

**The FESAC “Robustness” Issue**  
**March, 2001**

**Background**

In August, 1999, the FESAC PoP subpanel concluded (*emphasis added*):

“At present the subpanel does not recommend approval of CS as a PoP program, because of an important technical issue that needs to be resolved; specifically, *the conceptual design embodiment (NCSX) must exhibit robustness of the equilibrium configuration throughout the plasma evolution.* However, the subpanel is confident that the Compact Stellarator can become an important PoP program. The CS program ranked high in scientific benefit, energy vision and international integration.” [1]

They recommended:

“That a FESAC subpanel participate in the [Physics Validation Review] of the NCSX project to complete the evaluation of readiness to proceed as an approved PoP program.” [1]

**Current Situation and Plan**

As recommended, the original 1999 PoP subpanel, chaired by Jeff Freidberg, is being reconvened to participate in the NCSX PVR and complete its evaluation of the compact stellarator’s readiness for PoP status. They will report their conclusions to FESAC. Their decision is expected to hinge on whether or not the robustness issue is found to have been resolved in the current NCSX design.

The PoP subpanel’s review of the robustness issue will occur as part of the PVR. The project will present the current status of this issue in its PVR presentations. The PoP subpanel will meet at least once as a distinct entity during the PVR to determine their findings. If they request special presentations or further information from the project, it will of course be provided.

Most of the PoP subpanel members will also be serving on the PVR panel, chaired by Jerry Navratil, that will report to DOE. The review questions for the PVR have been specified by DOE in its charge to this scientific peer review panel.

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[1] “Report of the FESAC Panel on Priorities and Balance Meeting in Knoxville, Tennessee, 18-21 August, 1999,” Sept. 13, 1999.