

The Five Year Plan Feedback Forum was a success

- 12 - 13 December
- Outside panel, plus two from within PPPL, facilitated discussion
- Constructive discussion from the start to the finish
- Comments focused on technical issues, as well as how we can best describe our program
- Authors and presenters did a great deal of work, and it showed
- Thanks to Joanne Savino and John Robinson for their high level of support

Several items were brought up regarding the overview presentation of the plan

- We need to do a better job in highlighting the scientific goals so as to be able to stand side-by-side with the performance goals
 - Brought up a question that dogs the community: how do we measure progress in the science?
- Give a clearer description of what motivates each of the performance metrics
 - e.g. 20% beta, non-inductive sustained speaks to most pictures of an ST CTF
- It was suggested that impurity content ought to have a figure of merit in the highest level goals

Some helpful suggestions emerged regarding how we describe elements of the plan

- Take better advantage of our research experience in motivating our plan: take theory plan discussions, for example:
 - “Suggest modifying the program plan to reflect that NSTX is evolving into a more mature program with exciting results:
 - Use specific observations to identify critical theory, e.g.:
 - Extremely good ion energy confinement
 - Conditions to explore the physics basis of electron energy confinement and internal electron barrier formation
 - A wide range of plasma rotation phenomena (RWM, ExB shear stabilization, ...) to challenge the development of rotation models
 - Identify where the incremental funding is applied to leverage these issues
 - This will also strengthen the connections with ‘standard’ tokamaks and set the theory/computational basis for inter-machine comparisons”

Some of their comments (con't)...

- Integration and control:
 - “It is apparent the NSTX program is just beginning to get into control and integration issues after initial exploration of many of the basic physics issues
 - For the most part the planned program looks well laid out
 - But control of the CHI and transferring operation to either the PF or auxiliary heating and CD systems may be the biggest challenge:
 - Need to clarify up front the difficulties associated with the plasma fluctuations during the long pulse CHI (sloshing around in the vacuum chamber), which has dictated that emphasis is now on short pulse CHI
 - On the other hand, the issues of sparking and high voltage were adequately addressed”

Examples of comments (con't)...

- Overall comments on transport:
 - Comprehensive plan, scientifically sound, impressive breadth of issues that can be addressed (given resources)
 - Emphasis on measurements for new science is appropriate for NSTX
- General comments
 - Sections, including transport, start with a list of issues. What is planned to address these issues emerges slowly, year by year under each sub-topic.
 - Each main section needs summary of main features of plan - use tables/graphics?
 - Opportunities, which serve to convey excitement and importance of NSTX research, are at present mainly articulated in the overview section. Without appropriate repeats, transport and some other sections come across as somewhat “dry” list of issues, activities.
 - Priorities - plan is a wide ranging “umbrella” (which is appropriate). However, not clear at present what are the priority items in each section
 - Need to convey what your proposed focus will be, in addition to listing all that can be done
 - Prioritization will also aid credibility

Examples of comments (con't)...

- Key topics include
 - Effects of discharge shape and profiles
 - Resistive wall stabilization and error fields
 - Effects of strong toroidal rotation on equilibrium and stability
 - Neoclassical tearing modes
 - Fast ion-driven instabilities
 - Edge-localized modes
- The MHD stability program outlined is broad and ambitious. The areas of research and the tools planned to carry out the research are appropriate. However, it would be helpful to add some sense of relative priorities, and of how priorities might be revised in the future based on results of research.
- The plan would also be strengthened by a succinct statement of the long-range goals within each of these topics, before describing the detailed year-by-year plans for the topics.

Examples of comments (con't)...

The two approaches to RWM stabilization

- reduction of rotation drag
- direct feedback control
 - including the possible need for each, and the implications for the control system and coils, should be discussed in a clear and consistent way.

The run is scheduled to start on January 13th

- Plan for 3 weeks of operations, followed by a maintenance week
- First 2 weeks: HHFW and CHI.
 - NBI will be coming up. Working towards having this in the 3rd week
- Schedule to be discussed in the 3 PM Program/Ops meeting today (ET leaders & Operations, here in B-318).

Run allocations for FY '03

12 week run

Topic	Days
HHFW/EBW	8
CHI	8
Transport	7
MHD	7
Boundary physics	5
Cross-cutting	8
ISD	7
Contingency	10
Total:	60 days