

Material in *italics* to be provided prior to S&C review in support of review charge:

## MANAGEMENT

- Are the current management structures and techniques well-matched to the needs of the U.S. collaboration?  
*Please provide an organization chart of US ATLAS / US CMS*
- Are their internal contingency and risk-management mechanisms appropriate?  
*Please provide a table with S&C funding history FY2004-FY2006. If applicable, provide initial calls on M.R. and granted M.R per year.*
- Are there adequate plans for transitioning from a development phase to a deployment and operations phase? Are the assumptions for resource requirements well justified?  
*Provide a table with personnel requirements for the period FY06-FY11; estimate distribution of FTEs: Universities, Labs, US-based, CERN-based.*
- Are the priorities of the S&C program conducive to effective participation in data analysis by U.S. physicists?  
*Please list your priorities and metrics in this area.*
- Does management have adequate S&C plans to accommodate new collaborators? Have they developed a reasonable model for the corresponding incremental costs?  
*Summarize your model for incremental cost of new collaborators*
- What would be the impact of a 10% S&C funding shortfall on current U.S. deliverables and on productivity in physics analysis?  
*Provide specific impacts assuming “reasonable calls on MR/contingency” are granted.*
- Do the U.S. projects interact sufficiently with the international S&C efforts?
- Does the U.S. play a role in the international S&C leadership that is commensurate with its overall participation in the experiment?  
*Provide International ATLAS/CMS organizational chart.*

## FACILITIES, GRIDS, NETWORKING, AND INFRASTRUCTURE

- Are the current computing models of the experiments appropriate for U.S. needs?  
*Provide links or supporting material describing the computing model.*

- Have infrastructure and operating costs of the Tier-1 and Tier-2 facilities been fully considered in their deployment? Are there any high-risk assumptions? Are the estimated personnel requirements, equipment and infrastructure costs valid and well-justified?

*Provide a table outlining all facilities costs (T1, T2), namely, personnel requirements and infrastructure costs for the period FY06-FY11.*

- Has there been adequate progress made in deploying the U.S. Tier-1 and Tier-2 centers and in their integration with the CERN Tier-0 center?

*If possible, provide progress in the context of deployment in other countries.*

- From a user's perspective, is the usability and readiness of grid-based production software in good shape? (The collaborations should provide sufficient information to help the committee evaluate typical user experience with grid-based tools.)

*Any metrics in this area?*

- Are cybersecurity issues given adequate priority by management? On matters of security, are the lines of authority clearly spelled out? Has the collaboration assessed the impact of a cybersecurity incident on user access to data and to computing cycles? Is there a mitigation plan in place?

*Describe the cybersecurity lines of authority and mitigation plans.*

- Have network bandwidth and connectivity requirements been appropriately identified by the U.S. collaborations? Are these requirements consistent with their latest computing models? Is there a roadmap to achieve the required T0-T1-T2 connectivity?

*Briefly describe the status of connectivity down to Tier-2 in the context of your latest computing model.*

- Do the U.S. S&C programs have adequate links to the Worldwide LHC Computing Grid (WLCG) and to the Open Science Grid (OSG)?

*Provide relevant organizational chart (if applicable)*

## CORE SOFTWARE AND ANALYSIS SUPPORT

- Are the current models for the support of data analysis well thought out, and is the support structure responsive to the needs of the U.S. community, both in the U.S. and at CERN? Are there adequate metrics to monitor progress in this area? Have all the required resources been identified by the collaborations? Will there be adequate support during all phases of the experiment?

*Please provide specific metrics your collaboration is using to monitor this area. Also provide planned resources for the period FY06-FY11.*

- From a user's perspective, comment on the usability and readiness of the analysis software. (The collaborations should provide sufficient information to help the committee evaluate typical user experience with analysis tools.)  
*Any metrics in this area?*
- Are the personnel requirements for the maintenance and operation phase of production software well understood, well justified and available? On what basis are commitments made to the international collaboration? Are these commitments realistic and consistent with U.S. interests?  
*Similar to 3<sup>rd</sup> bullet in Management Section.*
- Is the role of Tier-3 centers well-defined and integrated into the S&C facilities plan? Are the plans for Tier-3 facilities sufficiently developed to guarantee capability for data analysis at interested U.S. institutions by November 2007?  
*Provide short statement on Tier-3 plans and coordination.*
- Has progress in core software relative to the milestones presented at the February 2006 comprehensive DOE/NSF review of the U.S. program been adequate? Are the forthcoming U.S. milestones on track and realistic? Is there any critical dependence on international milestones that could put U.S. deliverables at risk?  
*Provide list of milestones for FY06-FY08 and comment on status.*
- Is the U.S. core software portfolio sufficiently balanced to offer U.S. researchers a good chance to participate effectively in the initial science of the LHC?  
*Please list your priorities and metrics in this area.*