

Excerpts from Senate Report 109-084

The Committee is aware of the enormous management and technical challenge the NNSA has faced in establishing the ASC program over the past 10 years. The Committee is supportive of NNSA's proposed transition to a product-focused initiative that will integrate the experimental data and enhance the predictability to answer challenging questions researchers have yet to solve. In fiscal year 2006, the ASC program is expected to deliver an advanced physics and engineering simulation capability to support the W76 and the W80 life extension certifications. The Committee supports the ASC challenge to complete the modern baseline that reflects the comprehensive physics baseline of our enduring stockpile with ASC codes by fiscal year 2009. In order for the NNSA to meet these milestones and complete its transition to a product based program that serves, the Committee directs the Secretary to withhold funding of earmarks that do not directly support the stockpile stewardship mission within the ASC program until the Secretary certifies in writing to Congress on an annual basis that the ASC program remains on track to meet the annual milestones, as well as goals laid out in the NNSA 5-year plan.

The Committee recognizes that there is a need for much faster computer systems to perform the most complicated weapons systems analyses. The Committee recommends an increase of \$75,000,000 to acquire a 150 teraflop computing system at Los Alamos to decrease the time required for the large weapons related calculations and to increase the productivity of the scientists. Currently, Los Alamos is working on a life extension program for the W76. The Committee has been informed that one calculation to support the LEP has been running for 19 months on a 20 teraflop machine. This is an unacceptable timeframe. The purchase of the new 150 TF machine will reduce the runtime from 19 months to just 3 months for the same calculation. In 2003 the Committee charged JASON and the National Academies to report on the requirements drivers and computer architectural directions chosen by the Advanced Simulation and Computing program. The studies recognized that Stockpile Stewardship simulation demands oversubscribe current resources and that a diversity of supercomputer architectures is needed to meet the demanding obligations of Stewardship. Demands of the Life Extension Programs in particular and Stockpile Stewardship in general do not allow the reallocation of leading systems to single problems for any extended period of time. The Blue Gene/L system at Lawrence Livermore National Laboratory, and its focus on critical nuclear weapons science, only fulfills part of the mission needs. While this system effectively targets weapons aging issues, by design it is not suited to advance the complex full-weapons-systems simulation. The Committee agrees with study recommendations and recognizes the need to support the most demanding requirements.

From within amounts provided, the Committee recommends that no less than \$269,800,000 is provided to Los Alamos National Laboratory; \$243,700,000 for Lawrence Livermore National Laboratory; and \$162,500,000 for Sandia National Laboratory to support the Advanced Simulation and Computing Campaign. In addition, the Committee provides \$55,000,000 for the capacity computing requirements to support the W76-1 LEP.