

PENN STATE NUCLEAR ENGINEERING SOCIETY

DRAFT MEETING MINUTES – April 30, 2016 – PSNES On-Campus Meeting

Supplemental Inserts:

**April 30, 2016 New Graduate Reception Feedback
June 3, 2016 Future of Nuclear telecon (Dr. Motta/Pat Loftus)
June 7, 2016 - PSEAS APG Grant Extension Approval**

Participants:

PSNES Officers & Directors

Pat Loftus – Interim President with proxy for Directors Eric Beaumont, Joe Sholtis, and Jim Tusar and Past President Rick Etling
Arthur Motta – Program Chair NucE (with vote)
Kenan Unlu – RSEC Director and Faculty Representative (with vote)
Tom Richard – Secretary /Treasurer
John Atchison – At-Large Director
Hilary Neal – At-Large Director
Doug Wood – At-Large Director

PSNES Members

Jack Brenizer
Ramon Cruz
Eileen Supko
Matt Wargon

Meeting Attendees:

Dr. Karen Thole - Department Head, Mechanical and Nuclear Engineering
Dr. Susan Bohna - College of Engineering, Director of Major Gifts
Candace Davison - RSEC Staff and PSU WIN Student Chapter Advisor
Diana Brenizer

OPENING

Pat Loftus began the meeting at 11:00 am, welcomed everyone and called the meeting to order. Tom Richard conducted roll-call and confirmed that a quorum was present to conduct business. The safety brief was conducted by Hilary Neal.

OLD BUSINESS

Approval of January 20, 2016 Meeting Minutes

The minutes from the previous business meeting (in January 2016) are approved and posted on the PSNES Website.

Website Link:

http://assets.engr.psu.edu/MNE/docs/PSNES%20Minutes/2016_01_minutes.pdf

Financial Report

Dr. Motta provided the financial report. The PSNES General Account has a balance of \$1,571.08 (unchanged from the January 2016 meeting).

Up to \$200 from the PSNES General Fund was committed via December 2015 Board approval but not yet disbursed for the Time Capsule Decal Design Competition: \$100 to the PSU ANS Student Chapter for coordination services and \$25 - \$100 for the decal design winner/team.

PSNES Director Joe Sholtis, Owner and Principal of Sholtis Engineering and Safety Consulting, donated \$100 to PSNES (New Grad Reception).

2016 PSNES Election Results & 2016-2018 Board

The 2016 PSNES elections took place from January 25, 2016 through March 31, 2016. The new Board transition/turnover will be completed at the August 21st PSNES Annual Meeting.

The PSNES Officers for the August 2016-2018 Term are:

- Interim President - Pat Loftus (through August 2016), Catherine Perego (August 2016 - 2018 Election cycle)
- Vice President/President Elect: Ramon Cruz
- Secretary/Treasurer - Hilary Neal

The three new At-Large Directors for the term 2016-2020 are:

- Matt Ellis
- Jim Tusar
- Matt Wargon

Current At-Large Director Joe Sholtis has indicated he will complete his current term (August 2016) but will be unable to serve on the Board (2016-2020) due to some late breaking personal circumstances. He has indicated plans to continue his participation in PSNES special projects and initiatives as his situation allows. Joe's input has been reflected in the election results.

The complete At-Large Director roster through 2018 is:

- Matt Ellis (2016-2020)
- Jim Tusar (2016-2020)
- Matt Wargon (2016-2020)
- John Atchison (2013-2018)
- Eric Beaumont (2013-2018)
- Duane Karchner (2013-2018)
- Vacant Position (Hilary Neal- 2013-2018)
- Michael Pantano (2013-2018)
- Doug Wood (2013-2018)

Non-Elected Board Members with Vote:

- Dr. Arthur Motta
- Dr. Kenan Unlu (RSEC Director and Faculty Representative)
- Rick Etling (PSNES Past President through 2018)

Effective in August 2016, the At-Large Director position currently held by Hilary Neal (term 2013-2018) will be vacant when she assumes the role of PSNES Secretary/Treasurer (2016-2018). The Board passed a motion to fill the 2016-2018 Director position.

Actions:

- 1. PSNES Members interested in filling the remaining term for At-Large Director Hilary Neal (2016-2018) should contact the PSNES President or Secretary.**
- 2. John Atchison will work with Pat Loftus to update the PSNES Board Orientation document to support both Board member transitions and facilitate Board operations.**

2016 PSNES New Grad Reception Event

The 2016 PSNES New Grad Reception was held on April 30, 2016, from 3:00 pm to 5:00 pm in the lobby of the Atherton Hotel. This was a great networking event for NucE students, College of Engineering Faculty, Staff and guests and PSNES members. After a warm welcome and networking session, Hilary Neal kicked-off the event and introduced the featured speaker Mike Erdman (PSEAS President). Also speaking were PSNES Member Ramon Cruz and PSNES Board Members John Atchison, Doug Wood, and Tom Richard.

Thanks to the New Grad Reception Event Team - Hilary Neal (lead), Ramon Cruz, Doug Wood, Pat Loftus, and the NucE Program Chair/Staff.

This event was made possible by a \$1000 PSEAS APG grant that PSNES won earlier this year and by a generous donation from PSNES Director Joe Sholtis, Owner and Principal of Sholtis Engineering and Safety Consulting . **(SUPPLEMENT: 4/30/2016 Reception actual expenditures: \$651)**

For future events, it would be beneficial to have a PSNES Banner. PSNES members noted that both a table banner and a large retractable banner (PSU NucE 50th Anniversary) had previously been used.

Actions:

- 1. Hilary Neal with support from Ramon Cruz to complete and submit the APG Grant Report by June 30, 2016. SUPPLEMENT: On 6/7, PSEAS approved a schedule extension to November 30, 2016 submitted to PSEAS on June 2, 2016. This extension enables the creation and procurement of a reusable PSNES banner, PSNES business cards, and name tags.**
- 2. NucE Program to search for previously used PSNES banners.**

PSNES Time Capsule Decal Design Competition Results

Joe Sholtis, Matt Wargon, and Ramon Cruz organized the Time Capsule Decal Design Competition in collaboration with the PSU Student ANS. Matt presented the results. The Department and PSNES member discussion started with the submission from the Student ANS group, and then led to a discussion on university-approved logos.

In December, 2015, the Board authorized expenditure of funds from the PSNES General Fund. \$100 will go to the PSU ANS Student Chapter for advertising and coordinating the effort. The winning designer or team will be awarded \$25 per person (not to exceed \$100 for a team).

The Board passed a motion to authorize the Program to disburse \$100 to the ANS Student Chapter and thank them in a letter. In the same motion, the Board authorized the Program to disburse \$25 to Shelby Nease for the logo submitted as Attachment 1. A recognition letter will explain the university's stance on using approved logos and noting it may be possible that the logo submission will not be approved by the University for use as the NucE Time Capsule decal.

Department and PSNES members recommended that the Board consider using the university approved logo with an appropriate tagline. There was interest in seeing what other College of Engineering Departments and Affiliate Groups have done in terms of logo approval. Pat Loftus agreed to contact PSEAS.

Actions:

1) Board authorized the Program to transfer \$100 from the PSNES General Fund to the PSU Student ANS account and \$25 to the account of the Time Capsule Decal Design Winner (Shelby Nease).

2) Matt Wargon will prepare letters to the PSU ANS Student Chapter and Decal Design Winner Shelby Nease for PSNES Officer/NucE Program Chair review.

3) Pat Loftus to contact PSEAS regarding university approved logos for use by the College of Engineering and APGs.

2016 PSNES Priorities and Focus Areas (Validation)

The following PSNES priorities and focus areas were discussed:

- 2016 PSNES Election and BOD (Board of Directors) transitions
- What can PSNES do to help, support, and advance the NucE Program, RSEC, Student ANS, and PSU Women in Nuclear (WIN)?
- PSNES membership growth and engagement
- Student Mentoring/Networking growth and engagement

The Board validated these priorities and focus areas, and there were no recommended additions or changes. These items will be re-visited at the Annual Meeting in August.

NEW BUSINESS

Status of MNE Department

Dr. Thole provided a thorough discussion on the status of the Department of Mechanical and Nuclear Engineering. Faculty hiring and enrollments were discussed for both mechanical and nuclear engineering and general trends since 2007. For example, for the 8 new faculty hires (2 nuclear & 6 mechanical), over 550 applications were received. The NucE Capstone program was highlighted, as well as the MNE Department's E-Knowledge Commons project (projected cost \$1.5M).

The E-Knowledge Commons will be a student-centered space in Reber Building designed for social learning. The Commons will give students a place to work as teams within a variety of study spaces, while computer labs and video conference capabilities will provide easy access to technology to enhance global engagement. Bids for construction have been narrowed down to 2 companies, and the design will be finalized next spring (with construction next summer).

Status of NucE Program

Dr. Motta provided a thorough discussion on the status of the NucE Program. Faculty hiring and enrollments were discussed, as well as trends since 2007. The 2 new faculty hires for the NucE Program were discussed, including their backgrounds and research interests. Furthermore, there are approximately 60 students currently enrolled in the M.Eng. program. The new initiative for the Global Nuclear Power Safety Center will have its big kickoff this summer.

As requested by Dr. Motta, the August Annual Meeting will include time for both presentations and sharing of PSNES member perspectives on the "Future of the Nuclear Energy Industry". This information is of interest to MNE as they share the future of the NucE program. Dr. Motta noted that this topic was also being discussed with the Nuclear Power Advisory Board. This topic is important to alumni, faculty, and students. (See Future of Nuclear Energy Industry section of these Minutes for additional details.)

E-Knowledge Commons

As a follow-on to Dr. Thole's earlier discussion on the MNE E-Knowledge Commons project, Dr. Susan Bohna provided a handout with more details and reported great fundraising progress so far. The E-Knowledge Commons fundraising campaign began with a very generous gift from an anonymous graduate. In addition, six companies - Phillips 66, Talen Energy, Bechtel, Ford, First Energy Foundation and Exelon have each pledged contributions to name a space within the E-Knowledge Commons. (See link: <http://www.mne.psu.edu/commons/> for additional information including the current status and maps detailing the Commons layout.)

Dr. Thole and Dr. Bohna offered all NucE Alumni including PSNES members (and their companies) a once in a lifetime opportunity to create a legacy by contributing funds toward the \$60K needed to name a computer lab for PSNES. Those that pledge and donate \$2500 or more will have their names inscribed on a plaque in the lab and also have the opportunity to meet their pledge commitment over 5 years. PSNES Members

Eileen Supko, Pat Loftus and Doug Wood spoke briefly about their excitement and personal commitments to help make this PSNES Computer Lab naming opportunity a reality including helping get the word out. Dr. Bohna indicated that NucE Alumni will be receiving a letter via e-mail soon encouraging both personal and corporate consideration.

Dr. Thole and Dr. Bohna indicated when students were originally asked what would be most important for the Commons area, students stated that they were most interested in space and technology (i.e., a student area with computers and technology to connect and do work that was close to the department to increase collaboration/community in the department). The Commons area would be a home for the students, and also a great benefit for the faculty because the students would be around the department more.

A motion was passed for PSNES to support the E-Knowledge Commons project's PSNES Computer Lab naming opportunity by helping to get the word out. It was emphasized that the pledge opportunity to place your name on a plaque in the PSNES computer lab would be a one-time opportunity to create a legacy.

Future of Nuclear Energy

During the April PSNES meeting, PSNES Member Eileen Supko, President, Energy Resources International (Washington D.C. based company focused on nuclear fuel cycle consulting) offered some perspectives based on analytics done by her company and offered to do a more in-depth presentation at an upcoming meeting. Dr. Motta and Pat Loftus agreed to team with Eileen and other PSNES members to organize this session. This "framing committee" will make sure that the discussion will be useful to the NucE Program, and also to focus the discussion on a global perspective (not just focusing on the US).

A few of ERI's perspectives are summarized in this paragraph and include global energy market highlights for the next 25 years. The nuclear industry growth looks to be flat in the USA through 2035. For example, in the past several years there have been nuclear plant closures (mostly single unit sites in un-regulated markets), but they will be offset by new plants being built and coming online. License renewals will continue to be a big impact for the nuclear industry, especially with the onset of license renewals potentially extending plant life to 80 years. Regulated market environments tend to be more favorable for nuclear plants, versus subsidized wind and solar power. Europe looks to be flat or reducing over the next 25 years, mainly driven by France projecting to reduce from about 80% national nuclear power production to about 50% production. There was hope that Germany would change course and go back to nuclear power, but it is not looking promising. In addition, the UK is a challenging market for nuclear, and Russia is not looking to be a bright star due to issues in the economy. Outside of Europe, China and India continue to be bright stars. Countries such as Saudi Arabia, UAE, Turkey, and other emerging countries have good outlooks which offset the flat or declining nuclear markets in the US and Europe (or other more traditional markets).

Actions:

1. **PSNES Members (or member companies) who have interest in providing presentations or reports on policy, market trends, or key trigger events to frame the upcoming discussions (in addition to Eileen Supko) are requested to contact Dr. Motta or Pat Loftus by August 1st.**
2. **PSNES members who wish to share written perspectives if they are unable to participate in the meeting are requested to provide them to Pat Loftus by August 17th.**

6/3/2016 SUPPLEMENT (TELECON): PSNES Members Eileen Supko and Eric Beaumont have agreed to provide presentations. It was agreed between Dr. Motta and Pat Loftus that this topic would be removed from the 8/21 Annual Meeting Agenda and scheduled at a mutually agreed upon date/time. **Action: Dr. Motta to contact Eileen Supko and Eric Beaumont.**

Penn State Chapter of Women in Nuclear (WIN) & Engineering Ambassadors

RSEC's Candace Davison is the Advisor for PSU Student WIN. Candace provided the following highlights. The Penn State Chapter of WIN has been revitalized under a recently selected leadership team. Three members participating in the National WIN teleconferences/meetings to take advantage of synergy with National. Candace also summarized a newly created freshman internship (NucE 297) designed with a 3-pronged approach: Research, Operations, and Outreach. There will be a tour of the RSEC reactor in the Fall, organized by PSU WIN.

There were some actions that came out of the WIN discussion.

Actions:

1. **PSU Student WIN to connect with WIN Westinghouse (PSNES contact Hilary Neal).**
2. **MNE to address Dr. Brenizer's recommendation to include PSU WIN on the Nuclear Power Advisory Board.**
3. **PSEAS (Pat Loftus) to provide information and support to encourage NucE participation in Engineering Ambassadors. It was noted that Emily Humes (active member of PSU WIN) is doing training for this. (Dr. Thole recommendation) .**

Radiation Science and Engineering Center (RSEC)

Dr. Unlu provided an update on RSEC, covering recently awarded grants, research projects, reactor modifications, the Nuclear Security Summit (Washington D.C., 2016), and outreach.

A \$1.4M grant was awarded by the Department of Energy for work on the TRIGA reactor in order to upgrade the facility. In 1955, when the reactor was built, it was built with 100 kW of power. Then in 1965, the reactor power changed to 1 MW. The change in reactor power and fuel type left only one of the seven existing beam ports aligned with the centerline of the reactor core. The enhancement funded by the grant will correct the inherent beam port alignment issues for optimal neutron output at experimental positions. There will be 7 or 8 beam lines when the work is complete, with

a new core and bridge. More specifically, changes will be made to the core-moderator assembly, reactor core upper and lower grid plates, safety plates, reactor tower structure, and neutron beam ports. The design for the work has been completed, with 3 options to be chosen from the best possible design.

There are two new projects within RSEC that have national and international impact: 1) Joint project with Westinghouse and INL where temperature can be measured from listening to sound; 2) LANL X-ray spectrometer. Penn State is working with LANL and the DNN's Office of Nonproliferation and Arms Control (NPAC) to build and test an advanced concept Cauchois X-ray spectrometer that will detect Plutonium for nuclear fuel cycle safeguards applications. The unique performance attributes of the instrument may offer new possibilities for verifying plutonium in highly radioactive spent nuclear fuel and nuclear fuel reprocessing solutions. This X-ray spectrometer is enabling a new methodology, called self-interrogation X-ray fluorescence (SIXRF), to measure the plutonium content of the fuel directly. The first experiments using irradiated nuclear fuel are being performed at PSU's RSEC.

The nuclear security education program has been opened up to undergraduates. The nuclear security program is educating the next generation of technical experts in nuclear security practices and is a critical to ensuring the successful long-term operational security of nuclear and radiological materials worldwide. In addition to the 8 graduate students, 34 undergrads have enrolled. The students have been very engaged. For example, the students did projects with the security software that was developed for the program, and the company's CEO came to campus to see what the students had done. That company will be hiring 4 students.

Dr. Unlu attended the Nuclear Security Summit 2016 in Washington D.C. The goals of the 2016 Nuclear Security Summit were to advance tangible improvements in nuclear security behavior and to strengthen the global nuclear security architecture.

The beam hole modification to the Breazeale Reactor has a total cost of \$5M. The beam hole modification is a brick-and-mortar type modification (non-research related), which lends itself to private funding in order to support the total cost of the reactor modification. Funds from PSU have been secured. **ACTION: Funding from private donors and companies up to \$2M is being considered. Any interested parties should get in touch with Dr. Unlu.**

RSEC has received \$12.5M for infrastructure improvements (\$7M from the university and \$5.5M from the government). The infrastructure improvements have included building, roof, and parking lot renovations; security enhancements (e.g., eliminating the reactor bay pass through); radiochemistry research and teaching, nuclear security education laboratories; new core moderator assembly and beam ports; and reactor instrumentation improvements.

RSEC is also strongly engaged in public outreach activities, which bring more than 3,000 people to the facility each year. Tours range from primary school students, scouting groups, high school students, and teachers to college students, visiting faculty, and government officials.

NucE Early Career Award

Dr. Motta asked PSNES to consider an initiative to create an early career award for the Nuclear Engineering Program. Tom Richard received College of Engineering benchmark information from PSEAS. The Board approved a motion to move forward, with a proposal to be developed by the newly formed Early Career Award Team and presented at the August 21, 2016 Annual Meeting.

Action: Early Career Award Team (Matt Wargon [lead], Hilary Neal and Tom Richard) to develop proposal and review it with Dr. Motta and Dr. Unlu prior to presentation at the August 21st Annual Meeting. The proposal should include the timeline, award criteria and description and any funding requirements or assumptions (e.g., travel and living for the awardee to return to campus).

Roundtable - Member/PSU News & Calendar of Events Look-Ahead

2016 Annual Meeting (August 21, 2016)

The next PSNES meeting is the Annual Meeting, scheduled for Sunday, August 21, 2016 (12:30 PM - 3:30 PM @ PSU and dial-in), followed by the MNE/ NucE New Student Orientation, and MNE Picnic held at Founders Park. PSNES members are encouraged to attend.

Note: Feedback from the New Grad Reception suggests that PSNES engagement with students as they enter NucE creates the opportunity to build stronger bonds. **ACTION: PSNES members are needed to participate in the Student Orientation.**

Penn State Engineering Alumni Society (PSEAS)

Pat Loftus sent out the annual PSEAS report, which contains great info on events, outreach, benchmarking and lessons learned and grant summary information. Pat Loftus (PSNES APG member on PSEAS) will attend the next PSEAS Board meeting on June 3rd.

The Engineering Young Alumni Board is planning to launch the "Coffee with Alumni" initiative at the end of Summer 2016 in response to their interactions with students during the Fall of 2015. While formal mentoring programs are available, students are also interested in informal meetings with alumni in cities across the country as they begin internships, co-ops, or jobs in new places. This program would be an opportunity for get together over coffee (or the beverage of your choice) to discuss things such as: 1) Location - with is it like to live here, 2) Involvement opportunities - how can I get involved and meet new people here, or 3) Life after college as a young professional.

Action: PSNES members who are interested in being included in the alumni database for "Coffee with Alumni" should contact Emily Gallagher at emg5174@psu.edu.

PSEAS/PSNES members are invited to attend the Alumni Leadership Connects Conference (June 24-25) at University Park. PSEAS will cover the cost of alumni registration fees.

Action: Please contact Pat Loftus if you have interest in attending. This is a great leadership development opportunity! Agenda topics include how to lead volunteer organizations and offer the opportunity to network with PSU Alumni.

PSEAS APG Grant Report and APG Annual Report

The PSEAS APG Grant Report was originally due on June 30, 2016.

Action: Hilary Neal and Ramon Cruz are taking the lead on this report for the New Grad Reception APG grant. SUPPLEMENT: On June 7, 2016, PSEAS approved a schedule extension to November 30, 2016 submitted to PSEAS on June 2, 2016. This extension enables the creation and procurement of a reusable PSNES banner, PSNES business cards, and name tags.

The APG Annual report for PSNES is due June 30th. This is a great opportunity for PSNES to showcase our projects and initiatives with PSEAS and throughout the College of Engineering.

Action: Pat Loftus with support from Doug Wood, Tom Richard, Jim Tusar, Hilary Neal, and Eric Beaumont will prepare the report. Target draft inputs of each section for 5/31/2016.

PSEAS Tailgate Sept. 17th – Temple @ PSU

The PSEAS tailgate event this fall will be at Medlar Field at Lubrano Part (right field party deck).

PSNES Membership List

The PSNES membership list has been revised downward from 530 to 299 members after duplications and bounced e-mail addresses were removed. Matthew Lindenberg can be contacted for more info about the membership list.

Prof. Brenizer's Retirement

Professor Brenizer announced his retirement. The PSU retirement celebration date is tentatively being scheduled for August 22nd. Keep an eye out for further details.

The meeting was adjourned at 2:00 pm.

April 30, 2016 New Grad Reception Supplement:

- New Grad Reception Goal: Create awareness, Increase COE-Alumni-New Grad Connections leading to "more PSNES Members" and "more engagement"
- Location: Atherton Hotel from 3:00 PM - 5:00 PM
- Preliminary Impact Assessment: Increased Awareness, 2 new requests to join PSNES LinkedIn page, 7 Students requesting to be added to Listserv
- Student Survey: 100% of those who responded No indicated date/time vs. no interest to participate
- Total Number of Participants: 22
 - PSNES Attendees: Dr. Motta, Dr. Unlu, Dr. Brenizer, Pat Loftus, Hilary Neal, Ramon Cruz, Tom Richard, John Atchison, Doug Wood
 - Faculty: Dr. Justin Watson
 - Guest: Diana Brenizer
 - PSEAS President: Mike Erdman
- Funding & Total Spend
 - PSEAS APG Grant: \$1000
 - PSNES Director Joe Sholtis, Owner and Principal of Sholtis Engineering and Safety Consulting, donated \$100 to PSNES (New Grad Reception)
 - Total Spent: \$651
- PSNES submitted an APG Grant schedule extension request to focus on piggy back Junior Awareness at 8/21 New NucE Orientation (spend to address lessons learned not to exceed \$349 + \$100 [Sholtis donation])
 - PSNES banner (table or retractable version similar to NucE 50th Anniversary), PSNES Business Cards to be used going forward, Name Tags.

SUPPLEMENT: On June 7, 2016, PSEAS approved a schedule extension to November 30, 2016 submitted to PSEAS on June 2, 2016. This extension enables the creation and procurement of a reusable PSNES banner, PSNES business cards (who to contact, how to join, website link, and web address for PSNES LinkedIn private group), and name tags.

Attachment 1

PSNES Time Capsule Decal – Logo Submission by Shelby Nease

