September 30, 2002

Dear Members of the APS Community:

Attached is the report describing the summary sessions at the first APS/Users Strategic meeting held in Fontana, Wisconsin, from May 15-17, 2002. We thank all the discussion leaders for providing material for this report. This is a "good record" of the breakout sessions and an important document establishing new modus operandi within our community. Several recommendations have been already implemented (please see attached memo from Murray Gibson sent out on June 6) and many more are on the way (see APS User News at-a-Glance, number 16 and the Update on APSUO Steering Committee, Research Directorate and APS Management sent out on September 18).

We want to reaffirm our belief that the goals of the APS user community and the facility are the same, delivering highest quality science. The path towards this ostensibly simple goal is immensely complex. We believe this document will help provide the necessary guidance.

Organizing Committee

George Srajer (XFD)
Andy Howard (IMCA-CAT)
Paul Zschack (UNI-CAT)
Michael Borland (AOD)

P.S. For your viewing pleasure, the group photograph from the meeting is below.

ARGONNE
NATIONAL
LABORATORY

INTRA-LABORATORY MEMO

June 6, 2002

TO: APS Users and Staff

FROM: J. Murray Gibson JMG

SUBJECT: Preliminary Response to APS/User Strategic Planning Meeting

The first APS/User Strategic Planning Meeting was held in Fontana, Wisconsin, on May 15th-17th of this year. I was delighted to observe the strong sense of partnership between the users and APS staff, and the honest dialog among all parties. The level of commitment especially impressed me — 115 people devoted two days of their time and remained deeply engaged throughout. We at APS are very fortunate to have so many dedicated people, both on the staff and in the CATs, whose energy fuels our success. I especially want to acknowledge the efforts of the organizing committee — Michael Borland, Andy Howard (IMCA-CAT), George Srajer, Paul Zschack (UNI-CAT) — and the help of Rose Torres, who set up the venue so successfully.

The meeting would have been a great success if it had produced nothing more than improved dialog, but a lot more was achieved. Despite a healthy diversity of opinions, there was a surprising amount of consensus. The input guides us at APS in establishing priorities, provides us with refreshing ideas, and helps us develop the case for increased funds. You will be hearing much more about the meeting and our strategic planning and policies, beginning with a formal summary report produced by the organizing committee, followed by specific responses from APS. We need to take quick action on several other issues that involve a response to the Department of Energy-Office of Basic Energy Sciences (DOE-BES) peer review of last October, (copies of this have been made available to all CAT directors and APS management), and you will hear more about these very soon. In this message, I identify a few immediate actions we at APS are taking in response to ideas from the strategic planning meeting.

The meeting helped APS management clarify the important distinction between the general "user" and those resident beamline staff who work for the CATs. While we consider these resident beamline staff a subset of the users, it is a very special subset. Resident beamline staff members are, among other things, the primary technical interface with outside users, so it is particularly important that we at APS provide them with strong support. We are considering ways to recognize the special status of our resident users.

There was energized debate about the menu of exciting machine enhancements that the APS can offer to further user science. It was obvious that a lot of dialog will be required to digest the exciting possibilities and to help the APS make good decisions on future

enhancements. One immediate action item emerged from this group: to have a ***technical workshop on innovative insertion devices (IDs)***. This workshop will lay out the possibilities that could be made available by improved insertion device performance. Liz Moog and John Hill (IXS-CAT) will organize this workshop for the late summer. I envisage this workshop as having two components: one will be centered on the technical characteristics of innovative insertion devices; the second will be devoted to the users scientific demands for improved devices. The workshop will be a model for others that will increase the technical communication between the APS staff and users. APS decisions to invest in enhancements will be based on the scientific uses that are made possible. Likely the APS will partner with specific users in order to develop novel IDs. Although we expect to provide cost-sharing for developments, we will encourage CATs to seek outside funds for upgrades of insertion devices.

While the machine is rightly praised for its reliability and performance, we need to pay more attention to machine performance all the way to the users' samples. We are developing plans for a ***beamline stability/diagnostics team*** that will work with the users to diagnose beamline problems, and also provide the control room with a better understanding of the user requirements. Glenn Decker, Horst Friedsam, Barry Lai, and Steve Heald (PNC-CAT) have formed a task force that will recommend a plan of action.

We will go ahead with the establishment of a ***detector pool***. Efim Gluskin and Dennis Mills are developing a formal plan for the detector pool that I would like to implement effective October 1st, 2002. I recognize that resources will be needed, including appropriate staffing dedicated to supporting this activity. Further user input will be sought as we develop this plan.

Communication is the lubricant of our enterprise. There was much discussion of how to improve this. Since we are all busy, effectiveness is equally important. We have recently invited user and CAT representatives to our weekly operational directorate meeting. We will continue to re-evaluate all of our meetings, but on the strength of a recommendation from the strategic planning meeting, the APS will implement this summer a new monthly meeting. This will be tentatively called the ***APS/CAT OPERATIONAL REVIEW MEETING***. All APS management will be expected to attend the meeting, and we hope also that senior on-site CAT staff will plan to attend regularly. The meeting will be open to everyone, and we aim to attract most APS staff and resident users. The co-chairs of the meeting will be the APS Director, the APS User Organization Chair, and the Chair of the Research Directorate. The meeting will last 90 minutes (of which only 60 minutes will be formally programmed, the rest being available for comments and questions), and will include short highlights on the administrative and technical side (budget, APS machine reports, APS/CAT technical innovations) and science highlights from the CATs. Our hope is that the information exchange will be so valuable that these meetings will be well attended.

One of the mandates from the October 2001 DOE-BES peer review of APS is that we institute a centralized Independent Investigator (II) program. I believe that this will strengthen our II program — as one II said at the planning meeting: "We don't know where the APS front doorbell is." But in making this change, I share sensitivities expressed at the strategic planning meeting not to interfere with the successful strong CAT-operated II programs (such as those

which are national facilities in their own right). A task force comprising Dean Haeffner, Lisa Keefe (IMCA-CAT), John Rose (IMCA-CAT), David Cookson (CARS-CAT), Keith Brister (CARS-CAT), Steve Ginell (SBC-CAT), and Mark Beno (BESSRC-CAT) has been asked to propose, within a month, a measured plan to centralize our II system. I expect to provide resources to support the system and remove some of the burden of II administration from the CATs, while leaving the CATs free to determine the feasibility and scheduling of IIs.

Dialog on the important subject of BES CAT support issues continued at the strategic planning meeting. DOE-BES now plans to make available operational support, through the APS, for CATs in their sphere of interest. Even though this new policy has been an understandably sensitive subject with much debate, I was glad to see some convergence on an appropriate implementation policy. Of critical importance to all is that the necessary funds to support these enhanced operations be made available by DOE BES. Assuming the promised funds materialize, then the new DOE BES policy is an opportunity to increase CAT effectiveness. At the meeting, the challenge of how to fairly implement the policy was clearly recognized. The task force that I asked to prepare guidelines for the APS implementation policy (Bruce Bunker (MR-CAT), Randy Winans (BESSRC-CAT), Steve Davey, and Dennis Mills) will soon produce a final report. APS will then formulate a policy based on the recommendations.

There was discussion of a related proposal from APS to enhance the Program Evaluation Board (PEB). Based on feedback from the strategic planning meeting, revisions are being made. Input has been solicited from the CATs (and within APS) for the names of additional PEB members. Both the PEB changes and the new BES CAT support policy will be complete for presentation at the next Research Directorate meeting.

As I said at the outset, this message identifies only a few immediate actions that we are taking based on items discussed at the strategic planning meeting. I expect to continue the APS/User dialog on our strategic planning. Thank-you for your commitment to the APS – only by working closely together can we realize the full potential of this outstanding facility.

JMG:rt

Advanced Photon Source/User Strategic Planning Meeting
May 15-17, 2002

Summary of Breakout Sessions

3.1 Technical Issues (M. Beno and M. Borland)

The technical session featured three scheduled talks and a spirited discussion of various issues. E. Moog (APS/XFD) discussed insertion device (ID) related issues, including recent radiation damage and possibilities for producing customized IDs. The latter included options for producing variable polarization and the possible use of a superconducting device to produce higher energy photons. It was recommended that a workshop be organized with the twin goals of educating the beamline community on the properties of ID options and providing feedback to the Advanced Photon Source (APS) as to which options should be pursued.

Next, G. Decker (APS/AOD) presented recent progress and plans on the beam stability front. Recent progress includes the upgrade to the dc orbit correction, which dramatically decreased the transients due to ID gap motion, and inclusion of bending magnet x-ray beam position monitors (BPMs) in the orbit correction, which reduces sensitivity to radio frequency (rf) BPM systematics. The eventual goal is positional stability under 1 micron and angle stability under 200 nanoradians for frequencies below 30 Hz. It was recommended that APS extend stabilization efforts to the beamlines as a matter of policy, perhaps by the creation of a beamline-stability investigation team. It was also recommended that beamline diagnostics be improved and standardized to support detection and diagnosis of stability problems.

Finally, L. Emery (APS/AOD) presented a discussion of storage ring optimizations and trade-offs. The consensus of the group was that reduction of the horizontal emittance was of greatest interest to the community. The trade-off is lower lifetime, which will necessitate one or more of the following: faster top-up, more bunches, or injector upgrades. In the course of spirited discussion, it emerged that compromises on the top-up rate and number of bunches may be possible. The bunch pattern was a particularly contentious issue, with some participants defending the current fill pattern and others calling for a review of the standard fill pattern. Because of time limitations, discussion of this issue was not completed and this topic should be addressed further in subsequent discussions between users and the APS management.

The need for beta-function optimization was discussed, without conclusions, as it depends on details of beamline design.

G. Rosenbaum showed a proposal for an ac-modulated vertical bump that would allow inflating the apparent vertical beam size without changing the vertical beta functions.

Recommendations included: (1) Prepare a technical bulletin on the subject of optimizations and trade-offs, with more details. (2) Organize a workshop on this subject, attended by accelerator and beamline people. (3) Compare the cost/benefit of accelerator upgrades to beamline upgrades.

3.2 User Support (T. Gog and D. Mills)

The breakout session entitled "User Support" convened on Thursday morning. A list of precompiled "Service Items of Interest to Users" (attached) was handed out to participants as a starting point for the open-discussion portion of this session. Discussions finally focused on the following topics.

Environment Safety & Health (ES&H)

One of the mandates from the recent Department of Energy (DOE) review of the APS was the strengthening of Argonne National Laboratory's (ANL's) role in ES&H responsibility for the Collaborative Access Teams (CATs). In subsequent discussions with DOE representatives, it seemed that DOE would be satisfied with an APS ES&H representative co-signing approval forms. It was pointed out that some CATs have well-functioning ES&H systems in place and these systems should be disturbed as little as possible, while other CATs, lacking the expertise and manpower to fulfill ES&H requirements, need help. In particular, the biological community felt strongly that a quick response for proposal safety review was vital for the success of their scientific programs and feared that this might be sacrificed with a more centralized system. A compromise was suggested whereby ES&H signoff for experiments that deal with non-hazardous materials and/or are fairly routine would remain with the CATs, while those cases where specific hazards are involved, an APS safety specialist would be called in to co-sign the approval form.

Knowing whom to call in the case of an ES&H issue is very important for the CATs, and APS management needs to identify this person. In this context, it was also noted that the role of the advising safety officer, and the officer who enforces compliance, need to be separated.

Computing

Standardizing on a single platform and/or operating system seems virtually impossible at this point in time. On the question of standardizing beamline control software, it was noted that it would be helpful in some cases but should not be mandated. Several of the most frequently used control systems (EPICS, SPEC, and MX for example) should be supported. When asked if CATs would be willing to share their expertise, the answer was emphatically "yes." It was suggested that the Beamline Control Data Acquisition (BCDA) Group could act as a clearinghouse for this expertise, and have on staff an "expert" in the widely used control systems. Another area of data-collection support that the APS might consider providing is in data back-ups.

Although most people understood the need for security, firewall issues must not prevent easy transfer of data from one CAT to another and to home institutions. Communications between APS and the CATs is very important here, because things often move fast and any changes in firewalls (or other cyber security-related items) must be made known to CATs as early as possible.

Equipment Pool

There was strong agreement that, together with an equipment pool, there should be a supporting technician to ensure the success of this concept. It was emphasized that certain hot spares, such as cryopumps, should be available.

Another approach would be to develop a Web site that APS would take responsibility for, where a list of available equipment could be posted. Everyone should have access to the list and CATs could input in order to build the pool. An issue was raised relative to damage to borrowed equipment. What if the CAT is not able to pay for repairs? Should the APS be expected to step in as an insurance agency? A knowledgeable person at the APS could mediate between CATs on issues of sharing.

Detector Pool

APS management pointed out that this area of user support was a work in progress. The Department of Energy Basic of Energy Sciences (DOE BES) has detector development listed as one of their goals, but there is as yet no money. A Detector Sync Group has been organized to coordinate this effort. APS wants to move ahead in the meantime to establish a detector pool. The CATs must tell APS what they have and need. As with the Equipment Pool, technical support for the detectors is essential. Users must assemble a potential list of useful detectors and prioritize the list.

Miscellaneous Discussions

P. Lee (SRI CAT – Sector 1) introduced an overall concept for a centralized user support structure at the APS, which is reminiscent of the European Synchrotron Research Facility (ESRF) structure.

It was pointed out that communication should be strengthened to ensure that all users know about available resources. Also, training seminars might be a good idea.

There seems to be a need for a knowledgeable APS person to coordinate computing, ES&H, and the equipment and technician pool.

Issues regarding food, noise, and other "creature comforts" were raised.

It was mentioned that ANL has numerous resources and how these facilities might be made available to APS users should be investigated.

It was noted that there is a difference between users and "resident beamline personnel." The latter group should be considered part of the APS structure.

Summary

After the open-discussion portion, the question of priorities was raised. It was suggested that the following three items should receive particular attention:

- Beamline control and computing
- Detector and equipment pools
- ES&H

The idea of "Ombudsmen (persons)" to facilitate interactions between CATs and the APS, and among CATs in various areas, was put forward.

3.3 How to Implement the Centralized II Program? (L. Keefe and D. Haeffner)

The session was opened by D. Haeffner, who gave a short introduction and posed the following topics for discussion:

- How can specific CAT information and requirements be included in the proposal process?
- What level of support is expected from CAT personnel for Independent Investigator II experiments?
- What rights do beamline staff have to veto approved proposals? How can beamline staff give feedback to the review committee concerning performance of various II experimenters?
- What rights do users have to appeal II ratings?
- How can the efforts of CATs who operate as national facilities be coordinated with the APS II program? (II vs. ii)
- How should program proposals be handled?
- Should a rapid-access mode be available to IIs and, if so, how should it be implemented?
- How should the reviews be constituted?
- How to publicize the APS II program?

S. Strasser, of the APS User Administration Office, followed with a brief description of the strawman APS proposal for changes to the II system. She included a history of the current II system and described changes that have been made over the past several years.

N. Smith, Advanced Light Source (ALS) then gave an overview of the current ALS system. Notable in this system is a third class of users (i.e., not PRT members nor IIs), the so-called "Approved Programs." In this case, a scientist (or scientists) has contributed significantly to an instrument (at ALS, usually a chamber) and gets beam time based on that contribution, but has no role in supporting other users. If these instruments are available to IIs, the support comes from ALS staff. He also described the rating system used by the ALS in evaluating II proposals.

Due to the session running late, D. Haeffner canceled his presentation on the SRI-CAT II experience. The next speaker was J. Quintana of DND-CAT. He described many problems facing the CAT beamline scientists in dealing with IIs and noted that it is often necessary to provide significantly more support for IIs than for CAT members. In particular, he pointed out that the CAT is responsible for gathering information required by the APS, but not really needed for the operation of the experiment (e.g., the status of institutional agreements). His assertion was that this places a burden on the already (generally) understaffed CATs. He also explained that, from his perspective, the system has no "carrot" for a CAT's performance with respect to IIs and, alternatively, no real "stick" either. The penalty for removing a beamline from a CAT's control is so large that it is not seen as an effective deterrent.

K. Brister (CARS) described the CARS proposal system and the integration of information both before and after experiments. His message was that the community should "think bigger" in terms of coordinating proposal and other user information. Both his presentation and the comments from the audience stressed the need for careful integration of the current CAT systems with the APS proposal system. He also suggested that the APS consider "FedEx" crystallography, with direct APS support for this activity.

Finally, J. Smith (Purdue) spoke as someone who has been an II at several facilities. Among her comments was that it is very important to have a single point of entry into the APS proposal system and the duplication should be eliminated. She also stated that rapid access is quickly becoming the norm in protein crystallography.

A generally lively discussion occurred throughout the session, with many participants from the audience taking an active role.

Concerning the proposed topics for the session, the following conclusions were presented at the closeout by Haeffner:

1. How can specific CAT information and requirements be included in the proposal process?
    a. A single portal should be used for all II proposals.
    b. Protein crystallography can and should be handled separately from other proposals.
    c. Coordination activities are just starting (barely) and need APS participation.

2. What level of support for II experiments is expected from CAT personnel?
    a. It is often necessary to have higher levels of support from CATs for IIs than for CAT members.
    b. APS requirements for training, etc., are a "big hassle" for CATs.

3. What rights do beamline staff have to veto approved proposals? How can beamline staff give feedback to the review committee concerning performance of various II experimenters?

In the proposed system, only technical feasibility is considered, but other issues are also important.

4. What rights do users have to appeal II ratings?

Not addressed.

5. How can the efforts of CATs who operate as national facilities be coordinated with the APS II program? (II vs. ii)

The national facility CATs have a system that works well and should be gently folded into an overall II system.

6. How should program proposals be handled?

Not addressed.

7. Should a rapid-access mode be available to IIs and, if so, how should it be implemented?

Particularly in protein crystallography, rapid access is a need and is becoming the norm. No discussion was held as to implementation.

8. How should the reviews be constituted?

No significant discussion.

9. How to publicize the APS II program?

IIs need to be recruited and the APS should take the lead in publicizing the II program.

5.1 Publicity and Outreach (D. Cookson and R. Fenner)

"Scientific" and "Non-Scientific" Publicity

1. A general consensus was reached on the importance of distinguishing between publicity aimed at scientists who may be potential users of the facility, and people not associated with active research who may have an interest in the science generated by the APS.

2. The former are clearly an important group to reach for the sake of scientific throughput - maintaining high submission rates of quality proposals, leading to quality publications.

3. The latter group includes the scientific and general press, interested lay-people, science education professionals, and politicians who, when engaged, can argue effectively for continued funding.

4. A possible third target group was identified as being scientists of high standing, active in research but unlikely to ever use the APS facilities. The endorsement of scientific "VIPs" counts for something when funding decisions are made.

APS Annual Reports and APS Highlights

1. Two of the non-activity report APS publications outlined below are based on an annual solicitation of a list of important publications recommended by the CAT directors.

2. It was agreed that the group of non-peers (scientific and general press, interested lay-people, etc.) should be reached by short, comprehensible articles that clearly state the import and impact of research contained in the yearly list of "best of previous year" publications from the CAT directors.

3. It was acknowledged that ESRF gets great benefit from an annual glossy magazine, with high production values and professional writers. APS Forefront should continue to be a peer-directed periodical, maintaining high production values.

4. Some dissatisfaction was expressed at the current APS Activity Report format because:

    a. Some scientists find it onerous to rehash their existing publications with little or no benefit to themselves.

    b. It was speculated that researchers are unlikely to submit really exciting work before it has already appeared in a prestigious, peer-reviewed journal.

    c. While the CD-ROM Activity APS Report is now less costly to produce ($15 for the CD-ROM version vs. $35 for the previous paper version) there was some debate as to whether a thick volume truly serves an ambassadorial role for the APS or is simply a useful reference for people already working at the APS. This seemed to arise from the specific issue of whether the APS report should be published as a CD-ROM or thick paper volume.

    d. The DOE no longer requires this report. So far only one U.S. synchrotron facility has discontinued their activity report, although there is anecdotal evidence that other facilities may also consider this action.

Action Item: Discuss further whether the APS Activity Report should be modified in format, reduced in scope, or even discontinued.

5. It was proposed that the existing APS publication, APS Research, continue to be dedicated to a combination of excerpted recent journal articles and original submissions. There was an opinion that APS would not be able to obtain a large number of original articles from users. However, the APS feels that with the addition of a scientific editor and a panel of contributing editors to referee and solicit articles, the effort will be worth making.

Web-based Publicity and Outreach

1. For a user with little knowledge in a specific scientific field or experimental technique, the APS CAT Web pages can be a bewildering mass of disjointed information.

2. Prospective users would benefit from Web sites unified about a specific field or experimental technique that can provide starting information and then refer the user to specific CAT facilities. Some early examples of these Web sites include the GeoSync and EnviroSync Web pages.

3. APS–based Web pages organized around technique or discipline would merge well into the stated aim of a user-friendly Web front end for independent investigators.

4. The existing summer school and APS workshops would benefit from such Web sites.

5. In addition to APS user-oriented Web pages, there is enormous scope for providing high-school-level educational pages, with interesting (and fun) interactive pages. A wonderful example of what is possible with interactive applets can be seen on the Web site: http://home.a-city.de/walter.fendt/

Action Item: Increase interaction among CATs that do related science, with a view to contributing to communal Web pages. Enlist infrastructure support from APS?

Peer-Reviewed Publications

1. It is universally acknowledged that publications in reputable peer-reviewed journals are the life-blood of any nationally funded facility. With this in mind, correctly recording and crediting CATs publications is vital.

2. A number of participants pointed out how difficult it is to get their users to inform them of recent publications.

3. Some confusion has occasionally arisen over which CAT should take credit for a published paper, demonstrating the true magnitude of the important task of collecting and recording accurate publication data.

Action Item: Consider an automatic mailing program that sends out a copy of the entered publication to the corresponding author's e-mail address. While this may not solve the problem of researchers failing to inform the CAT of publications, it will probably ensure speedy feedback if the entered publication details are wrong.

Attendance at Conferences

1. Presenting information about the APS at conferences is currently perceived to be a hit-and-miss affair, contingent on some APS/CAT staff member fortuitously attending a

particular meeting. Perhaps a more concerted effort could be made to send a "designated" representative (preferably someone who is happy to attend the conference in question) with a standard APS presentation package – put together with the full resources of the ANL public relations department. It may or may not be feasible to contract someone specifically for the purpose of attending such meetings.

2. Meetings for disciplines not usually associated with, but potentially benefiting from synchrotron techniques should be targeted by preference.

Action Item: An officially sanctioned, well-produced presentation is being developed by APS in a range of media that can be placed in the hands of someone attending any conference. This will remove much of the burden of preparation from a potential attendee.

Internships Offered to Non-researcher Science Professionals

1. Fermilab has been highly successful with their outreach to the non-research community. They have managed to enlist the support of large numbers of interested citizens, capable of communicating well with local and federal politicians. A part of this success is due to the implementation of summer internships for science teachers, who come in to work with the scientists. This has fostered great visibility amongst communities that would never normally interact with the laboratory.

2. The APS engages in many areas of science that impact the lives of everyday citizens. There is no reason why this facility could not engage in an equally beneficial program. Citizens vote, votes drive politicians, and politicians approve funding.

Action Item: Summer schools and various types of internships are already a fact of life at the APS. Perhaps these could be extended in scope to include a greater cross section of the interested community.

A number of the items above would require addition resources. This is currently under review by APS management.

5.2 Funding and Advocacy (S. Durbin, APSUO Vice Chair)

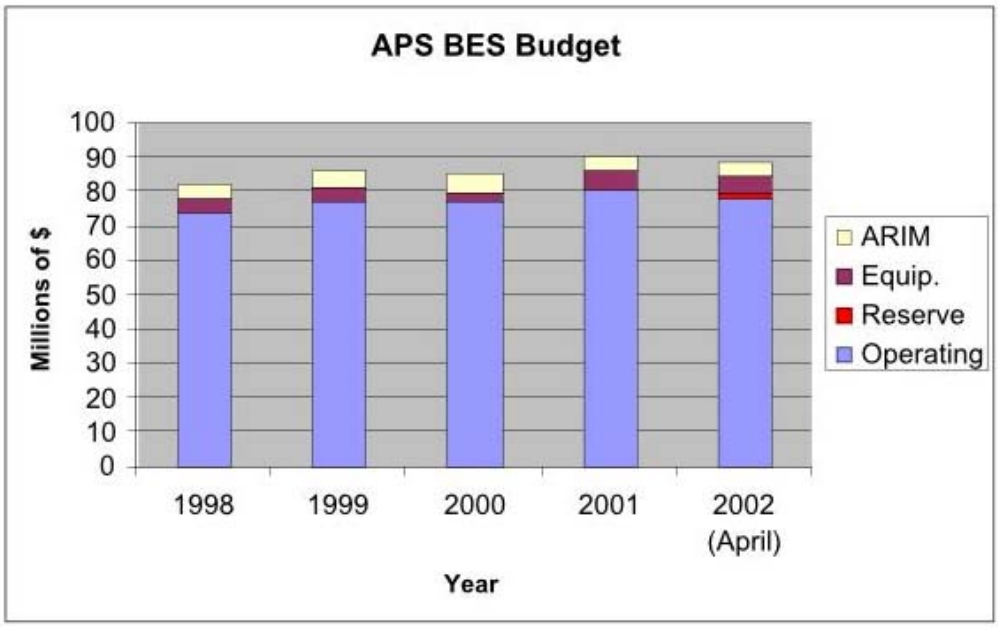
Items for Discussion

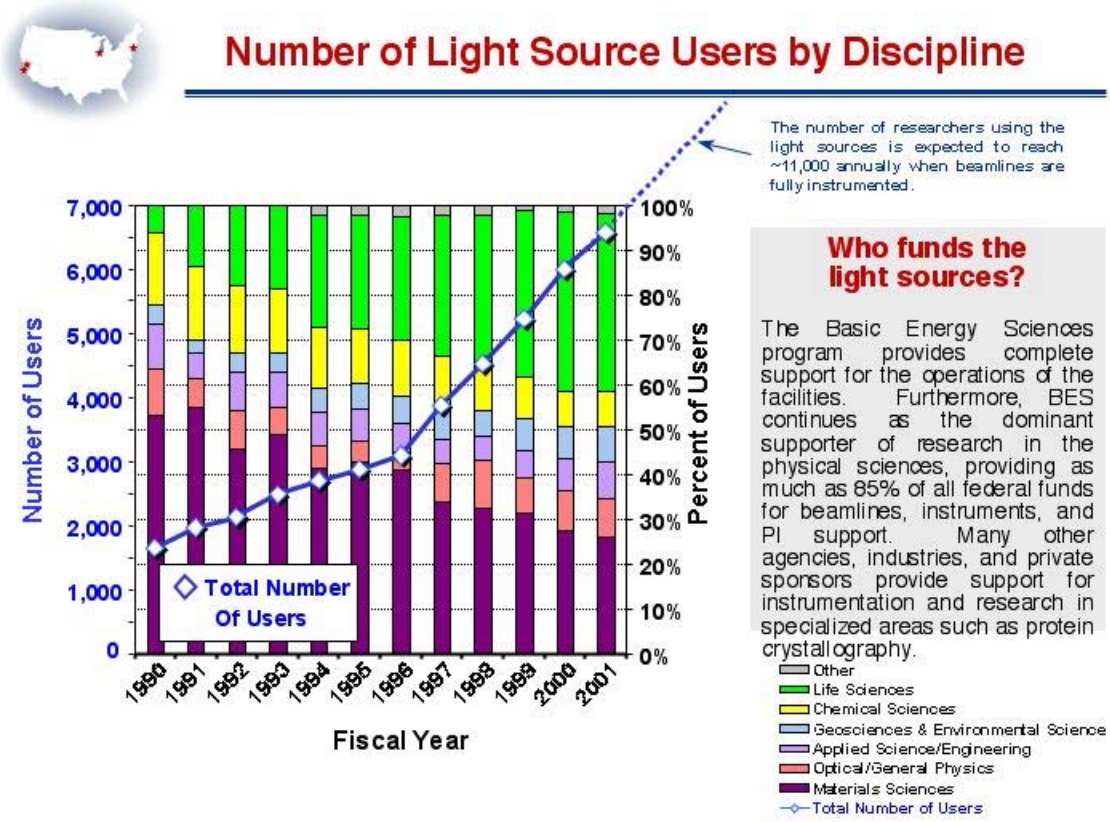
1. **Goal**: To involve users in **advocating** for support of APS and user research.

2. **Motivation:** The combined voice of individual users carries **clout** with the federal government.

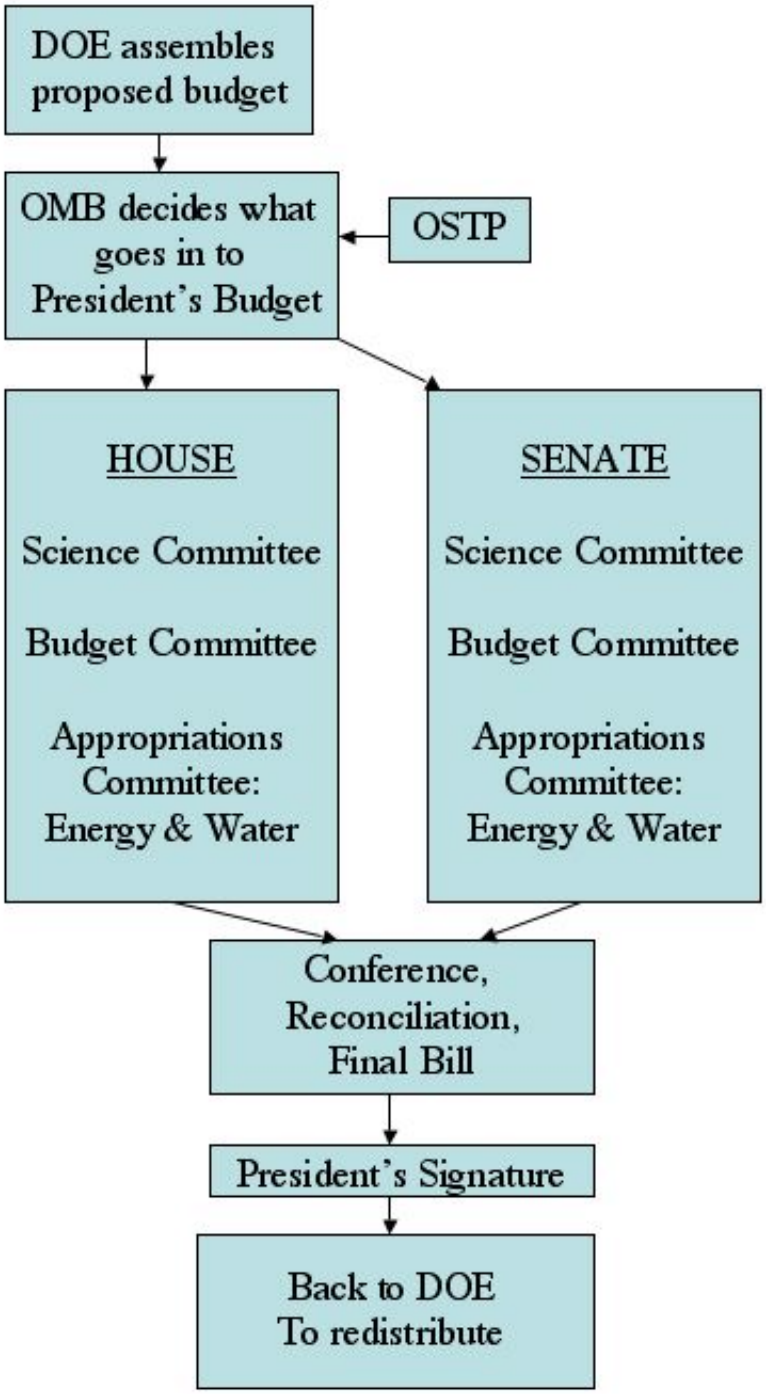
3. **The Problem:** The basic problem faced by the user community is that DOE funding for the APS is basically flat, while the number of users is expected to nearly double in the

next few years. This is likely to produce a great strain on operations. These points are illustrated by the following two graphics:





4. **The Budget Process:** Time was devoted to describing the process whereby the APS budget is determined, from the initial steps at APS and DOE, through congress, and back to DOE, as illustrated below:



Action Items

The following actions were discussed favorably by the attendees.

1. Organize congressional visits for information purpose

    a. Continue annual practice of joining user organization heads for visits to congress.

    b. Provide guidance and materials for users who visit congress individually.

    c. Get assistance from the ANL, University. (i.e., political outreach people)

2. Invite key officials to the APS.

    a. For example, Visclosky (D-IN), ranking member of Energy & Water Appropriations Subcommittee.

    b. Also, key staffers of science, budget, and appropriations committees.

3. Incorporate advocacy activities into the APS User Meeting.

    a. Have meetings every spring (April?); greater frequency = more publicity.

    b. Have participants send letters to congress, using booths established for that purpose (as the American Physical Society does at its meetings).

    c. Provide information session on how to interact with congress.

4. Provide one-page handout on the APS to the users.

    a. Highlight the annual research accomplishments in laymen's terms, using full color, etc.

    b. Provide it in a downloadable form that individual users can customize, for use with their own congressional letters and visits.

New Initiative

The group discussed the value of starting a new initiative to bring the facility's funding up to levels required to fully support the users in getting the most out of these scientific resources. Concern was voiced that APS might only get incremental increases, at best, from DOE without a new initiative. It may be more politically viable to ask for something substantial and new from congress, instead of more of the same. This would also apply to getting more funds for user research, in addition to larger facility budgets.

5.3 Communication within the APS Community (J. Quintana and G. Decker)

This session highlighted three main areas of APS communication. The first was technical communication between the beamlines and the facility, centered on the flow of information directly related to experimental conditions. The second was non-beamline-related communication among the three APS divisions. The third involved communication between the beamlines (e.g., CATs) and the APS administration. This area was limited to topics that did not directly involve technical aspects of running the beamlines or the accelerator.

While the session did not directly address sector-to-sector communication, the attendees agreed that this also was a large issue and that more effective communication between the sectors would result in less duplication of effort on the part of the CATs. The session was attended by more than 50 people from APS staff and CAT personnel.

The action items from this session take the form of recommendations to APS management.

1. The discussion on technical communication concentrated on ways to assist the CATs and the APS in performing actual experiments. The APS provides "process variables" (PVs) to beamlines. Beamlines then can monitor the state of the machine. While these PVs are adequate, better documentation is required so that beamlines can more effectively use the variables. This is especially true in the area of beam position monitors.

Recommendation: The APS should make available more complete technical documentation for the machine-state variables.

2. Much of the historical information about the machine is kept by the APS in the form of data logs. In the past, these logs, as well as other information such as nominal beam parameters (e.g., source size and divergence), were made available through Web pages. Over time, many of these pages have become irrelevant and the updates are not timely. Beamlines have come to rely heavily on this historical information to assist in diagnosing beamline problems.

Recommendation: The APS should make a commitment to providing accurate Web-based information in a timely manner and assign this to person(s) accountable for completing the task.

3. True communication is always two-way but in the current model, electronic information flows only from the APS to the beamlines. The information flow from the beamlines to the APS involves human interaction through telephone calls and is therefore very slow and awkward.

Recommendation: The APS should investigate the possibility of a "standard" beam-monitor interface (e.g., beam position or intensity) on beamlines. This interface would provide feedback to the accelerator via EPICS and could be used to directly assist the APS in fulfilling beamline steering requests.

4. Communication between the APS divisions is currently in a state of flux. This is the result of the recent reorganization and the increased emphasis the APS is placing on promotion of beamline scientific output. Inter- and intra-divisional communication conduits are in place and are currently being documented in an "Interface Document," which all three APS divisions and the ALD office are preparing. However, a broader awareness and better implementation of these interfaces is required among the APS staff. No specific recommendations resulted from this discussion.

5. Nontechnical communication between the beamlines and the APS takes many forms. There are a large number of electronic as well as human conduits (e.g., floor coordinators). It is important to note that these conduits do not exist to limit individual communication and collaboration. But when formal communications (e.g., requests for service) or group activities require coordination, then the effectiveness of these conduits becomes important. While many conduits are in place, beamline staff have limited their participation in some of these activities (e.g., CAT-Chat) over time. Consequently, the effectiveness of many conduits has dropped. Many beamlines are now in operation with limited staff, and beamline personnel have less time to engage in activities that are not directly related to operating the beamlines and aiding experimenters.

Recommendation: The APS should review the effectiveness of communication channels within its direct control (e.g., CAT-Chat, floor coordinator activities) and request that non-APS controlled conduits (e.g., TWG) perform an assessment of their own effectiveness.

6. The group concluded that less frequent, but higher-level conduits could help in improving communication flow. There is also a physical size and traffic flow problem at the APS. Due to the physical size of the facility, the "activation energy" for interactions is limited because people do not necessarily "bump into" each other as they do at smaller facilities. Since everyone in the APS community is a stake holder in insuring that the scientific output is high, this physical aspect does result in a real hurdle that limits communication.

Recommendation: The APS should consider a monthly operations meeting attended by APS management down to the group leader level, along with beamline staff and other interested parties. The meeting would be similar to the monthly ESRF operations meeting, but the format and content should be tailored to APS needs. This meeting could also serve to bring the community more physically together in one location on a periodic basis.

7. Throughout all discussions in this session, nontechnical communication between the beamlines and the APS was continually addressed. One important concern was that accountability and follow-up in many of the conduits is inadequate. This results in requests for service or information either being lost or performed with lag times that limit the usefulness of the request. One mechanism that does work well is the Computer Helpdesk. This support provides the four required functions of effective communication: accountability, documentation, follow-through, and feedback. Everyone who is part of the chain of communication can then follow the record of progress. A similar model could be useful in all requests for service and review between APS and the beamlines.

Recommendations: The APS should address communication accountability in the divisional interface document and investigate modes of operation so that APS and beamline staff can follow the status of a request through its implementation.

5.4 Compliance Issues (B. Glagola, W. McDowell, and W. Schildkamp)

Motivation and Attitude

It was stressed that both the APS and its users are on the same team, trying to accomplish the same goal: Get the best science out of the facility, safely.

Computer Security

How Argonne complies with DOE orders and policies concerning information technology and information security was discussed. These orders and policies include:

N205.1 Unclassified Computer Security Program
N205.2 Foreign National Access to DOE Cyber Systems
N205.3 Password Generation, Protection, and Use
G205.3-1 Password Guidelines

All Argonne cyber security information is available on the ANL Intranet at: http://www.cio.anl.gov/security/index.html

This location has links to the Argonne Cyber Security Project & Working Groups as well as Argonne cyber security requirements.

The action item from this discussion is the establishment of a pre-shutdown meeting between AOD Information Systems Support (ISS) staff and the CAT computer representatives. This meeting would discuss impact to the beamlines and the timing of the implementation rules to minimize beamline impact. This discussion led to the conclusion that there is no good mechanism in place through which the ISS staff can know who the CAT computer representatives are. Several suggestions were made, with the User Administration Office as being the likely clearing house.

Database issues discussed include: security of databases; database access, i.e., Web or SQL; and the data warehouse project.

The final item discussed was access to real-time accelerator data. ISS will work with OAG to make tools and data available.

Argonne ES&H, Occupational Safety and Health Administration (OSHA), U.S. Department of Transportation (DOT)

APS has to fulfill the requirements of the ANL ES&H manual. Following OSHA regulations will cover ANL ES&H requirements. Consensus held that the new version of the ANL ES&H

manual is an improvement in that it more clearly defines line management responsibilities. The APS should continue to work on modifying those sections of the ES&H manual that hinder carrying out research at a user facility. Changes to the laser safety section have been submitted by the APS. We are working on training availability and the need for eye exams.

The U.S. DOT governs the movement of hazardous materials. The APS has obtained from ANL approval to follow DOT rules for the small-quantity exception in the movement of hazardous materials on-site. ANL has also obtained a letter of competent authority (LCA) to allow the air transport of dry shippers containing propane and other flammable cryogenic preservatives. We are working on an update of the LCA to allow for the use of new dry shippers. DOE has expressed an interest in having the LCA applied system-wide at the other DOE laboratories. No completion date is given by DOE for standardizing the LCA requirements followed by ANL at other DOE facilities.

Coordination among DOE Laboratories

It was suggested that the user community would benefit if ESH representatives from DOE laboratories met to share their lessons learned and how to support user safety needs. It was felt that uniformity of shipping requirements, small-quantity exceptions, and experiment safety approval forms would make sense. DOE is interested in the LCA, as stated above. It was felt that there were many other items related to user safety that DOE laboratories could come to agreement on.

Sharing of Safety Information

There is a desire to determine if we can centralize and share standard operating procedures (SOPs) for hazardous experiments/materials rather than having each CAT develop their own without a reference benchmark. It was proposed that SOPs be collected from CATs and either posted on a central Web location or made into templates that could be modified for specific needs. APS currently posts the ANL laser SOP and the APS experiment safety envelopes.

Experiment Safety Approval Forms (ESAF) Review and Approval

APS has been tasked by DOE to approve all experiment safety approval forms. The general sentiment was "do not disturb what is not broken." However, if a CAT does not have the resources to conduct a detailed safety review of each experiment, then the responsibility for safety review must be surrendered to the APS. This could result in the need for greater lead times and may not allow for quick substitutions.

The issue of how to fulfill the mandate in a manner that does not disturb access and timeliness of reviews was not solved at this meeting. The general consensus was that the review of experiment safety should continue to be performed by the CATs, as they are more familiar with the hazards and user groups involved with the experiments.

We should all work together toward a process that will result in uniformity of experiment safety reviews at all sectors. The APS will work (in conjunction with the CATs) to implement a review

system that will provide for the best safety review of all experiments. One possibility is defining an envelope for experiments (allowing for a graded approach) that minimize APS intervention before the experiment is run. Experiments outside the safety envelope would require APS participation in the safety review.

Currently the APS is involved in the review of all experiments that include radioactive samples, elevated biosafety-level experiments, and the installation of lasers and ventilation systems. Details of the experiment safety review process will be discussed in future workshops.

Truth/Consequences and Reporting/Recovery

The experiment safety evaluation process ultimately relies on the honesty of the visiting user. Such a system is vulnerable to incorrect statements about the hazards involved in an experiment. Users must understand that false statements present a risk to themselves and to the APS and a certain amount of policing by the CATs is required. The consequences of false statements must be graded and uniform across all sectors. The APS will have to decide on an appropriate response to the more serious infractions. Similarly, if due diligence in the evaluation and monitoring process is violated by a CAT, there must be consequences for the way the CAT operates.

All cases of potential harm to the staff, visitors, equipment, or the environment at the APS must be reported to the APS and will require APS involvement in their mitigation. A collaborative effort by the CAT involved will decrease the time needed to recover from an incident.