

# **FESAC Subcommittee on Future Facilities**

John Sarff  
UW-Madison

# Subcommittee members

- Rich Callis (GA)
- Ray Fonck (UW)
- Chuck Greenfield (GA)
- Chuck Kessel (PPPL)
- Steve Knowlton (Auburn)
- Rick Kurtz (PNNL)
- Mike Mael (Columbia U)
- Harry McLean (LLNL)
- Jon Menard (PPPL)
- Juergen Rapp (ORNL)
- Don Rej (LANL), Vice Chair
- John Sarff (UW), Chair
- Dennis Whyte (MIT)
- Martin Greenwald (MIT), ex officio
- Albert Opdenaker, ex officio

Good balance of expertise, institutions, lab/non-lab, participants in recent planning activities

# Subcommittee's process as understood at this point

- First conference call last Friday, Jan 25
- Drafted a call for white papers over the weekend, circulated Tuesday
- Meeting of subcommittee tomorrow, here at Gaithersburg Hotel
  - Most of the subcommittee is here in attendance on short notice (thanks!)
  - Will use ReadyTalk for remote participation by those not here
- Will need to have weekly conference calls through mid-March
- Discussing a possible 2<sup>nd</sup> face-to-face meeting in late February or early March in transition from analysis to writing. Would be here in DC area.
- Anticipating remote participation (ReadyTalk + H.323) for community input to supplement white papers during February
  - USBPO (Jim DeKock, UW-Madison) has offered to help facilitate
  - Used successfully by the Rosner et al panel this past summer
- Plan a simple website (USBPO or UW Plasma Physics)

# Call for white papers sent to the community

- The FESAC Subcommittee formed to address the DOE Office of Science charge on proposed scientific user facilities invites community input ... The final report for this charge must be delivered to DOE by March 22, 2013... Hence the **DUE DATE FOR WHITE PAPERS IS THURSDAY, FEB 14**
- Documents pertaining to this call for white papers:  
(<http://science.energy.gov/fes/fesac/reports/>)
  - The charge letter dated 12/20/2012 from Dr. Brinkman, Director, Office of Science, DOE
  - Letter from Dr. Edmund Synakowski, Associate Director, Fusion Energy Sciences to Dr. Martin Greenwald, FESAC Chair
  - 1-page descriptions of four facilities proposed by FES as described in Step 1 of Dr. Brinkman's letter
- Instructions for white papers:
  - Recommended length of 4 pages or less (1 in margins, 12 pt font, single-spaced)
  - Papers should include references to supporting material, but must be self-contained in providing the information requested below
  - Email papers to John Sarff and Don Rej
- Plan for white papers to be made available on a website open to the public

Of course planning documents will provide context:  
ReNeW, Priorities-Gaps-Opportunities, HEDLP, Rosner et al, etc.

# Detailed instructions for white papers have been provided

- Required contents for the white paper:
  - Summary of the research that will be performed on the facility and how this research leads to world-leading science.
  - Description of the facility (new, upgrade, or coordinated program using multiple facilities). A graphic that would represent the facility in a 1-page description is recommended.
  - Description of the facility's impact beyond the FES mission, if relevant.
  - Context for the facility with respect to research gaps, needs, and opportunities as described in recent FES planning documents: ReNeW, Priorities-Gaps-Opportunities, MFE Priorities Subcommittee Report (available soon), etc.
  - Context of the facility relative to the world effort in fusion and plasma science research. Describe how the facility would extend beyond existing research capabilities, noting important differences in physical parameters.
  - Provide an estimate of the construction cost, annual operation cost, and schedule. Also include an estimate of the value of the existing facility for proposed upgrades. Describe the basis for these estimates.
  - Assess the readiness of the facility concept using the criteria and categories indicated in Dr. Brinkman's letter. Justify this assessment by referring to specific scientific and engineering requirements for the proposed facility.
    - (a) Ready to initiate construction.
    - (b) Significant scientific/engineering challenges need to be resolved before initiating construction.
    - (c) Mission and technical requirements are not yet fully defined.

# Proposed facilities and upgrades that the subcommittee will be evaluating

- Four facilities/upgrades proposed by FES (Step 1 of the charge):
  - Materials initiative (two facilities)
  - Fusion nuclear science facility (FNSF)
  - DIII-D facility upgrade
  - Quasi-axisymmetric stellarator experiment (QUASAR)
- Anticipate other proposed facilities described in white papers, e.g., those appearing in ReNeW, PGO, HEDLP, etc
- Explicit FES guidance that ITER should not to be included in this exercise
- Charge sets \$100M cost threshold; FES advises we can consider somewhat lower threshold ~ \$50M+

# Conflict of issue resolution

- We have been asked to take this seriously (and we will)
- FES has arranged for Sue Wadel, General Counsel (DOE) to advise on COI at our meeting tomorrow; also received an email from General Counsel via Dr. Dehmer that outlines expectations
- The charge asks for assessments of importance and readiness. We may have a voting/rating process for this. Obviously those colleagues closely associated with a white paper (or FES suggested facilities/upgrades) will need to recuse themselves.
- Anxious to maintain expertise available for writing a strong report.
- Needs more discussion...but we want to resolve/understand ASAP

# Anticipating the Subcommittee's report

- FESAC input to DOE March 22 (been warned this is a hard deadline)
- FES has set March 15 for the next FESAC meeting, and requests our draft report by March 8-11
- Aim for an inviting and readable format
  - 1-2 page summaries of proposed facilities
  - Perhaps supporting material to help with context
- Number of facilities/upgrades to recommend in our report to be determined