

Panel on Public Affairs Meeting
October 1st, 2010
529 14th Street, NW, Suite 1050, Washington DC

Members present:

R. Socolow, V. Narayanamurti
W. Barletta, M. Bowen, P. Coleman, J. Dahlburg, J. Drake, R. Falcone (via phone), R. Jaffe, W. Jeffrey (via phone), T. Kaarsberg, L. Krauss (via phone), J. Onuchic (via phone), P. Zimmerman

Advisors/Staff present:

K. Kirby, M. Lubell, J. Russo, F. Slakey

Members Absent:

B. Barish, R. Byer, C. Callan, J. Davis, F. Houle, G. Long, P. Looney, D. Moore, K. Schwab

Guests:

Eugenie Mielczarek, Jeff Urbach

Call to Order

R. Socolow called the meeting to order at 8:18 AM.

Welcome, Introductions, & Approval of Minutes
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R. Socolow welcomed the group and asked for comments on the June minutes. T. Kaarsberg requested an amendment to modify the “New Business” section.

Under the “New Business” section it currently reads:

What role is there for inertial fusion in the commercial sector?

T. Kaarsberg offered to take this idea up as a white paper project.

Please change the second sentence to read:

T. Kaarsberg offered to take this idea up as a white paper project, but then J.

Dahlburg stated that there had recently been numerous studies on this topic and such a study wasn’t needed. T. Kaarsberg withdrew her offer.

The change was unanimously accepted.

Action: A motion to approve the minutes of the June 4, 2010 POPA meeting, with T. Kaarsberg’s amendment, was made and seconded.

The motion to approve the minutes passed unanimously.

Review of APS Statements for Archiving

R. Socolow explained POPA’s responsibility to review APS Statements every five years to determine which, if any, should be archived. T. Kaarsberg and P. Zimmerman were chosen at the February 2010 meeting to review all current APS statements. They presented 9 statements for review. R. Socolow asked T. Kaarsberg and P. Zimmerman to run down the list and explain their rationale for choosing each statement. It was decided that if any POPA member had

qualms about archiving a statement, the statement would remain “current”. “Current” statements remain highly visible on the APS website. “Archived” statements are placed on a separate webpage reserved for such statements.

The statements considered, and the decision made regarding each, are listed below.

- Statement 91.2 (*ARCHIVED*)
Manned Space Station
- Statement 92.2b (*ARCHIVED*)
Free Circulation at IUPAP-Sponsored Meetings
- Statement 94.1 (*ARCHIVED*)
Memoirs of Pavel Sudoplatov
- Statement 99.2 (TO REMAIN CURRENT)
Research in Physics Education
- Statement 99.6 (TO REMAIN CURRENT)
“What is Science”
- Statement 00.2 (*ARCHIVED*)
National Missile Defense System Technical Feasibility and Deployment
- Statement 00.4 (TO REMAIN CURRENT)
Protection Against Discrimination
- Statement 01.2 (TO REMAIN CURRENT)
Assessment and Science
- Statement 06.4 (*ARCHIVED*)
Statement on the International Linear Collider

APS Constitution & Bylaws Vote & Requirements for Submissions of Proposed Statements

APS Constitution & Bylaws Vote

Jeff Urbach, Chair of the APS Committee on Constitution & Bylaws, provided an overview. He attended our June 2010 meeting and he is back today to provide an update. The Committee is charged with advising Council on issues related to the APS Constitution & Bylaws. The Executive Board asked the Committee to draft an amendment to the bylaws that would layout an official procedure for issuing APS Statements. They reviewed the existing “unofficial” procedure within APS, along with protocol followed at other organizations and produced a draft amendment which they presented to the Executive Board last April. The Board was generally supportive, but requested the Committee engage in dialogue with POPA since all proposed APS Statements come before the Panel at some point. At the June POPA meeting, there was significant concern expressed regarding the way the amendment was worded and the burden that might be imposed on POPA should it remain written as such. Jeff and his Committee worked with F. Slakey, R. Socolow, and K. Kirby to revise the amendment to provide POPA with more flexibility. The revision was circulated to POPA prior to today’s meeting. Jeff briefly

summarized the major changes made since the draft was circulated in June. He addressed the few remaining concerns of his Committee.

Commentary: T. Kaarsberg asked how many times Council would be given the opportunity to provide written comments. J. Urbach confirmed they will be given one chance to provide commentary, the way the amendment is currently written. P. Zimmerman said the text regarding Council's inability to edit or redraft a statement before receiving a response to their written comments was unclear. Suppose Council receives a response back that they don't agree with and a decision is made to edit the statement during a Council meeting. The language in the bylaw amendment redraft is ambiguous, but could be read as permissive. J. Urbach said it *is* permissive; that is the intent. These are statements of the Council. If, after a due course of consideration from both parties, the POPA Subcommittee tasked with redrafting a statement is unable to produce wording that the Council can agree with, Council should have the right to issue the statement they want to issue. M. Lubell said this same text doesn't leave room for technical edits; edits that *shouldn't* come back to POPA. The amendment needs to allow for technical editing. J. Drake said allowing Council to rewrite statements after they receive a POPA redraft negates the reasoning for issuing this amendment in the first place. POPA does not want Council to have the ability to hastily edit a statement without a second look from the Panel. M. Lubell said that Council is the only body in APS elected by its membership. Allowing POPA to have veto power over Council goes against principle and the membership should have some say in whether this can/should happen. He suggested that there should be a 2/3rds vote in Council as to whether they want to override POPA's veto. It sends the message that Council should really consider what POPA has to say about a statement.

P. Zimmerman questioned whether the Committee on Constitution & Bylaws had taken away the archive provision with the introduction of the concept of "sunsetting." Discussion ensued on the words "archiving," "expiring," "reaffirming," "renewal," and "sunset" as they relate to approved APS Statements. It was agreed that there should only ever be a small number of "primary" statements listed prominently on the APS web site. POPA decided to continue using the word "archive" instead of "expire" in the amendment. M. Lubell questioned whether statements should "sunset" every five years. This would require that POPA review "sunsetting" statements every year. R. Socolow suggested that only the top 5-10 statements sit on the front page of the statement web page and all others should be housed elsewhere. There should not be a "renewal" process for historical statements. POPA should be assigned the job of determining, from time to time, which statements are considered "primary statements" of the APS.

R. Socolow asked that the amendment include references to POPA only, not to a POPA drafting subcommittee.

J. Drake said he was concerned that every single proposed statement will have to go out to membership for review and comment. Based on the way the amendment is currently written, POPA will be required to provide a synopsis of the comments received and that has the potential to be very time-consuming. R. Socolow agreed it is a concern. Jeff said the purpose of the synopsis is to provide feedback to Council. R. Socolow said Council should have the right to read the comments from APS members too. There is no need for POPA to provide Council with a written synopsis of the comments. F. Slakey said the idea of a synopsis isn't to characterize the nature of all of the comments, but rather to

produce a few slides of data to be presented to Council. R. Socolow said the synopsis should not have to be provided to the APS membership, per the wording of the amendment. Jeff said the desire is to make the process as open as possible to membership. Should we open the comments to all members? It was agreed that this wouldn't be the best idea. K. Kirby said she thinks providing Council with a synopsis, as F. Slakey described, is important. This piece can be provided to APS membership *after* Council has taken action. Councilors should be allowed to see the comments made by APS membership. This paired with a brief synopsis from POPA helps Council come to a decision. J. Dahlburg said we should indicate on the website where APS membership is allowed to make comments, "All comments will be available to Council." J. Drake agreed. But he also said that it should be clear to members that POPA will read all comments submitted.

Action: J. Dahlburg, P. Zimmerman, and W. Barletta will work with Jeff Urbach to substantially redraft the current amendment to address the comments made today. The flow chart that Jeff's Committee created will be sent to this group for review. A brief update will be provided at the February 2011 meeting.

Requirements for Submissions of Proposed Statements

F. Slakey provided POPA with a draft list of the items that should normally be contained in a proposal to POPA for consideration of an APS Statement. He asked them to review and consider the following list.

- A draft or detailed description of the proposed statement.
- The reasons for proposing the statement, including its necessity and urgency.
- An explanation of why this is an issue for the physics community.
- An analysis that supports any scientific and technical claims made in the statement.
- A suggested list of experts that can be consulted on the topic.
- An identification of the intended audience and outcome, if applicable.
- Relevant details of any discussion and vote that may have been held by the APS Unit or Committee that is proposing the statement.

Commentary: T. Kaarsberg and F. Slakey suggested that the line "*An overview of stakeholder opinions, both pro and con.*" be added to the list of requirements.

Action: W. Barletta moved to accept the list, with the addition of the "stakeholder opinions" amendment.

The motion was seconded by T. Kaarsberg.

The motion passed unanimously.

Proposed Statement – Alternative Medicine Claims, Division on Biological Physics

L. Krauss presented a proposed statement from the Division on Biological Physics (DBP). Eugenie Mielczarek, from DBP, was in attendance to field questions from POPA members. L. Krauss explained that the POPA Physics & the Public Subcommittee reviewed DBP's originally proposed statement and, after significant discussion and a re-write, sent it back to the DBP for review. DBP accepted the revision, which has been provided to POPA for review today. The original report includes background on why such a statement is needed and the importance of the statement to the physics community.

Commentary: POPA members spent time reviewing and revising the proposed statement.

Final Revision

Practitioners of several types of alternative medicine have argued that human beings can affect biological processes at a distance via the creation of "healing energy" to improve patient health. There is no known biophysical mechanism that could support such effects, and the "energy" being referred to cannot be connected to the concept of energy as it is used in the physical sciences. Specific claims that human beings can generate magnetic fields at the milligauss level are not credible. Typical measurements of these fields have shown them to be a thousand times smaller, much smaller, in fact, than the magnetic fields generated by thermal fluctuations. There are no mechanisms for a typical cell or its components to respond to the fields created by hypothesized healing energy.

Action: It was requested that J. Drake confirm the accuracy of the equations and numbers referenced in the background material provided by DBP.

On condition of J. Drake's examination, T. Kaarsberg moved to accept the final revision of the DBP statement.

The motion was seconded by P. Coleman.

The motion passed unanimously.

Proposed Statement – Misuse of Quantum Mechanics, Physics & the Public Subcommittee

L. Krauss presented a proposed statement from the POPA Physics & the Public Subcommittee. He explained the basis for the proposed statement.

Commentary: POPA members spent time reviewing and revising the statement.

Final Revision

The APS deplores the misuse of the principles of quantum mechanics that defraud the public by improperly validating otherwise unsubstantiated self-help programs. The quantum universe is fascinating; quantum mechanics explains

that the act of experimental observation can affect the state of physical systems. However, quantum mechanics does not imply that we can physically alter the world around us merely by thinking about it.

Action: W. Barletta moved to accept the final revision of the statement.

The motion was seconded by P. Coleman.

The motion passed unanimously.

Electric Grid Study Update

George Crabtree, Chair of the Study, addressed the group and provided an update on the finished Electric Grid Study Report, the plan for public release, and the need for possible follow-on study areas in the areas of energy storage and demand-side management. He mentioned that many of the renewable energy professional associations don't talk about storage because it is perceived as an impediment. Demand-side management is going to be a very important topic in the near future.

Commentary: M. Lubell mentioned that APS has already done a report on storage. Perhaps we could just update that study. The demand-side management issue will be a hot topic in the next few years and we could add a lot to that discussion. M. Lubell proposed we update the old storage report and take the demand-side management topic up as a new study. Jim Misewich would be a good candidate for heading up the Storage Study Update. M. Lubell suggested Art Rosenfeld as a possible candidate to champion the Demand Side Management Study.

Action: The Energy & Environment Subcommittee, along with George Crabtree & Jim Misewich, should review the idea for a Storage Study Update and develop a proposal to be presented at the February 2011 meeting. The Subcommittee should also come prepared to present a proposal for a study on Demand Side Management (DSM). It was requested that these proposals include funding information (possible relationship with NCEP).

Potential Studies: Geothermal Power, Integrating DSM on the Electricity Grid

T. Kaarsberg & J. Drake presented a proposal for a POPA Study on geothermal power. While solar and wind power have received much attention, geothermal power has not been adequately addressed. Geothermal power has more potential as an energy source than solar photovoltaics, especially when one considers the high capacity factor of geothermal energy. Physicists could add value in a study by evaluating (1) the capacity projections, (2) interaction with the current electric grid, and (3) future research needs. J. Drake commented on the need for technology development for geothermal power. Such development would require funding and that's where a POPA study could have some real impact.

Commentary: R. Jaffe said that geothermal power may not be the favored energy source, because thermodynamics works against it. In a world with co-generation (consider Iceland) it's valuable for space heating; in particular niche applications it seems like a very reasonable idea. R. Socolow suggested that the focus of any study on this

topic must be narrowed down. If it is to include cost evaluations, the final report could be enormously valuable to society but horribly difficult for the study committee to arrive upon. He reminded the group that there is no proof that a large enough geothermal source exists that could produce energy at a marketable price. J. Drake said that R. Socolow's comments point to why it is all the more important to embark on such a study. M. Lubell suggested that induced seismicity should be featured and any study on this topic should be done in conjunction with the geophysics community.

Action: T. Kaarsberg & J. Drake were asked to take this issue back to the Energy & Environment Subcommittee to determine whether POPA should consider conducting (1) a general study on geothermal power, (2) a study on the cost evaluations of geothermal power, or (3) both studies.

Overview of Energy Critical Elements Study

R. Jaffe began with an overview of the steps necessary for completion of the report. Today, the study recommendations will be discussed. The feedback POPA provides will be integrated; the skeleton report will be fleshed out by the study committee. Then the Energy & Environment Subcommittee will be given an opportunity to review the document. Next, the report will be sent for external review. Once the external review is complete and suggestions are incorporated, the report will be sent to POPA for final consideration and a vote, via e-mail if all steps are completed before the February 2011 meeting.

A brief timeline and synopsis of the proceedings that have already taken place was provided; R. Jaffe discussed the structure of the study group and the expertise of its members.

The study recommendations were assessed, one by one.

- **Recommendation #1 - Coordination**

M. Lubell said the reference to the U.S. Trade Representatives should be listed as The Office of the U.S. Trade Representative. R. Jaffe agreed to make the change.

- **Recommendation #2 - Information**

T. Kaarsberg made an overarching recommendation to investigate whether terms like "lifecycle supply chain" are already defined in government jargon somewhere. If so, we should abide by familiar terminology.

- **Recommendation #3 - Research, Development, and Education**

T. Kaarsberg said the last two bullets in this section read more like findings than a recommendation. R. Jaffe agreed that they should be rearticulated. M. Lubell suggested adding, "The Federal Government should..." to the beginning of the sentences in question. R. Jaffe said the reference to "Centers of Excellence" may also be modified because the terminology isn't well regarded on the Hill, per information culled in recent staff meetings.

- **Recommendation #4 - Recycling**

R. Jaffe indicated that the idea of using a "Material Star" label has been abandoned because of the scrutiny that Energy Star technologies are under now. There was a lack of policing when Energy Star labels were being awarded and not all labeled technologies are as efficient as their conventional counterparts. A different labeling method will be

recommended with the same objective as “Material Star” but without the negative association with Energy Star. Some fleshing out will be done on the second bullet in this section and the third bullet will be moved to Recommendation # 3.

- **Recommendation #5 - Market Interventions**

T. Kaarsberg asked R. Jaffe to focus on the first sentence of the first bullet in this section, which reads, “*With the exception of helium (see below), the Committee does not propose government interventions beyond those contained in the other Recommendations.*” She said the study committee needs to indicate that we “don’t support” government interventions. We have to say more than we do “...*not propose government interventions...*” R. Jaffe spoke about helium and indicated that the report will point out the characteristics that make it unique. J. Dahlburg mentioned China’s recent trade restrictions. She asked if the recommendation should be that the U.S. requires an availability of some of these rare earth materials and we must account for that. In other words, there should be free trade. It is the flip side of the coin that includes China’s trade restrictions. Aside from the discussion on helium, is the report going to address open trade? R. Jaffe said the study committee didn’t think there was anything our government could do besides ensuring open trade. J. Dahlburg asked if the report will say that outright because it doesn’t now and it should. R. Socolow suggested that the committee include some information in the report that asks the reader to consider a world without particular REEs. R. Jaffe indicated that there will be examples included in the narrative portion of the report.

Direct Air Capture Update

R. Socolow provided the Panel with a progress report on the Direct Air Capture Study and next steps to bring the report to completion.

Next Meeting & Adjournment

The next POPA meeting will be held on **Friday, February 4th, 2011.**

Action: A motion to adjourn the meeting was made and seconded.

The motion to adjourn the meeting passed unanimously.