

## **REPORT of November 1, 2001 MEETING of the FFCC**

A meeting of the Fusion Facilities Coordinating Committee was held on November 1, 2001 in Long Beach, California during the APS meeting. The FFCC participants in the meeting were Rich Hawryluk, Earl Marmar, Ian Hutchinson, Martin Peng, Masa Ono, Ron Stambaugh, S. Milora, Bill Nevins and N. Sauthoff. In addition, Don Priester, Rostom Dagazian, John Willis, Erol Oktay, Walter Sadowski and members of the NTCC, including A. Kritz, D. McCune, R. Cohen, J. Carey and S. Jardin participated in the meeting. This was a relatively short meeting held after a day of APS meetings.

The first topic on the agenda was a short update on the status of the large facilities.

Earl Marmar told the group that as a result of the \$300k budget cuts C-Mod would cut operations from 10 weeks to 8 run weeks. The run will start in May and perhaps stretch into July. They have also implemented staffing reductions and delays in diagnostics to accommodate the budget cut. They are presently in their scheduled outage and will have their Ideas Forum Dec. 12-14 and there will be a PAC meeting in late January.

Ron Stambaugh described the impact of the recent \$800k budget cut and some issues from last year, which resulted in a \$2M problem. They will complete 3 units at CPI but not proceed with purchasing additional tubes. They have reduced the number of run weeks to 14 and will complete operations in May. They will have staff reductions. On the positive side they are going forward with 12 coils for resistive wall mode stabilization, in part due to the unanticipated refund from the electric utility and PPPL will develop the CHERS Upgrade. They wanted to restart the ICRF system to support the experimental campaign but will not. The DAC meeting will be held on Dec. 5-7. They are preparing for the 5-year contract renewal. The timing of the national workshop next year has not been settled due to potential conflicts with many other meetings.

Masa Ono described the impact of the latest budget cut of \$500k and how they are addressing a net \$1M problem this year. They have reduced the number of run weeks to 12. The number of staff assigned to NSTX will be reduced. All new diagnostic upgrades are on hold pending a review of their budgets. A key issue for NSTX is the replacement of the CHI insulator. However, whether that can be accommodated within the existing funding is not clear. The run will resume in mid-January and continue through April. An outstanding issue is the installation of the MSE/CHERS system, which was not available during the current outage. If funding were available, operations would resume in September to begin commissioning that system. The Research Forum will take place Nov. 28-30 and the next PAC meeting will be held during the week of January 17<sup>th</sup>.

The PAC meetings are being held earlier than last year to prepare for the Field Work Proposal meeting, March 12-14.

The next topic of discussion was the NTCC proposal. Prior to the meeting, Arnold Kritz distributed a proposal to the committee, along with comments from their PAC and their resolution of the PAC's comments. He also made a brief presentation using several slides from his poster. The Project has been funded for the past three years at the level of 2+ FTE's and needs additional funds for ~6FTE's over the next three years to complete the project. Arnold described how the proposal had been developed with input from the users with a long-term focus and is not able to support the analysis for Snowmass. John Willis asked the program managers from the large facilities whether it should be in their program and their opinion of the project.

Earl Marmar responded that the proposal is a good idea for a long-term project but not at the top of the list of his priorities. There is at present very little modeling supported by his budget and substantial demands on the existing program. This would not be one of the first things to support with additional funds.

Ron Stambaugh complemented the team for developing a reasonable plan and responding to our previous request. Though long term we should be doing this, there are near-term priorities which should be addressed including Snowmass and the development of a 5-year plan, which this does not support. One question is whether this effort should have a larger customer base and in particular, is ITER the right customer? While it would be a challenge to get international agreement on such an effort, this could be something the U.S. contributes. While he noted that this effort is a part of understanding transport, he indicated that his priorities were in developing more detailed physics models to understand transport and diagnostics to benchmark those models. The recent diagnostic initiative will not be sufficient to address the needs of the large facilities and a large investment in diagnostics is needed. He mentioned again his other high priority items including run time, resumption of operation of the ICRF system, and solidification of the ECH system. Afterwards, this code effort could be an incremental request.

Martin Peng and Masa Ono indicated their appreciation for the NTCC effort but also described their financial pressures. In particular, run time, additional diagnostics and the CHI insulator upgrade were major issues facing them. While in the long term this is a worthwhile goal, they are trying to put out fires.

Bill Nevins stated that the NSTX managers have conveyed the priorities from the PAC. While as a member of the Theory community he thinks it should be done; he has to agree with the priority given by the NSTX managers.

Arnold Kritz indicated that the existing level of funding will not result in a successful code development project and dragging the project out did not make sense. He also stated that in light of the pressure on the facilities it should not be funded from there.

Rich Hawryluk stated that the team had been very responsive to the questions we had posed in March and that the effort to date has made contributions especially in the area of supporting the development of modules, which the entire community can use. This effort should be supported, since it can have an impact on the Snowmass meeting and preparation of the 5-year plans. There are several efforts underway which should be brought to completion. His sense was that what the facilities needed in the short run new physics modules, rather than a framework, though there are limitations associated with the existing frameworks.

Erol Oktay raised the possibility of involving the international community in this and if so now. Ned indicated that the ITPA could be a way for getting international community involvement.

The next topic of the meeting was a discussion of the emphasis the new administration has on evaluating progress and making decisions based on progress regarding which elements of the program to retain. For the applied research program within DOE, a pilot program is underway to develop research goals, objectives, and metrics. Though this model has not been implemented for basic research, in lieu of anything else being available it appears that it will be used in the development of milestones for the '03 budget process. The Office has used our FWP submissions to define targets with respect to the goals enumerated in the IPPA document. The feedback to date was that the targets were acceptable but the overarching goals were not. In particular, we are being requested, "to do something" not merely "to advance". John indicated that we should think about performance measures, goals and layering of descriptions. He needs to demonstrate that there is an in depth description of the program. In response to a question from Stan Milora, he indicated that the description of the technology program appeared to be appropriate.

This issue is part of a broader issue facing the Office of Science. Ned Sauthoff represented Richard Hazeltine in a series of meetings with the other heads of the Program Advisory Committees. An issue is whether the approach being used for evaluating applied research should be applied to basic research and whether this is consistent with the approach formulated in the

COSEPUP reports? Ned distributed a draft report he had written for the other heads of the Program Advisory Committees. In February, a workshop is being held to address how performance should be measured in areas of basic research; however, prior to then the budget for '03 needs to be developed.

In the short run we need to develop performance measures such that we can answer the question as to whether we accomplished the goal. In addition, we were advised to eliminate phrases such as support the DOE mission, since the collection of metrics defines the mission and start all metrics with a verb.

John felt that our facilities are the best example of things we can convey progress on. We will need to work together on this.

Rich Hawryluk described a recent meeting he had with Bill Ellis and Steve Dean regarding the IPPA database. The information we provided in March is in the database. With the benefit of hindsight, it is clear that the database should have been structured differently. All of the milestones are in one cell, which makes analysis such as which milestone supports which goal or objective impossible to do. However, this is not a fundamental problem and is being worked. Also, the milestones typically have the high level "plan English" title but not the supplementary text, which is needed for technical accuracy. There was no effort made for the milestones to comprehensively describe the work in support of a given area of research and thus, they do not. In some cases, this reflects that we are not currently doing work in some areas. In other cases, it reflects the process by which we generate milestones, which is not intended to be comprehensive but representative. Before going further, the Office needs to determine what needs to be in the database and how it will be used. Rich suggested that increased effort in the area should be offset by shorter FWP write-ups. Rich offered to assist the Office in this process, since it is important for how the facilities are described and perceived.