

Scope of ReNeW Dec. 10, 2008

Questions have been raised in the community concerning the scope of ReNeW:

- Which parts of the OFES program are included in the scope of the June ReNeW?
- How and when will the research needs for the rest of the program be addressed and factored into OFES strategic plans?
- How will hybrids be handled?

After careful discussions involving Gene Nardella, Hutch Neilson, and other OFES staff, OFES provides the following answers, basically re-affirming previous letters and verbal guidance:

- The Office of Fusion Energy Sciences has two overarching strategic goals:
1) Develop the knowledge needed to create a sustainable fusion energy source;
and 2) Pursue scientific opportunities and grand challenges in plasma science, including high energy density plasma science, to better understand our universe and to enhance national security and economic competitiveness.
- The Strategic Plan Overview to be submitted in March 2009 in response to Congressional language will address both goals of the program at a high level. FESAC will soon receive a draft to review. The Strategic Plan Overview will precede any Research Needs Workshops.
- Going forward, the detailed strategic planning for the OFES program will continue to follow the multi-step, multi-year process that started with the FESAC charges to the Greenwald and Toroidal Alternates panels. The February 20, 2008, TAP charge specified the four alternate confinement concepts that were to be included in that study.

Scope of the June, 2009, ReNeW

- The scope of the June ReNeW, as specified by OFES in the Sept. 19, 2008, letter to the community, is to describe the research needed to resolve the issues identified in the two FESAC studies and to support the U.S. research agenda for ITER as documented in the report of the U.S.B.P.O. Energy Policy Act task group.
- The June ReNeW will provide input which the OFES will use, together with other input, to develop a strategic plan for U.S. fusion research in the ITER era. The Magnetic Fusion Energy Sciences (MFES) strategic plan is to be completed by March 2010.
- While recognizing that there are other magnetic confinement concepts being investigated in the U.S. or elsewhere (e.g., levitated dipole, Maryland centrifuge, mirrors), OFES does not plan to expand the scope of the June ReNeW.
 - OFES feels that it is very important to follow through with the ReNeW process as originally conceived. Important features of this process are the

very rigorous FESAC studies of the research issues and gaps as a first step, followed by a community-led scientific planning activity (i.e. ReNeW) based on those issues and gaps as the second step. The OFES will use the results of this ReNeW as input to its MFES strategic plan, the third step. This is similar to the process that has been successful in other parts of the Office of Science.

- Broadening the scope of the June ReNeW to explicitly include other magnetic confinement concepts at this time has the problem that no study of the issues and gaps, comparable to TAP, has been conducted. It would be inappropriate for those issues and gaps to be defined by the community (in effect, the advocates) without going through the rigorous FESAC process that was applied to the tokamak and four major alternates. It would be an unacceptable extra burden and complication for the Renew organization to have to first do the job of defining the issues and gaps for those concepts. It would also unacceptably undermine the discipline that the Renew organization is trying to instill, namely to develop research initiatives driven by agreed-upon and documented issues, and not to spend its effort defining issues.
- However, any confinement concept or idea that can help resolve the issues within the scope of the June ReNeW can be offered for consideration. Proponents are encouraged to submit written input that helps the Renew organization develop research initiatives to resolve those issues and close the gaps. Guidelines for providing community input to Renew are now posted on the Renew web site.

Other Research Needs

- How will the research needs and strategic planning for magnetic confinement concepts not covered in the June ReNeW be addressed? Those concepts are considered to be included in (or if not currently funded, candidates for) the Plasma Science strategic goal and will be included in the Plasma Science strategic planning process. The Plasma Science strategic planning process is not yet as well defined as the MFES process, but the following can be said.
 - Plasma Science includes basic plasma science, innovative magnetic confinement configurations not covered by the TAP, and HEDLP.
 - A senior scientist has been recruited to head the Plasma Science strategic planning process in OFES as an IPA appointee. He is scheduled to start in January, 2009.
 - The FESAC HEDLP study, now in progress, and the Plasma 2010 report are considered to be sufficient as resource documents for Plasma Science planning. There are no plans at this time to conduct additional FESAC issues and gaps studies, analogous to Greenwald and TAP, for Plasma Science.
 - One or more research needs workshops for Plasma Science will be held. The timing is to be determined by the new AD and the Plasma Science strategic planning leader.

- A strategic plan for OFES's Plasma Science program will be prepared with scientific input from the Plasma Science research needs workshop(s) and other sources. The timing for issuing the Plasma Science strategic plan is TBD. This approach of separate strategic plans for MFES and Plasma Science could change when a new Associate Director (AD) for Fusion Energy Sciences comes on board.

Hybrids

- How will hybrids be handled? Hybrids are not currently part of the OFES program; however, there is clearly a groundswell of interest in fusion-fission hybrid schemes, both magnetic and inertial, and a significant amount of new work being done. In addition, there was language in the FY 2009 Senate Appropriations Bill on the subject. Given these factors, OFES has decided to proceed with a workshop on hybrids. Curt Bolton has been asked to begin the process of setting up such a workshop that would include the involvement of other DOE offices and specialists from other fields. The primary objective of this stand-alone workshop would be to consider the status of hybrids and the appropriate next steps. Having the output from such a workshop, will give the new AD the opportunity to consider the role, if any, of hybrids in the program as well as what the next steps should be (e.g. System studies, FESAC review, etc.). Given the significant amount of time, attention and resources that is going into the June 2009 Renew, OFES has requested that such a hybrid workshop not take place until after the June 2009 workshop.