engineering, University of Pittsburgh

Contact Information

Principal Investigator Dr. Larry Shuman Sr. Associate Dean for Academic Affairs Swanson School of Engineering University of Pittsburgh Pittsburgh, PA 15261 412-624-9815 (ph) 412-624-1108 (fax) shuman@pitt.edu	Program Coordinator Dr. Larry Foulke Director of Nuclear Engineering Program Swanson School of Engineering University of Pittsburgh Pittsburgh, PA 15261 412-653-0978 (ph) 412-624-0412 (fax) lr4f@pitt.edu
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Total Funding Request: \$200,000 spread over 2 years

The Swanson School proposes to establish 10 NRC Scholarships, each with a value of \$10,000 per year for a two-year period. Scholarships will be awarded in accordance with NRC's requirements. Scholarships would be awarded to Sophomores in the Swanson School of Engineering for their Junior and Senior years of study. Recipients will be enrolled in the undergraduate Nuclear Engineering Certificate Program. The Swanson School of Engineering will establish an NRC Scholarship Committee to review the applications and will recommend to the Dean ten candidates for approval.

Attachments

AdditionalCongressionalDistricts

File Name

Mime Type

AdditionalProjectTitle

File Name

Mime Type

Nuclear Regulatory Commission (NRC)
Undergraduate Scholarship Program
Funding Number: HR-FN208-NED01

Biographical Information is provided on the following key personnel included in the proposed project team:

- Principal Investigator – Dr. Larry Shuman
- Director of Nuclear Engineering Program – Dr. Larry Foulke

Principal Investigator – Dr. Larry Shuman

Dr. Shuman joined the department in 1969. He is currently Associate Dean for Academic Affairs, School of Engineering, University of Pittsburgh. He is also Professor of Industrial Engineering and recently served as the Interim Dean. His three primary areas of interest are: improving the engineering educational experience, the application of operations research to health delivery systems, and the study of the ethical behavior of engineers and engineering managers.

Dr. Shuman is co-chair of the 1997 Frontiers in Education Conference which will be held in Pittsburgh. He is also co-editor of the Journal of the Society for Health Systems. Dr. Shuman directed a National Science Foundation (NSF) funded study to redesign the freshman engineering experience at the University of Pittsburgh. This project has resulted in methodologies for assessing changes in student attitudes and predicting those students most likely to leave engineering, which have been adopted by several other engineering programs. In the health delivery area, Dr. Shuman has been involved with the design and simulation of prehospital care systems, the evaluation of care delivery processes, and the design of particular hospital subsystems including simulation studies of diagnostic imaging, emergency departments, operating rooms, nurse scheduling and staffing.

Dr. Shuman directed the NSF funded study: "The Ethical Behavior of Engineers - an Analysis of the Space Shuttle Program". Its primary objective was to better understand the role of ethical decision making in the practice of engineering by examining how engineers perceive, articulate and resolve ethical dilemmas which arise when complex, advanced technologies are developed.

He has been principal or co-principal investigator on over twenty sponsored research projects funded from federal and state government agencies, and private foundations. He has also served as a consultant to Blue Cross of Western Pennsylvania, the Western Pennsylvania Emergency Physicians, and numerous hospitals.

Director of Nuclear Engineering Program – Dr. Larry Foulke

Dr. Larry Foulke, P.E. has worked his entire career in a wide range of nuclear science and technology, including nuclear reactor performance analysis, reactor safety, environmental assessment, physical security, safeguards, nuclear materials management, and training and simulation.

Foulke served as adjunct professor in the Nuclear Engineering Department at Penn State University from 1984 to 1988. He is a Registered Professional Engineer (Nuclear) in Pennsylvania, and was inducted into the Engineering Hall of Fame at Kansas State University in 2003.

Foulke is a Fellow of the Accreditation Board for Engineering and Technology (ABET) after having served in a number of university accreditation activities.

A member of the American Nuclear Society (ANS) since 1966, he has served on the ANS Board of Directors since 1998. He was Past Chair of Pittsburgh Local Section of the ANS, and he was and is an initiator of outreach activities to science teachers and students. Foulke completed service as President of the American Nuclear Society in June, 2004.

Foulke received his PhD in Nuclear Engineering from the Massachusetts Institute of Technology in 1967. His articles and opinion pieces have been published in a number of nuclear engineering journals and editorial pages of various newspapers. He has appeared in a number of conference panels and television opinion presentations. He regularly briefs Members of Congress and congressional staff on matters dealing with nuclear science and technology.

NRC UNDERGRADUATE SCHOLARSHIP PROPOSAL
Swanson School of Engineering, University of Pittsburgh
Funding Number: HR-FN208-NED01

A. DESCRIPTION OF THE PROPOSED PROGRAM

In energy history, western Pennsylvania has been a leader in the development of nuclear technology, through the presence of Westinghouse, the nuclear navy (now Bechtel Bettis and Bechtel Plant & Machinery) and FirstEnergy's Beaver Valley Power Plant (home to two of Pennsylvania's nine operating nuclear reactors). In 2006, these companies and their counterparts in the Electric Power and Coal Mining industries approached the Swanson School of Engineering for assistance in addressing current and projected workforce development challenges. The Swanson School has responded very positively, developing new programs in Nuclear Engineering, Electric Power Engineering, and Mining Engineering under a comprehensive Power and Energy Initiative.¹ Currently, the School is in the process of establishing certificates (concentrations) for each of these programs

The Nuclear Engineering Certificate program has benefited from financial support and technical guidance from both Westinghouse and FirstEnergy. Grants from the Nuclear Regulatory Commission (Grant Award NRC-38-07-505) and the Department of Energy (GNEP Readiness DE-PS07-07ID14817) have also provided support for nuclear engineering curriculum development. In addition, the Commonwealth of Pennsylvania and the Heinz Endowments have provided financial support for the Power and Energy Initiative. Undergraduate and Graduate Certificates in Nuclear Engineering were approved by the University of Pittsburgh in 2007, and the first undergraduate certificates were awarded in December of 2007.

The five-course undergraduate certificate program includes three nuclear engineering courses plus two approved, discipline-specific electives related to nuclear engineering. The certificate program is available to all undergraduate engineering students. Students completing this program will thus graduate with a BS in one of the nine traditional engineering disciplines, along with the undergraduate Certificate in Nuclear Engineering. The first course in the undergraduate program (Introduction to Nuclear Engineering) was initially offered during the Fall 2006 Semester. Over 70 students enrolled in the course, far exceeding the School's expectations. Subsequent offerings of the introductory course have had enrollments of more than 50 students.

As noted, the Nuclear Engineering Certificate Program is open to all undergraduates within the Swanson School of Engineering, a pool of approximately 2,000 students. The quality of students that are enrolling in the Swanson School has increased dramatically in recent years (Figure 1), helping to establish Pitt as a Top-20 Public University as ranked by US News & World Report. In recent years, Swanson School undergraduates have been the recipients of Rhodes, Goldwater, and Truman Scholarships.

The Nuclear Regulatory Commission (NRC) Undergraduate Scholarship Program would stimulate and sustain this growing interest in nuclear engineering at the University, along with the strong regional and national job market in this field, to attract the best engineering undergraduates into the Nuclear Engineering Certificate Program.

¹ Reed, Gregory F. "A Powerful Initiative at Pitt". IEEE Power & Energy Magazine Mar/Apr 2008.

Figure 1 – Average SAT and High School Rank for Incoming Freshman Swanson School of Engineering, University of Pittsburgh

	Average SAT	H.S. Rank Top 10%
2007	1344	62%
2005	1299	55%
2000	1234	42%
1995	1145	31%

There is currently a strong job market awaiting graduates of the Swanson School.² Hundreds of the world's finest companies compete aggressively to hire our students through Career Fairs and other recruiting events. The nuclear engineering profession is well represented through the on-campus recruiting activities of the NRC, Westinghouse, FirstEnergy, Bechtel Bettis, and Bechtel Plant Machinery.

After participating in the Fall 2007 Career Fair at the University, the NRC invited five engineering candidates in for interviews, and extended offers of employment to four of them in their Safety Professional Development Program.³ In addition to their excellent academic credentials, the strong job market for our graduates is further evidence that the nuclear engineering profession values the high quality and potential of our students.

The Swanson School proposes to establish 10 NRC Scholarships, each with a value of \$10,000 per year for a two year period. This format was selected with two goals in mind:

- To *provide incentive* for outstanding students to enroll in and complete the undergraduate Nuclear Engineering Certificate Program. Depending on a student's residency status, a \$10,000 scholarship could cover more than half of their yearly tuition.
- To have the *maximum positive impact* on workforce development in the nuclear industry. The 10 students receiving the NRC Scholarships would represent approximately 25% of the students pursuing the undergraduate Nuclear Engineering Certificate.

² DaParma, Ron. "Local companies provide engineers to cover projects, retirements." Pittsburgh Tribune-Review 9 March 2008

³ Bubar, Patrice. Personal Communication, November 15, 2007.

Scholarship selection criteria will be in accordance with NRC's requirements, including:

- Having at the time of application, and maintaining a 3.5 GPA (on a 4.0 scale) overall and within major.
- Maintaining a course load of at least 12 credit hours per semester or be classified as a full-time student.
- Being matriculated in a baccalaureate degree program in a nuclear-related area.

Scholarships would be awarded to:

- Sophomores in the Swanson School of Engineering for Junior and Senior years of study.
- Students enrolled in the undergraduate Nuclear Engineering Certificate Program.
- Applicants who agree to the NRC's terms for this program, including the commitment to serve six months in nuclear-related employment for each partial or full year of scholarship support.

The Swanson School of Engineering will establish an NRC Scholarship Committee to review the applications and will recommend to the Dean ten candidates for approval. The committee will include:

Dr. Larry Shuman
Senior Associate Dean for Academic Affairs

Dr. Larry Foulke
Director of the Nuclear Engineering Program

Ms. Cheryl Paul
Director, Engineering Student Services

In order for the recipients to receive the second year of support (Senior year), they will need to maintain the Scholarship criteria (GPA, course load and degree program) and remain enrolled in the undergraduate Nuclear Certificate Program. This will encourage the students to maintain their presence in the program through to completion. If a recipient is not eligible for a second year of funding, the additional scholarship will be awarded to another qualified Swanson School student, based on the recommendation of the Selection Committee and the approval of the Dean. Likewise, if an insufficient number of applicants are identified in a given class, the Selection Committee may recommend other qualified Swanson School students to the Dean for approval.

B. RECRUITMENT & MARKETING ACTIVITIES

The NRC Scholarships will provide an excellent opportunity to attract outstanding engineering students into the Swanson School of Engineering's undergraduate Nuclear Engineering Certificate program. Students take courses to satisfy the certificate requirements during their Junior and Senior years of study. As such, the recruitment and marketing efforts associated with this program will focus on students in the Sophomore year.

In addition to this being the year that students make decisions regarding their educational focus, it is also the year that many of our students begin their Cooperative (Co-op) educational program. The Cooperative Education Program at Pitt is one of the most exciting opportunities available to engineering students and employers. Our Program is an educational program that prepares students for professional careers by combining academic training with practical work experience in industry, business, and government

services. Co-op students typically alternate periods of full-time work with periods of full-time, on-campus study. They complete a minimum of three work rotations before they graduate. Students in each of the Swanson School's nine undergraduate degree programs participate in the Co-op Program in addition to students from chemistry and computer science. Currently, 60 percent of Swanson School students, including 61 percent of the honors students, participate in the Co-op Program. FirstEnergy's Beaver Valley Power Station is an active participant in the Co-op Program.²

With an assumed award in Summer 2008, recruitment and marketing efforts would begin in the Fall Semester 2008. Student advisors in all Swanson School support units will receive information on the NRC Scholarships to share with their students. Dr. Larry Foulke (Director of Nuclear Programs) will present information related to the NRC Scholarships and the Nuclear Engineering Certificate Program in the following Department Seminars during the Fall 2008 Semester:

- Chemical Engineering
- Civil & Environmental Engineering
- Electrical & Computer Engineering
- Industrial Engineering
- Mechanical Engineering & Materials Science (includes Engineering Physics)

Dr. Foulke will also present to student engineering societies and affinity groups, including:

- National Society of Black Engineers
- Society of Hispanic Professional Engineers
- Society of Women Engineers

Dr. Foulke will invite NRC and nuclear-industry representatives to join him in these presentations to help promote the many career opportunities that exist for students in the nuclear engineering field.

Beginning February 2009 (Spring Semester), the Swanson School of Engineering will host an annual "Nuclear Engineering Career Night" on campus. The purpose of the event will be to promote nuclear engineering career opportunities to the entire school, including information on the NRC Scholarship program tailored specifically for those Sophomores in attendance. The Swanson School has conducted similar events focused on the electric power industry with great success. This model will be replicated with the "Nuclear Engineering Career Night". NRC has appointed a "Campus Champion" to lead its recruiting and other efforts at the University of Pittsburgh. It is expected that the NRC Campus Champion will participate in this event. Westinghouse and FirstEnergy have already committed to having their personnel participate in the event (see support letters in Attachment 1).

C. SELECTION PROCESS

As described in Section A, recipients of the NRC Scholarships shall be Swanson School of Engineering students who are enrolled in the undergraduate Nuclear Engineering Certificate Program. Detailed information on the certificate program is provided below.

C.1. Undergraduate Nuclear Engineering Certificate Program

The Swanson School of Engineering, in partnership with FirstEnergy and Westinghouse as major constituents, has developed a unique academic program in direct response to the growing employment needs of the nuclear industry. The certificate program for undergraduates provides constituency-driven coursework that forms the core of a unique undergraduate level nuclear engineering education. This innovative and academically-strong program integrates relevant experience from the nuclear industry with the University of Pittsburgh's outstanding educational capabilities in order to address:

- Knowledge gaps regarding nuclear power plant engineering and operations identified within the current engineering staffs at nuclear power plants and nuclear suppliers by providing students with an increased understanding of the complexities and interconnections of nuclear power plant systems and operations.
- Nuclear industry workforce needs by developing the basic competencies required by today's science and engineering students, as defined by the nuclear industry's current needs, to contribute quickly and effectively to the renaissance of nuclear science and technology in the United States.
- The impending loss of industry skills, knowledge, and experience (due to workforce attrition) by utilizing industry experts as key instructors in the undergraduate certificate program.
- The identified lack of new students of nuclear power plant technology by providing an exciting and highly relevant curriculum that will stimulate interest in a career in the nuclear industry.

The certificate program that has been developed through an academic and industry partnership is composed of 15 credit hours of coursework. The curriculum is designed so that earned credits may be applied toward any one of the Swanson School's traditional engineering degree programs.

The emphases of the undergraduate certificate program are on the fundamentals of nuclear technology, the broad spectrum of technical and social issues encountered in the nuclear industry, and the opportunities afforded by the nuclear industry's renaissance. The undergraduate program is sufficiently flexible to accommodate students from a wide spectrum of engineering disciplines. Experience to date has shown that the undergraduate program is a magnet for attracting traditional engineering students to nuclear power engineering. This interest has been evidenced by the large enrollments (an average of over 60 students in each of two presentations of an introductory course), the variety of engineering majors represented by the students, and the increased focus on nuclear careers. Ultimately, a steady-state enrollment of 100 students is projected in the undergraduate certificate program with approximately 40 BS graduates per year earning the nuclear certificate.

Program content has been and will continue to be developed in consultation with engineers, managers, and education specialists from local constituencies, including Westinghouse Electric Company and FirstEnergy Corporation, as well as from the global nuclear engineering infrastructure. Course work takes advantage of nearby nuclear facilities at Westinghouse Electric Company, and FirstEnergy's Beaver Valley Power Station. "Dynamic learning activities" at these facilities provide students with a hands-on-minds-on applications. The availability of these facilities and subject matter experts is a major strength of this program.

The programs' focus is aimed at the critical need for engineers with integrated, cross-discipline knowledge to mitigate the tendency of engineering disciplines to 'silo' into their own areas of

expertise without an adequate understanding of their interfaces with other disciplines. For example, these programs' unique emphasis is aimed at providing the (discipline) engineer with the ability to work with the engineers who design the instrumentation and control systems, plant operations and maintenance staff, licensing engineers, or core reload analysts. An innovative exercise that capstones the course in Nuclear Reactor Fundamentals involves teams of students working together to identify the variables and parameters that are passed among the mechanical, nuclear and thermal designers.

The undergraduate certificate program reflects an important and innovative initiative for nuclear workforce development. In addition to expanding nuclear knowledge to undergraduate students in the traditional engineering disciplines (e.g., electrical, mechanical, and chemical), this unique program differs from traditional nuclear engineering education in that it is informed by its constituencies as to the educational needs of their organizations.

Given the close proximity of Westinghouse Electric Company, FirstEnergy's Beaver Valley Power Station, and the Bechtel Bettis Laboratory, there exists a robust pool of experienced adjunct faculty, education resources, learning facilities, and a fresh source of relevant industry issues. This program maximizes the existing resources of Beaver Valley and Westinghouse to promote student learning. In particular, the programs:

- Use instructional approaches that take advantage of the experience and knowledge of practicing nuclear professionals in the local service areas of western Pennsylvania. Most adjuncts have over 25 years of experience in the nuclear industry and are recognized in the industry for their expertise.
- Use the full-scale, replica simulators available at Beaver Valley and Westinghouse to reinforce the classroom learning with hands-on experience. For example, to adequately convey the lessons learned from the Three Mile Island event (considering that most of these students were born after 1979), the accident sequence of events is walked through with the students on the simulator.
- Integrate desktop simulation software to provide "laboratory" experiences that facilitate the understanding of plant operations and promote the development of intuition regarding plant transient behavior.
- Provide for the development of teaching guides and source books as a major product of the program. The certificate programs use relevant, non-proprietary information from FirstEnergy and Westinghouse Electric Company in the development of teaching materials.
- Generate student interest in nuclear power engineering and increase awareness among students who would not normally have considered a career in the nuclear industry.

In addition to the innovative concepts discussed above, the educational design philosophy of the courses in the certificate programs uses web-based learning techniques. Both the University of Pittsburgh and Westinghouse Electric Company use the Blackboard Academic Suite™ to enhance the effectiveness of their own training programs. The expertise of these organizations with the Blackboard Academic Suite™ is being applied to the certificate program courses.

As a result of this partnership among the University of Pittsburgh, FirstEnergy's Beaver Valley Power Station and the Westinghouse Electric Company, measurable increases in Human Resources (HR) staff productivity will occur at both Beaver Valley and Westinghouse. The provision of a source of future engineers with a background in nuclear power engineering and

operations, will simplify the recruiting process of both HR departments, thus freeing the staffs to work on other important projects.

Leadership of the certificate program will be provided by Larry Foulke who has an earned doctorate in nuclear engineering, P.E. registration (nuclear) in the State of Pennsylvania, and experience in reactor operations. Dr. Foulke has also had a broad base of experience at both Bettis and Westinghouse, is well-known and well-connected in the nuclear industry, and will provide program flexibility and innovation. He is a Past-President of the American Nuclear Society.

C.2. Scholarship Selection Process

As described in Section A, the Swanson School will establish a NRC Scholarship Selection Committee to review scholarship applications and to recommend to the Dean of Engineering ten candidates for approval. Scholarship support will be provided for the recipient's Junior and Senior years. In order for the recipients to receive the second year of support (Senior year), they will need to maintain the Scholarship criteria (GPA, course load and degree program) and remain enrolled in the undergraduate Nuclear Certificate Program. This will encourage the students to maintain their presence in the program through to completion. If a recipient is not eligible for a second year of funding, the additional scholarship will be awarded to another qualified Swanson School student, based on the recommendation of the Selection Committee and the approval of the Dean. Likewise, if an insufficient number of applicants are identified in a given class, the Selection Committee may recommend other qualified Swanson School students to the Dean for approval.

D. MANAGEMENT & ADMINISTRATIVE STRUCTURE

D.1. Program Management

Dr. Larry Shuman (Sr. Associate Dean for Academic Affairs) will serve as the Principal Investigator for this project. He has been principal or co-principal investigator on over twenty-five sponsored research projects funded from federal and state government agencies, and private foundations. He is currently directing a \$2 million Multi-institutional grant from National Science Foundation that supports research into extending mathematical modeling methodology into engineering education. As Senior Associate Dean for Academic Affairs, the School's student support activities (scholarships, advising, mentoring, Co-Op Program) report to Dr. Shuman. Dr. Shuman will have overall responsibility for the NRC Scholarship Program.

Dr. Larry Foulke (Director of Nuclear Programs) will serve as the Program Coordinator under the direction of the Principal Investigator. He has coordinated the School's activities in developing the new undergraduate and graduate Nuclear Engineering Certificate programs. He is serving as Principal Investigator for an NRC grant (NRC-38-07-505) that is developing graduate level nuclear engineering educational modules with a focus on nuclear engineering operations and safety.

CVs of key personnel are included in Attachment 2.

D.2. The University of Pittsburgh

The University of Pittsburgh, founded in 1787, is one of the oldest institutions of higher education in the United States. As one of the nation's distinguished comprehensive universities, we are a leader in education, a pioneer in research, and a partner in our region's economic development.

For the second consecutive year, the University of Pittsburgh ranks in the uppermost tier of U.S. public research universities according to *The Top American Research Universities*, the recently issued 2007 annual report of The Center for Measuring University Performance. The report again places Pitt in the company of only six other leading public research universities: the University of California at Berkeley, the University of California at Los Angeles, the University of Illinois at Urbana-Champaign, the University of Michigan at Ann Arbor, the University of North Carolina at Chapel Hill, and the University of Wisconsin at Madison.

As an integral part of the University, the Swanson School of Engineering has the resources and expertise necessary to manage and administer the NRC Scholarship Program.

E. EVALUATION PLAN

We will evaluate the success of the plan through both quantitative measures and more a qualitative, formal debriefing of each scholarship recipient. In doing this we will track the annual number of eligible Swanson School students for the Scholarship based solely on grade point average, the percent of those who are interested in a nuclear engineering career and hence apply for the scholarship, the number of scholarships awarded, and the number of scholarships retained for the second year. In those instances where the scholarship is not retained, we will determine the reasons (e.g., poor academic performance due to a number of possible reasons, lack of interest in a nuclear career, unhappiness with the program, or interest in graduate school, etc.). When a program weakness is discovered, the appropriate changes will be made. We will also examine the Co-Op rotation evaluation forms (from both the student and the supervisor). Finally graduating scholarship recipients will undergo a formal, structured interview to determine their career choice, entry level job, and the impact of the nuclear engineering certificate program and the NRC scholarship on this choice. We will continue to track graduate employment and compare career paths of scholarship to non-scholarship students.

F. TUITION RATES

**Undergraduate Tuition Rates
University of Pittsburgh
Swanson School of Engineering**

	Full Time Academic Year	Full Time Per Term	Part Time Per Credit
PA Resident	\$12,914	\$6,457	\$538
Non-Resident	\$23,620	\$11,810	\$984

G. INTEGRATION WITH REGIONAL EFFORTS

The Pennsylvania Department of Labor & Industry has established a system of Local Workforce Investment Boards (WIBs) which are guided and led by private industry. The mission of the WIBs is to develop a world-class workforce development system which complements the Commonwealth's overall education and economic strategy and guides federal, state, and local resources in a customer-focused and user-friendly manner that promotes a high quality, globally competitive workforce. The Three Rivers Workforce Investment Board (TRWIB) is the WIB for the Pittsburgh, PA area.

Through the TRWIB, the Pennsylvania Department of Labor & Industry has provided significant financial support for the Swanson School of Engineering's initial efforts to develop educational certificate programs in Power and Energy, including Nuclear Engineering. They have been joined in the financial support of this initiative by the Pennsylvania Department of Community and Economic Development (PA DCED), the Heinz Endowment's Innovation Economy Program, and the leading companies in the Southwestern Pennsylvania energy industry. This comprehensive group of partners has supported the launch of the new certificate programs because they recognize that the Swanson School of Engineering is in an excellent position to develop and deliver curricula that will attract young engineering talent to their industries and prepare them for success when they enter the workforce. A letter summarizing TRWIB's financial support for this initiative is included in Attachment 1.

The PA DCED has provided financial support specifically to provide matching funds for collaborative research conducted by Pennsylvania energy companies (such as Westinghouse and FirstEnergy) at the Swanson School of Engineering. A letter summarizing PA DCED's financial support for this initiative is included in Attachment 1.

H. PLANS FOR SUSTAINABILITY

The Swanson School of Engineering has set power and energy as a major priority area. Nuclear engineering is an important component of this focus, and the School will continue to grow the program in response to both student demands and the interest of the nuclear industry, especially those companies and agencies who hire our graduates. Another determinant will be the extent that sufficient sponsored research funds will be available to justify the hiring of tenure stream faculty. Our long-term objective is to recruit full-time faculty who can not only direct the program, but would serve as the primary instructors, with adjuncts continuing to complement the educational initiative.

March 18, 2008

Mr. John Gutteridge
U.S. Nuclear Regulatory Commission
Mail Stop GW5 A06
Washington, DC 20555-0001

Re: HR-FN208-NED01
Undergraduate Scholarship Proposal
University of Pittsburgh

Dear Mr. Gutteridge:

On behalf of FirstEnergy Nuclear Operating Company, I am pleased to provide this letter in support of the University of Pittsburgh's Undergraduate Scholarships proposal to the NRC.

My FirstEnergy colleagues and I have worked closely with Dr. Larry Foulke and the Swanson School of Engineering faculty to develop and implement the School's new Nuclear Engineering certificate programs. A number of FirstEnergy employees have also served as lecturers and Adjunct Professors in delivering the newly developed courses. We have been very impressed with the School's openness to working with their industrial partners to develop a curriculum that provides a great educational experience for the students while simultaneously addressing our engineering workforce development needs.

In addition to providing personnel support for this effort, in 2007 FirstEnergy provided \$15,000 to support the newly resurgent Nuclear Engineering program at Pitt. If business conditions permit, it is our intention to continue to provide annual financial support for this program.

We would be pleased to have a FirstEnergy representative participate in on-campus events that help promote the availability of these scholarships among the Pitt student body. FirstEnergy is an active and aggressive recruiter of Swanson School of Engineering graduates. Many of our recruits come to us through the School's excellent Co-Operative Education (Co-Op) program. The new Nuclear Engineering certificate programs at Pitt provide us with a strong base of highly qualified candidates for employment with FirstEnergy. I fully expect that we will be able to assist in offering employment opportunities for a number of the scholarship recipients in accordance with the requirements of the grant.

As you may know, the Southwestern Pennsylvania region enjoys a strong tradition in the nuclear power industry. The Shippingport Atomic Power Station, the world's first full-scale atomic electric power plant devoted exclusively to peacetime uses, was located near our current facility. The reactor first went critical on December 2, 1957, and was in operation until October, 1982. The two current reactors at our Beaver Valley Power Station came on line in 1976 and 1987. Additionally, the historic presence of Westinghouse in our region and their many contributions to nuclear power generation and propulsion has provided our region with a rich tradition of excellence in this field, as well as a highly trained (albeit rapidly retiring) nuclear workforce. It is appropriate that the University of Pittsburgh should thus take on this leadership role to ensure that the nuclear power industry, which has been so important to our region and our nation will continue to prosper in the decades to come.

We strongly endorse the University's proposal and encourage you to support this important initiative.

Sincerely,



Peter Sena

CC: Michael Lovell, Associate Dean for Research
Swanson School of Engineering



Westinghouse

Westinghouse Electric Company
Westinghouse Energy Center
4350 Northern Pike Road
Monroeville
15146
U.S.A.

Mr. John Gutteridge
U.S. Nuclear Regulatory Commission
Mail Stop GW5 A06
Washington, DC 20555-0001

Re: HR-FN208-NED01
Undergraduate Scholarship Proposal
University of Pittsburgh

Dear Mr. Gutteridge:

On behalf of Westinghouse Electric Company, I am pleased to submit this letter in support of the University of Pittsburgh's proposal under the NRC's Undergraduate Scholarship Program.

Westinghouse's technical leadership has worked closely with Dr. Larry Foulke and the Pitt Engineering faculty to develop new undergraduate and graduate certificate programs in Nuclear Engineering. In addition to the significant input from our technical leaders, Westinghouse has also provided financial support to this effort:

- In Spring 2006 Westinghouse donated \$20,000 to the Pitt Engineering School to support the development of the new Nuclear Engineering curriculum.
- In Fall 2006 Westinghouse donated \$80,000 to the Pitt School of Information Sciences to initiate development of knowledge transfer methods through the use of virtual reality techniques.
- In Spring 2007 Westinghouse provided \$7,500 to sponsor an Engineering Senior Design project focused on Communication through Containment Walls.
- In Spring 2008 Westinghouse provided \$7,500 to sponsor an Engineering Senior Design project focused on the Development of Smart Pill Sensors for Steam Generator Tubes.

In response to a philanthropic proposal from the University, Westinghouse plans to provide an additional \$195,000 to continue our support for this initiative over the next three years, including:

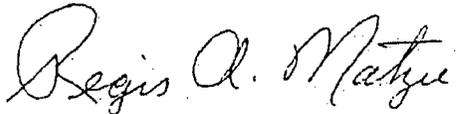
- Development and administration of the Nuclear Engineering Certificate option for baccalaureate students in the School of Engineering. *Investment: \$35,000 per year for three years.*
- Development and administration of a new Masters Degree program with a Nuclear Operations concentration. *Investment: \$25,000 per year for three years.*
- Westinghouse's continued participation in the School of Engineering's Corporate Affiliates Program (CAP), to assist our efforts in recruiting students participating in this program. *Investment: \$5,000 per year for three years.*

We thus anticipate that Westinghouse's total commitment for these efforts in 2006-2009 will be approximately \$310,000.

Based on our discussions with Dr. Foulke and others, we will be pleased to have a Westinghouse representative participate in activities that promote the NRC Scholarship Program at Pitt. Furthermore, as we aggressively recruit engineering graduates from the Swanson School of Engineering, we are confident that we can provide opportunities for the work experience that is required of the scholarship recipients.

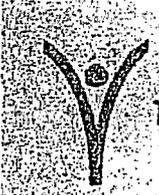
We applaud the great work that Pitt is doing to support our industry and we encourage the NRC to join us in supporting this initiative.

Sincerely,

A handwritten signature in cursive script that reads "Regis A. Matzie".

Mr. Regis A. Matzie
Senior Vice President and Chief Technology Officer

CC: Michael Lovell, Associate Dean for Research, Pitt Engineering



T H R E E R I V E R S

WORKFORCE INVESTMENT BOARD

TRWIB, Inc.

March 19, 2008

Mr. John Gutteridge
U.S. Nuclear Regulatory Commission
Mail Stop GW5 A06
Washington, DC 20555-0001

Re: HR-FN208-NED01
Undergraduate Scholarship Proposal - University of Pittsburgh

Dear Mr. Gutteridge:

On behalf of the Three Rivers Workforce Investment Board (TRWIB), I am pleased to submit this letter in support of the University of Pittsburgh's Undergraduate Scholarship Proposal to the NRC.

TRWIB informs decision-making on regional development to ensure that current and future market needs of businesses and job seekers are met. TRWIB fulfills its mission through:

- Acquiring, managing, interpreting, and sharing relevant workforce data
- Identifying and researching critical workforce issues
- Consulting and advising on public policy with employers and employment sectors.

TRWIB supports and oversees the local workforce development system in Pittsburgh and Allegheny County, including a network of Career Centers that serve jobseekers and employers.

We have been very impressed with the Swanson School of Engineering's approach to developing new educational programs in Power & Energy, including Nuclear Engineering, in response to our regional workforce development challenge in these fields. Through funding from the PA Department of Labor and Industry, TRWIB has provided \$125,000 in financial support to the University for curriculum development under this initiative.

The NRC's support of this initiative would thus significantly leverage the financial and programmatic investment that TRWIB has already put into this effort on behalf of our region.

I enthusiastically endorse the University of Pittsburgh proposal and encourage the NRC to join us in supporting this initiative.

Sincerely,

Tommy Johnson
President, Board of Directors
Three Rivers Workforce Investment Board

cc: Michael Loyell, Associate Dean for Research
Swanson School of Engineering

Regional Enterprise Tower, Suite 650 • 425 Sixth Avenue • Pittsburgh, PA 15219

Phone: 412-552-7090

Fax: 412-552-7091

E-mail: info@trwib.org

Web: www.trwib.org



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF COMMUNITY AND ECONOMIC DEVELOPMENT
HARRISBURG, PA 17120

OFFICE OF SECRETARY

March 24, 2008

Mr. John Gutteridge
U.S. Nuclear Regulatory Commission
Mail Stop GW5 A06
Washington, DC 20555-0001

Dear Mr. Gutteridge:

On behalf of the Pennsylvania Department of Community and Economic Development, I am pleased to submit this letter summarizing the financial support that the Department has provided to the University of Pittsburgh's Power & Energy Initiative.

In 2008, the University was awarded a \$125,000 University Research Grant through the Ben Franklin Technology Development Authority. The purpose of these grants is to promote stronger synergy between university-based research and development and the transfer of technology as it relates to economic and workforce development.

Our Department was also instrumental in guiding the University through a complementary \$125,000 curriculum development grant that was provided through the Pennsylvania Department of Labor & Industry via the Three Rivers Workforce Investment Board. The School's newly developed undergraduate and graduate certificates in Nuclear Engineering were supported as part of this program.

Promoting Pennsylvania's energy industry is a top priority for Governor Rendell. His Energy Independence Strategy will help avoid budget-breaking rate spikes, add 13,000 new jobs and attract \$3.5 billion in new investments to the state's economy. The University of Pittsburgh's new initiatives in Nuclear Engineering education and research will make an important contribution in this area.

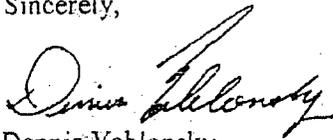
Mr. John Gutteridge

March 24, 2008

Page 2

I encourage the Nuclear Regulatory Commission to join us in supporting this initiative.

Sincerely,

A handwritten signature in cursive script, appearing to read "Dennis Yablonsky".

Dennis Yablonsky

Secretary

cc: Michael Lovell, Associate Dean for Research
Swanson School of Engineering

Current and Pending Support

Investigator: Larry J. Shuman			
Support:	<input checked="" type="checkbox"/> Current	<input type="checkbox"/> Pending	<input type="checkbox"/> Submission Planned in Near Future
<input type="checkbox"/> *Transfer of Support			
Project/Proposal Title: (Sr. Personnel) IGERT: Sustainability Initiative in Engineering			
Source of Support: National Science Foundation			
Total Award Amount: \$3,219,489		Total Award Period Covered: 07/01/05 – 06/30/10	
Location of Project: University of Pittsburgh			
Person-Months Per Year Committed to the Project. Cal: Acad: Sumr:			
Support:	<input checked="" type="checkbox"/> Current	<input type="checkbox"/> Pending	<input type="checkbox"/> Submission Planned in Near Future
<input type="checkbox"/> *Transfer of Support			
Project/Proposal Title: (Co-PI) Interdisciplinary Fellowship Program in Sustainable Engineering			
Source of Support: U.S. Department of Education – Graduate Assistance in Areas of National Need			
Total Award Amount: \$506,688		Total Award Period Covered: 08/14/06 – 08/13/09	
Location of Project: University of Pittsburgh			
Person-Months Per Year Committed to the Project. Cal: Acad: 1 mo. Sumr:			
Support:	<input checked="" type="checkbox"/> Current	<input type="checkbox"/> Pending	<input type="checkbox"/> Submission Planned in Near Future
<input type="checkbox"/> *Transfer of Support			
Project/Proposal Title: (Co-PI) Product Realization for Global Opportunities			
Source of Support: National Collegiate Inventors & Innovators Alliance			
Total Award Amount: \$36,300		Total Award Period Covered: 09/01/06-06/30/08	
Location of Project: University of Pittsburgh			
Person-Months Per Year Committed to the Project. Cal: Acad: 1 mo. Sumr:			
Support:	<input checked="" type="checkbox"/> Current	<input type="checkbox"/> Pending	<input type="checkbox"/> Submission Planned in Near Future
<input type="checkbox"/> *Transfer of Support			
Project/Proposal Title: (Co-PI) Collaborative Research: RAPD – The BME-IDEA Competition, Assessing Innovative Design in Biomedical Engineering Education			
Source of Support: National Science Foundation			
Total Award Amount: \$158,302		Total Award Period Covered: 10/01/06-09/30/09	
Location of Project: University of Pittsburgh, National Collegiate Inventors & Innovators Alliance, Vanderbilt University			
Person-Months Per Year Committed to the Project. Cal: Acad: Sumr: 0.25 mo.			
Support:	<input checked="" type="checkbox"/> Current	<input type="checkbox"/> Pending	<input type="checkbox"/> Submission Planned in Near Future
<input type="checkbox"/> *Transfer of Support			
Project/Proposal Title: (Co-PI) IRES: US-Brazil International Research Experience for Students; Sustainability Research: An Integrative Undergraduate Experience			
Source of Support: National Science Foundation / OISE			
Total Award Amount: \$150,000		Total Award Period Covered: 09/01/06 – 08/31/09	
Location of Project: University of Pittsburgh			
Person-Months Per Year Committed to the Project. Cal: Acad: Sumr:			

Current and Pending Support

Investigator: Larry J. Shuman			
Support: <input checked="" type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support			
Project/Proposal Title: (Sr. Personnel) REU Site: Sustainable Design			
Source of Support: National Science Foundation			
Total Award Amount: \$309,962		Total Award Period Covered: 02/01/07 - 01/31/10	
Location of Project: University of Pittsburgh			
Person-Months Per Year Committed to the Project.		Cal:	Acad: Sumr:
Support: <input checked="" type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support			
Project/Proposal Title: Collaborative Research: Improving Engineering Students' Learning Strategies Through Models and Modeling			
Source of Support: National Science Foundation/CCLI			
Total Award Amount: \$728,875		Total Award Period Covered: 09/01/07 - 08/31/11	
Location of Project: Univ. of Pittsburgh, Colorado School of Mines, US Air Force Academy, Purdue Univ., Univ. of Minnesota, Cal Poly at San Luis Obispo			
Person-Months Per Year Committed to the Project.		Cal:	Acad: Sumr: 0.5 mo.
Support: <input checked="" type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support			
Project/Proposal Title: (Co-PI) Graduate Certification Program in Nuclear Plant Operations and Safety			
Source of Support: Nuclear Regulatory Commission			
Total Award Amount: \$600,000		Total Award Period Covered: 09/01/07 - 08/31/10	
Location of Project: University of Pittsburgh			
Person-Months Per Year Committed to the Project.		Cal:	Acad: Sumr:
Support: <input checked="" type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support			
Project/Proposal Title: US-Brazil Partnership in Sustainability and Innovative Design			
Source of Support: US Department of Education/FIPSE-CAPES			
Total Award Amount: \$211,468		Total Award Period Covered: 09/01/07 - 08/31/11	
Location of Project: University of Pittsburgh			
Person-Months Per Year Committed to the Project.		Cal:	Acad: Sumr:
Support: <input type="checkbox"/> Current <input checked="" type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support			
Project/Proposal Title: (Co-PI) Collaborative Research: Assessing Technical Entrepreneurship Learning in Engineering Education (Phase 2)			
Source of Support: National Science Foundation/CCLI, Phase 2			
Total Award Amount: \$ 236,552		Total Award Period Covered: 09/01/08 - 12/31/11	
Location of Project: University of Pittsburgh, National Collegiate Inventors & Innovators Alliance			
Person-Months Per Year Committed to the Project.		Cal:	Acad: Sumr: 0.25 mo.

Current and Pending Support

Investigator: Larry J. Shuman			
Support: <input type="checkbox"/> Current <input checked="" type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support			
Project/Proposal Title: (Co-PI) Modeling and Analysis of CONSOL Safety Data to Support Zero Accidents Policy			
Source of Support: CONSOL Energy, Inc. Total Award Amount: \$45,120 Total Award Period Covered: 03/01/08 – 10/31/08 Location of Project: University of Pittsburgh			
Person-Months Per Year Committed to the Project. Cal: Acad: Sumr:			
Support: <input type="checkbox"/> Current <input checked="" type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support			
Project/Proposal Title: NRC Undergraduate Scholarship Program, Swanson School of Engineering, University of Pittsburgh			
Source of Support: U.S. Nuclear Regulatory Commission Total Award Amount: \$200,000 Total Award Period Covered: 09/01/08 – 08/31/10 Location of Project: University of Pittsburgh			
Person-Months Per Year Committed to the Project. Cal: Acad: Sumr:			
Support: <input type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support			
Project/Proposal Title:			
Source of Support:			
Total Award Amount: \$ Total Award Period Covered:			
Location of Project:			
Person-Months Per Year Committed to the Project. Cal: Acad: Sumr:			
Support: <input type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support			
Project/Proposal Title:			
Source of Support:			
Total Award Amount: \$ Total Award Period Covered:			
Location of Project:			
Person-Months Per Year Committed to the Project. Cal: Acad: Sumr:			
Support: <input type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support			
Project/Proposal Title:			
Source of Support:			
Total Award Amount: \$ Total Award Period Covered:			
Location of Project:			
Person-Months Per Year Committed to the Project. Cal: Acad: Sumr:			