

Public Comment to FESAC Subcommittee on MFE Priorities
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These notes summarize a talk that is available as a video at
http://doe.granicus.com/MediaPlayer.php?view_id=3&clip_id=101

1 - The subcommittee should really define the plan and goals you are using for reference when setting priorities. You cannot have a credible metric for priorities without a plan. You may want to consider addressing several competing different plans defined by ultimate goals (e.g., ITER success and enhancement; fast-track DEMO; optimized DEMO; FNSF; etc.) and define the scientific roadmap for each of these using the technical info available from ReNew. This would show overlap and divergence of priorities depending on the path chosen.

2 - It was striking that no one, the public commenters or your committee members, ever discussed or mentioned the idea of setting priorities by defining scientific campaigns. Almost all of the discussions revolved around facilities or technical goals. This was striking and wholly out of step with how the program is evaluated in the Office of Science culture. One could consider metrics more suited to programs in the Office of Science - where fusion resides for now. For example: a 5-year campaign to validate, in detail, the standard model of core ion transport based on ITG turbulence models; a campaign to test in detail the peeling-ballooning model behind type I Elms; etc.

3 - My perception, through anecdotal evidence only, is that the fusion enterprise in large research universities in the US is near collapse. Fewer and fewer major research universities have a significant presence in the fusion program. This undermines the status of fusion science in parts of the Admin, in the National Academies, etc. It also decreases the intellectual diversity of the program as it condenses to a few centrally managed labs. To me, this is a very dangerous situation as long as the US program is funded and judged as a science program and not an energy development program. However, hard evidence is needed to evaluate how real this threat to academic fusion is. I encourage (ask) the subcommittee to seek out information on funding, personnel levels, faculty populations, etc. to make an informed judgment on the role of universities in fusion over the next 10 years.