

Panel on Public Affairs Meeting
October 3rd, 2008
529 14th Street, NW, Suite 1050, Washington DC

Members present:

M. Klein, D. Moore, R. Socolow, R. Eisenstein
J. Browne, K. Budil, C. Callan, P. Coleman, G. Crabtree, J. Drake, R. Goldston, R. Howes, T. Kaarsberg, V. Mohta, S. Mtingwa, J. Scofield, A. Sessoms, B. Tannenbaum, P. Zimmerman

Advisors/Staff present:

J. Franz, T. Johnson, J. Lieberman, J. Russo, F. Slakey

Members Absent:

H. Gao (joined via teleconference for part of meeting), F. Hellman (joined via teleconference for part of meeting), R. Jaffe, G. Lewis

Guests:

Alan Chodos, APS; Wendell Hill, APS; Ted Hodapp, APS

Call to Order

M. Klein called the meeting to order at 8:15 AM.

Welcome, Introductions, & Approval of Minutes
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After introductions, the committee discussed the minutes from the May 30, 2008 meeting.

Commentary: S. Mtingwa requested several small changes be made to the section of the minutes related to the Nuclear Workforce Study. He read these changes aloud and then provided written copy to J. Russo.

Action: D. Moore moved to approve the minutes of the May 30, 2008 POPA meeting, with revisions as suggested by S. Mtingwa. Motion was seconded by R. Howes.

The motion to approve the minutes passed unanimously.

POPA Report Update

APS/AAAS/CSIS Nuclear Policy Project

J. Browne began with a brief overview. He specified where the report stands in the process of receiving final approval and what the plans are for distribution. The study group is awaiting final approval from AAAS. As soon as approval is received, the report will be sent to the printer and hard copies will be available shortly thereafter. The report will be posted to the website of each of the participating organizations. J. Browne indicated that the study group has designed a plan for discussion of the paper with various audiences. John Hamre, President & CEO of

CSIS, has agreed to host several breakfasts and meetings in the DC area with congressional staff and the defense press. These meetings will be aimed at those who are interested in participating in a comprehensive discussion of the report. Issues like CTBT (Comprehensive Test Ban Treaty), the extension of START (Strategic Arms Reduction Treaty), and other comparable concerns will face the new administration immediately and will be a focus of the discussions. Such discussions will help inform the debate that is likely to occur.

Commentary: J. Franz asked what would cause nuclear policy to recapture national attention. J. Browne explained that the new administration will be immediately pressured to consider whether the START I treaty (signed into effect 12/5/94 for a term of 15 years) will be extended, as it is due to expire at the end of 2009. R. Eisenstein commented that there is also concern about Pakistan and the unstable situation in that part of the world. He wanted to know what approach we plan to take to deliver the report into the hands of the transition teams. J. Browne said that, given the time the report will be released, realistically it will only reach the transition team of the candidate who is elected President and the people who will assume positions in the next Administration. F. Slakey reminded POPA that several of the people who were involved in the study will most likely have positions in the new administration. M. Klein questioned whether any effort would be made to enhance the importance of engaging Russia on nuclear policy and remaining engaged with them. J. Browne stressed that the topic is highlighted as a main bullet in the report because, regardless of souring relations, the study group felt that the U.S. can't miss an opportunity to re-engage Russia on these issues. If the relationship continues to drift, the situation in the near future might be harder to rebound from than if we connect with Russia now and have discussions about the problems each country has with the approaches currently being taken. J. Browne cautioned that while other issues like missile defense did come up in discussions, the focus of the study group remained on nuclear weapons policy issues only. F. Slakey spoke about the issues APS will lobby on, related to the report, including: CTBTs, fuel bank, advanced safeguards, and the spectrum of options approach to maintaining the deterrent. The report has synthesized the positions from three POPA reports, which makes it a powerful tool to use in the year to come. J. Franz questioned whether other studies might evolve from topics we didn't, or couldn't, take up in this report. B. Tannenbaum suggested that verification was an issue that might be worth pursuing. J. Browne agreed that a report on how we can verify downsizing of the stockpile would be interesting. The National Security subcommittee should consider looking into this next year. S. Mtingwa asked if APS should make a statement about new applications of nuclear weaponry. J. Browne said the study does say that the U.S. should look at options to refurbish or re-modernize the existing stockpile, without new capabilities. F. Slakey said our boundary is set for no new capabilities and that point is listed in the report's executive summary. J. Browne mentioned that Hamre, at the tenth anniversary celebration of the Defense Threat Reduction Agency, provided a point-by-point of our report as his speech. T. Kaarsberg asked a question about the India-U.S. Nuclear Deal and how the report discusses this. J. Browne said the Study Group didn't debate this particular topic at the meetings. However, the report does state that the U.S. will have to take a more aggressive leadership position on all nonproliferation activities that the next administration will be directly involved in. It will be hard to make progress unless we deal with these issues in a packaged way. The report suggests that we take a more global approach that focuses on principles related to nonproliferation, as opposed to a country-by-country approach. F. Slakey said that the one-off approach isn't an effective way for dealing with arms control. While the report does not take a position

on the India-U.S. Nuclear Deal, it does present nonproliferation efforts as a package. F. Slakey pointed to the POPA report titled “*Securing Benefits Limiting Risk*” where we discussed the need for an advanced technical safeguards program. He suggested that this be used as a starting point for any follow-on POPA report regarding verification. A. Sessoms said we need to discuss how the U.S. will lead & participate in technology. M. Klein asked if the National Security subcommittee would consider the issue and decide if we should look into doing a report on verification. It was agreed that these were topics the subcommittee should look into prior to the next POPA meeting.

POPA Energy Study Proposals

Carbon Capture Study

T. Kaarsberg put into context what the Energy & Environment subcommittee has been working on. She provided background on the proposal presented. An increase in the concentration of CO₂ in the atmosphere has caused the climate problems we are currently experiencing. Emissions reduction is one way to handle lessening CO₂ concentration, but it isn't the only way. The Carbon Capture Study proposal suggests we look into non-biological capture of CO₂ from air or from flue gas. The subcommittee agreed on several reasons why POPA should move forward with this study. (1) Society will use carbon based fossil fuels in cars for years to come, and focusing only on emissions reduction will not tackle the problem effectively; (2) at present, direct carbon capture isn't being studied to the extent it should be; and (3) what research is occurring in this area is being performed by physicists. Post-combustion capture hasn't been looked at in depth, and with China building 2-3 coal burning plants a week, it's something that really should command some attention.

If the proposal is approved, the subcommittee would need a budget of \$25K from POPA. The likely minimum budget necessary for the study would be \$100K, with funding coming from additional sources. Two to four meetings are projected and the study would be completed by October 2009. POPA members interested in participating on the study committee include T. Kaarsberg and R. Socolow, who indicated he would be willing to be the “placeholder chair” until we find someone for that position. Commentary ensued about the make-up of the study committee. POPA would like to see an economist, an industry representative and some good chemical engineers on the study committee. The audience for the final report would primarily be the science and engineering community. If the findings of the study prove that there is technology worth pursuing, then outreach efforts will include the climate & energy policy community, as well as Congress.

Commentary: R. Socolow commented that the subcommittee, through their discussions, agreed upon a friendly amendment to the original proposal (presented to POPA in June '08) that served to enlarge the “tent” to include the study of capturing flue gasses. He thought this was a good addition to the original proposal because it acts as a sort of “safety net”. Several POPA members provided thoughts on topics the study committee will want to research. J. Drake indicated that we should consider what possibilities exist for funding such technology. G. Crabtree reminded POPA that, as a country, we are taking in international carbon as well. The cost of building a capture plant would go to the country who builds it, even though the plant's existence would be beneficial to all. J. Scofield mentioned that none of the measures stated in a final report will happen without a cap & trade policy in place. J. Drake asked how far along we really are with regards to

building these machines. R. Goldston questioned the thermodynamic limits. The study committee will take all of these concerns into consideration when mapping out their research and the final report.

Action: T. Kaarsberg made a motion to have POPA approve setting up and undertaking the CO₂ capture study, with funding in the amount of \$25K from POPA funds and more, as appropriate, from other sources. V. Mohta seconded the motion.

The motion passed unanimously.

Energy Grid Study

V. Mohta spoke about modernizing the grid. Within the last few months many ideas for energy production have been proposed. T. Boone Pickens has suggested harnessing wind power. Al Gore has suggested carbon-free electricity. A vision has been laid out, but a study has not been conducted to review the challenges involved and the costs associated, relative to alternatives. Intermittency is a major issue that has to be considered: solar is a viable energy solution during the day and during the summer months; wind makes its strongest contribution at night and during winter. Geography plays a role as well. For example, solar is more viable in the southwest. Wind is more viable in the mid-west and offshore. Those areas don't coincide with where the energy consumption hubs are. How would we move energy from these renewable to the places where it is needed? A study needs to be done to look at the physical constraints of loading more renewable energy onto the grid and moving it to where it is needed.

Commentary: R. Goldston said there is a plethora of literature out there, but much of it isn't accurate or useful. S. Mtingwa mentioned the POPA energy storage report and how it would have to be referenced, because storage technologies will need to be used to help combat the intermittency obstacle. J. Browne mentioned that Sandia has a group called the National Infrastructure Simulation and Analysis Center that would be a good source of information for the study. P. Coleman referenced a *New York Times* article about the DOE and asked whether this type of study has already been done. T. Kaarsberg said that renewable energy sources have been researched since the 1980's, but no study has been done that brings together grid experts and renewable energy sources. More discussion ensued regarding the audience of such a study (congressional committee staff, DOE leadership, Office of Science & Technology staff) and what we would need to include in our research (research & development needs, demonstration projects, regulatory incentives). S. Mtingwa thinks that the audience needs to be larger; the science & engineering community should be involved, as well as State and Local governments. V. Mohta agrees that State governments should be part of the audience, as many of the decisions on changes in the energy grid will be made at the state level.

Many POPA members said that this is an important topic and that V. Mohta's proposal should go to the Energy & Environment subcommittee for evaluation. R. Eisenstein said that he is all in favor of the Grid Study, in principle. But he doesn't know what new information we could bring to the table and he recommended that the E&E subcommittee look into that aspect of it. J. Scofield said that he thinks POPA could bring clarity to the overabundance of information circulating on the topic. A thorough vetting of the literature already available would be useful. R. Socolow mentioned that national legislation is needed in order for changes to be made to the grid, analogous to the National Highway System. D. Moore said we would also have to investigate the

international issues. What can we learn from Europe and their regulatory issues? Several POPA members expressed interest in participating in the study, including G. Crabtree, V. Mohta, P. Zimmerman, and J. Drake. G. Crabtree said he would be willing to chair the study.

Action: J. Scofield motioned to have V. Mohta and the Energy & Environment Subcommittee produce a full proposal for a grid study. The proposal can be brought to the February 6th, 2009 meeting, for consideration. D. Moore seconded the motion.

The motion passed unanimously.

BREAK

Citizen Scientist Engagement & Statement on Public Service

F. Slakey began with an overview of how we've arrived at the statement we are discussing. He mentioned how R. Eisenstein had constructed an action coalition of scientific societies to respond to issues having to do with Intelligent Design (ID). IN establishing the coalition, the participating societies all contributed to the hiring of a firm to develop an action plan. A primary recommendation in that plan was to assist scientists run for office. Together, the coalition established a "Campaign Workshop" to inform/energize scientists to participate in the electoral process. R. Eisenstein said that he spent 11 years at NSF and was worried by the low success rate he observed among those attempting to enter and stay on Washington's radar. It's a community perception that one person can't make a difference. It's important that the physics community realizes the importance of citizen scientist engagement and public service.

Commentary: A. Chodos said that if we have such a statement, we can publicize it in APS news and other outlets. S. Mtingwa asked to make a word change ("Representatives" should be changed to "legislators") in the statement. A. Sessoms suggested we release the statement to those involved in higher education. J. Drake asked whether it is necessary to have a statement in order to move forward with the plans the action network has in place. P. Zimmerman and R. Howes both felt a statement from APS would help to encourage scientists to come to Washington because, in stressing the importance of their participation, it might make them consider temporarily exiting academia as, for example, a NSF post. K. Budil made a comment about the laboratory/non-academic world and how the statement would serve the same purpose in that sector. Minimal wordsmithing occurred.

Action: P. Zimmerman motioned to approve the statement, with revisions suggested by S. Mtingwa and R. Howes included. (*See Addendum A*) S. Mtingwa seconded.

The motion passed, unanimously.

Statement on Diversity

Wendell Hill introduced himself. He is affiliated with the University of Maryland and a member of both the APS Council and the Executive Board. He provided background information on how this statement was developed. Artie Bienenstock asked him to join a group of organizations that were developing a Joint Diversity Statement. The reason for our participation centered on a concern about the underrepresentation of minorities in the physics enterprise. W. Hill said that the strongest argument to support having such a statement is the health of physics overall, although the moral imperative is another reason to endorse the statement. The Executive Board spent several hours considering what APS could really do to improve the current circumstances. It was decided that a strong statement would allow APS to act on matters regarding minorities in physics and diversity as a whole.

Commentary: R. Eisenstein pointed out that the statement doesn't address the elementary school talent pool. W. Hill indicated that while developing the pipeline is important, it is only so if the end point is desirable. J. Franz offered that everyone should make a difference where they can. S. Mtingwa suggested that there are actions APS could take to encourage racial diversity. J. Drake said that the University of Maryland has been working to encourage women to pursue physics. Extraordinary contributions have been made by women faculty members. It's obvious that we need to tap into this talent. There should be something in the statement that speaks to gender diversity. Ted Hodapp added that the statement comes as a result of a roundtable of several different minority organizations. R. Socolow indicated confusion about the terms "underrepresented minority" and "diversity." Is gender included here? W. Hill said this is really a statement on underrepresented minorities. S. Mtingwa expressed concern about the title of the statement and R. Howes agreed.

Action: An ad hoc committee will discuss the statement over lunch and revise the statement to present to POPA for vote following the break. The ad hoc committee will be comprised of W. Hill, T. Hodapp, J. Drake, S. Mtingwa, and R. Howes.

-BREAK FOR LUNCH-

Vote on Statement on Diversity

The newly revised statement was presented for review to POPA. (*See Addendum B*)

Action: R. Socolow moved to accept the new statement. P. Zimmerman seconded the motion.

The motion passed, unanimously.

Old Business

APS Energy Efficiency Study Update

J. Scofield passed out hard copies of the report and indicated where it could be found on the web. He gave a brief overview of the history of the study, how it started, who chaired and who participated. He then summarized the findings of the report. Regarding the transportation sector, the report indicates that achieving a 35 mpg target by 2020 is very straightforward. Auto industries have the technology to do it and there has been legislation on CAFE standards that support reaching this goal. The report contends that the federal government needs a broader and more balanced portfolio for future transportation. Batteries, in particular, need more work. By 2030, a 50 mpg standard is achievable if policy is put in place to drive reaching that goal. Policy that would expand the production and use of hybrid vehicles, plug-in hybrids, and diesel operated automobiles as well as legislation aimed at vehicle weight reduction could help the country reach the 50 mpg target by 2030. Switching to plug-in or electric vehicles, based on how Americans drive their cars (<40 miles per day), would reduce gas usage by 30-50%. Hydrogen fuel cell cars would reduce usage of gasoline entirely. Greenhouse gas emissions reduction would be another benefit. R&D on batteries, fuel cells, hydrogen storage, and lightweight materials needs to occur. An extensive research agenda for transportation is needed. For buildings, the Energy Information Association projects that energy use in buildings will go up by 30% by 2030 if we remain on current course, business as usual. The study finds that maximum cost-effective use of currently existing technologies would eliminate this increase entirely. The study also finds that reaching a goal of making new residential homes zero-energy buildings is possible by 2020. There is a call to make commercial buildings zero-energy by 2030, but the study found that this goal would require greatly increased R&D to support reaching the target. DOE is currently funding building research at about \$100M dollars a year. The study suggests that this should be increased to about \$250M over the course of the next 3-5 years, to restore R&D funding to 1980's levels. Regarding cross-cutting issues, there were several items highlighted in the report. The 2005 Energy Policy Act and the 2007 America Competes Act both call for more funding for energy research, but the money hasn't been appropriated. The study suggests that Congress appropriate the money to back up the laws that are already in place. There is also a lack of coordination between the EERE and Basic Energy Sciences for DOE that needs to be addressed. Research for applied and basic science needs to be coordinated. T. Johnson discussed the media coverage for the report. J. Lieberman discussed policy and the Hill activity that has gone along with the release of the report.

NAS Cesium 137 Issue

M. Klein discussed the letter that was sent out (*See Addendum C*). He reiterated why Cesium 137 is an issue and mentioned that J. Browne & others went to a hearing/presentation on the topic.

Wiki/Web Update

J. Russo reported that the E&E Subcommittee has been using their wiki with good results. The National Security Subcommittee will be next to receive a tutorial. A request to reduce the amount of e-mails generated when changes are made on the wiki was made. J. Russo will look into having those e-mails suppressed.

POPA's Purpose – Bylaw Amendment

F. Hellman discussed the proposed bylaw amendment. POPA members began wordsmithing. It was suggested that we move the bylaw amendment back to the Physics & the Public Subcommittee to work on via e-mail.

New Business

POPA White Papers

R. Socolow resurrected the idea of producing “white papers” – papers that are reflections of one or more POPA members on a publicly relevant science issue. He said that members should be urged to engage beyond just attending the three POPA meetings each year or participating in POPA report. These papers would be longer than an op-ed piece and more technical in their approach. M. Klein indicated that any white paper would have to be handled exclusively by the interested POPA members, as staff time is reserved for POPA and APS studies & reports. J. Drake suggested that new POPA members be asked to bring more ideas, in the form of white papers, to the inaugural meeting each year. In so doing we would have lots of ideas to consider and work through. He also mentioned that we have to be careful about how often we go to the Hill, and white papers should probably not receive lobbying accompaniment. R. Howes suggested we call them “Background Papers” as they would most likely serve as background research for studies we conduct. T. Kaarsberg suggested we keep all papers on file so we build a coffer of ideas that POPA can visit in the future. R. Socolow wants POPA to consider carrying out more than 2-3 studies annually. He thinks white papers would have a broad audience. They wouldn't only be for Congress, but for our membership as well. G. Crabtree said he is concerned about expectations as everyone on POPA already has numerous commitments. M. Klein indicated that this issue should be an agenda item for the next POPA meeting, February 2009.

Schedule for 2009 Meetings

It was decided that all future POPA meetings will be held on the first Friday of February, June, and October. Following this formula, the meetings for 2009 will be held on February 6th, June 5th, and October 2nd.

Next Meeting

The next POPA meeting will be held on **Friday, February 6th, 2009.**

Adjournment

Action: D. Moore moved to adjourn the meeting at 3:04 PM. Motion was seconded by J. Scofield.

The motion to adjourn the meeting passed unanimously.