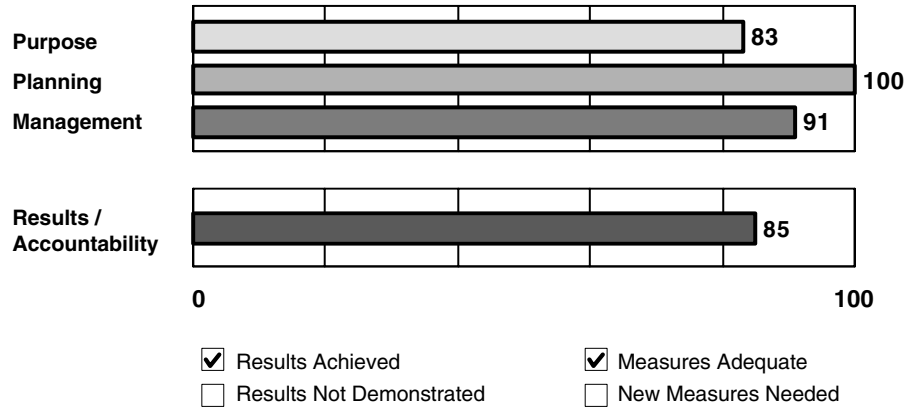


**Program:** *Advanced Simulation and Computing (ASCI)*

**Agency:** *Department of Energy*

**Bureau:** *National Nuclear Security Administration*



**Key Performance Measures**

**Year Target Actual**

Long-term Measure: Ability to perform three dimensional predictive simulations necessary to support weapons system certification and refurbishment schedules	2009	2009	
Annual Goal to Measure Progress in Achieving Long-term Measure: Computing capability, measured in trillions of operations per second, that are developed, installed, and tested	2000	10	10
	2003	30	
	2005	100	
	2007	200	
Annual Goal to Measure Progress in Achieving Long-term Measure: Number of weapon system components analyzed using ASCI computer codes to certify their performance	2002	4	4
	2004	10	
	2006	17	
	2008	28	

**Rating:** *Effective*

**Program Type:** *Research and Development*

**Program Summary:**

The Advanced Simulation and Computing program (ASCI) assesses whether our nuclear weapons stockpile is safe and ready, if necessary, for use. This must be done without detonating any of the weapons to see what happens to them as they age and as they are modified. Therefore, ASCI uses computer models and existing experimental data to understand the effect that aging and other changes to weapons will have on the warheads. Approximately one quarter of the program's funding is for hardware while the remaining three quarters of funding develops tools that support scientific experiments at the three NNSA weapons laboratories.

Overall, the program scores well because it has a clear purpose, is well managed, and has clear and measurable goals. Additional findings include:

1. For the most part, the program makes a unique contribution to this mission area and there does not appear to be any other viable alternative.
2. ASCI has specific goals that guide the program and inform its progress. While some of the annual goals are somewhat vague, they contribute to the long-term goal of simulating the performance of nuclear weapons.
3. A possible area of concern with the ASCI program is that the focus of the program not be diverted to other, non-weapons related work. Furthermore, the program should focus on using its resources to the maximum extent possible without developing redundancy in the three weapons laboratories.

In response to these findings, the Administration will ensure that planned growth in the program meets requirements specifically related to the weapons stockpile and does not develop unneeded redundancy.

(For more information on this program, please see the Department of Energy chapter in the Budget volume.)

**Program Funding Level (in millions of dollars)**

<u>2002 Actual</u>	<u>2003 Estimate</u>	<u>2004 Estimate</u>
704	725	751