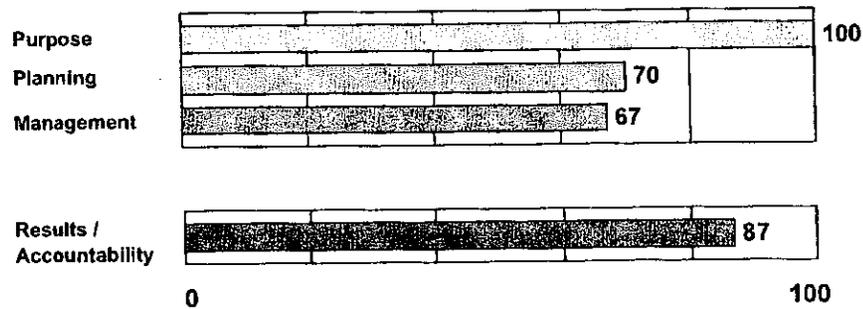


Program: *Advanced Scientific Computing Research*

Agency: *Department of Energy*

Bureau: *Office of Science*



Rating: *Moderately Effective*

Program Type: *Research and Development, Competitive Grant, Capital Assets and Service Acquisition*

Program Summary:

The Office of Science's Advanced Scientific Computing Research (ASCR) program funds research in applied math, computer science, and computer networks and provides high-performance computer facilities for primary use by the other Office of Science research programs.

The assessment found that the ASCR program has developed a limited number of adequate performance measures and is in the process of drafting a long-term strategic vision, as recommended during the 2004 PART process. Additional findings include:

- The program has demonstrated an improved level of interagency communication and cooperation.
- The program recently instituted a Committee of Visitors process, but the program's merit review processes have yet to be validated—for impact on quality, relevance, and performance of the research portfolio—since the assessment(s) have not been completed.
- The program's advisory committee is underutilized relative to other Office of Science advisory committees.
- The user facilities supported by the program are considered to be world-class, and a major interdisciplinary software effort begun by the program has been very successful.

In response to these findings:

1. The 2005 Budget provides funds to continue operating the program's primary user facility at 100 percent of maximum capacity, and to begin a major new research activity in applied mathematics.
2. The Department will develop an appropriate action plan in response to the findings and recommendations of the Committee of Visitors within 30 days of receipt of the report.
3. The Department will meaningfully engage the ASCR advisory committee in thorough assessments of research performance and in regularly revisiting the strategic priorities for the program in order to help identify gaps in the research portfolio and suggest remedies.
4. The Department will work with its advisory committee to develop research milestones [by September, 2004] against which future outside panels may judge interim progress toward achieving the long-term goals of the program.

Key Performance Measures

Year Target Actual

Long-term Measure: Progress toward developing the mathematics, algorithms, and software that enable scientifically-critical models of complex systems, including highly nonlinear or uncertain phenomena, or processes that interact on vastly different scales, or contain both discrete and continuous elements. An independent expert panel will conduct a review and rate progress (excellent, adequate, poor) on a triennial basis.	2006	Excellent	
	2009	Excellent	
	2012	Excellent	
	2015	Excellent	
Annual Measure: Focus usage of the primary supercomputer at the National Energy Research Scientific Computing Center on capability computing (percentage of the computing time used that is accounted for by computations that require at least 1/8 of the total resource).	2003		36%
	2004	50%	
	2005	50%	
Annual Measure: Maintain Procurement Cost/Performance Baselines. Percentages within: (1) original baseline cost for completed procurements of major computer systems or network services; and, (2) original performance baseline versus integrated performance over the life of the contract(s).	2002	<10%, <10%	0%, 0%
	2003	<10%, <10%	0%, -1%
	2004	<10%, <10%	
	2005	<10%, <10%	

Program Funding Level (in millions of dollars)

2003 Actual	2004 Estimate	2005 Estimate
167	202	204