

ESRF External Panel Review Response to 2010 Panel

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Engineering Sciences External Review Panel
Sandia National Laboratories

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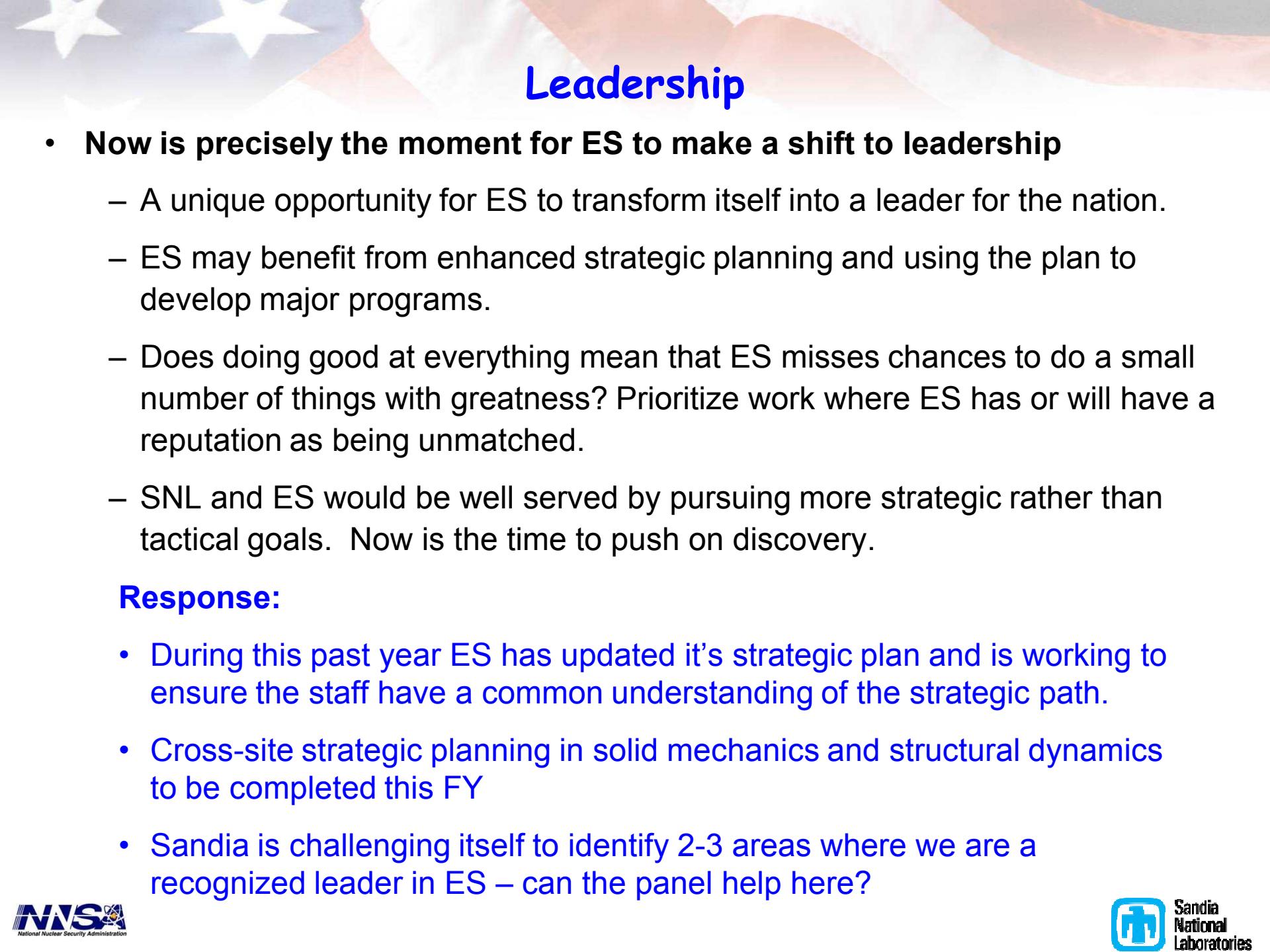
*Sandia is a Multiprogram Laboratory Operated by Sandia Corporation, a Lockheed Martin Company,
for the United States Department of Energy Under Contract DE-AC04-94AL85000.*

Overview Comments

- **This was perhaps the most impressive ERP to date**
 - Management continues to do the right thing
 - ES is now seeing the payoff from the 15 year investment in M&S codes
 - The quality of technical talks was excellent
 - The panel was impressed with Sierra Mechanics
 - The climate has improved as the NW funding has improved

Response:

- We are pleased that the panel commented on the progress Sandia has made in its 15 year investment in M&S codes – we are proud of this work.
- Thank you for your compliments!



Leadership

- **Now is precisely the moment for ES to make a shift to leadership**
 - A unique opportunity for ES to transform itself into a leader for the nation.
 - ES may benefit from enhanced strategic planning and using the plan to develop major programs.
 - Does doing good at everything mean that ES misses chances to do a small number of things with greatness? Prioritize work where ES has or will have a reputation as being unmatched.
 - SNL and ES would be well served by pursuing more strategic rather than tactical goals. Now is the time to push on discovery.

Response:

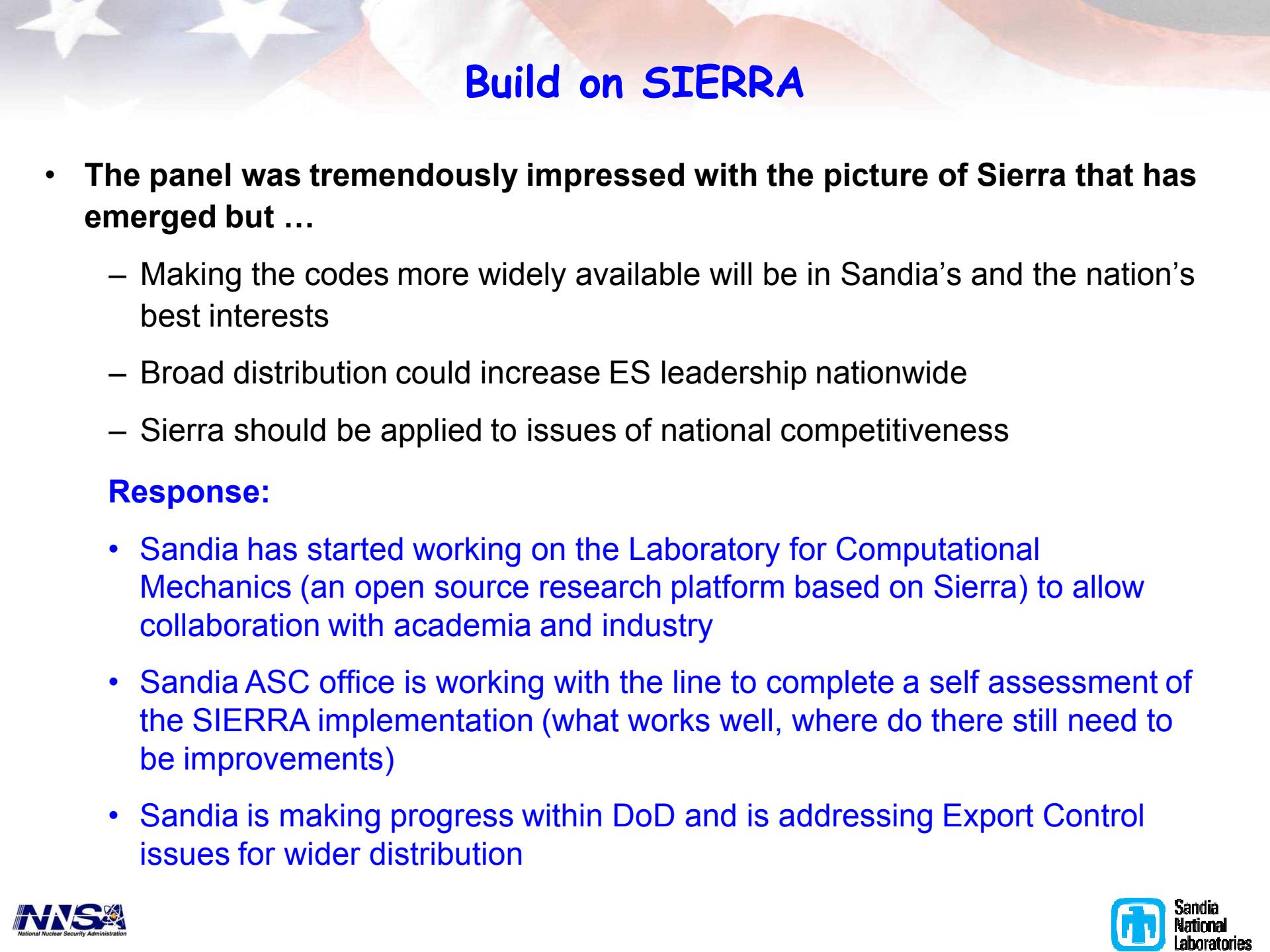
- During this past year ES has updated its strategic plan and is working to ensure the staff have a common understanding of the strategic path.
- Cross-site strategic planning in solid mechanics and structural dynamics to be completed this FY
- Sandia is challenging itself to identify 2-3 areas where we are a recognized leader in ES – can the panel help here?

Staffing and Hiring

- **Morale and hiring has improved but ...**
 - Morale is clearly up from the past few sessions but there is still room for improvement
 - Efforts to hire aggressively are laudable but questions remain whether ES has enough or the right staff
 - Administrative support situation appears unacceptable. First level managers need time to manage and lead

Response:

- We would like to hear if morale is still high after recent benefit changes in pension, healthcare, and pay-freeze
- Hiring is up significantly the past year due to the slow economy
- There are ongoing corporate studies to identify how to reduce manager burden



Build on SIERRA

- **The panel was tremendously impressed with the picture of Sierra that has emerged but ...**
 - Making the codes more widely available will be in Sandia's and the nation's best interests
 - Broad distribution could increase ES leadership nationwide
 - Sierra should be applied to issues of national competitiveness

Response:

- Sandia has started working on the Laboratory for Computational Mechanics (an open source research platform based on Sierra) to allow collaboration with academia and industry
- Sandia ASC office is working with the line to complete a self assessment of the SIERRA implementation (what works well, where do there still need to be improvements)
- Sandia is making progress within DoD and is addressing Export Control issues for wider distribution

Integrating M&S into the Design Cycle

- **The panel has seen plenty of evidence that ES can perform predictive simulation but ...**
 - ES does not appear fully integrated with programmatic elements (i.e. weapon designers)
 - Progress will require a different focus and different skills
 - What is the future of electrical M&S at Sandia?

Response:

- The past few (and current) reviews have focused on research rather than application. We could easily spend a week discussing how our prior R&D efforts are making a huge impact on Sandia's problems.
- Engineering Transformation is a process being used on our LEP designs. The B61-LEP is currently utilizing our newly developed technology to impact the design process. Each B61-LEP PRT has a modeling POC.
- Solving the identity problem and sponsorship of electrical modeling is a current focus at Sandia. A task team has been formed to identify an owner for the discipline and a corporate solution. Note that ES only covers EM and not circuit modeling.

External Scholarship

- **More can be done to increase Sandia's visibility outside DOE**
 - Publication numbers in peer reviewed journals have room for improvement
 - Provide more incentive and time for publishing
 - More publications will help recruiting
 - Increase attendance at professional society meetings

Response:

- We agree that publications and presentations are important to our organization and have identified it as a metric in our strategic plan. Numbers have improved in the last year.
- There is a clear expectation that staff performing research must publish.
- Attendance at conferences is strongly encouraged and rarely denied (except for some foreign conferences).
- We also have a number of Fellows (ASME, etc.) and Society officers within Engineering Sciences.

Panel Suggestions for 2011 ERP Meeting

- Extended break on the afternoon of the first day (Free time before dinner. **Would need to expand to 2 full days for additional break during Day 1.**)
- Move to an off-site location where panel members could access email and phones (**Change of venue next year will allow laptop and phone access**)
- Show how predictive engineering is integrated into design (**Added programmatic presentations on how M&S is impacting the B61 LEP design**)
- Would like to see how ES determines if future HPC resources are sufficient (**Typically handled by our Computer Sciences partners**)
- Each presenter should note upfront their peers and competitors (**Presenters have been given the instructions.**)
- **We have taken the all feedback from the panel and will work on continuous improvement**

We encourage the panel to provide suggestions again this year to improve the 2012 Review

Charge #1: Assess and Advise

- **The Panel will assess us on:**
 - Quality of science, technology, and engineering
 - Relevance to national need and agency mission
 - Programmatic performance, management, and planning
- **The Panel will advise us on:**
 - Vision, mission and implementation
 - Strategic planning
 - Opportunities that should be explored
 - Culture, environment, anything else you hear

Charge #2: Assess Our LDRD Program

- **LDRD Corporate Review Process**

- LDRD review is to be a specific subsection for each RF's External Review Board and other major program reviews where LDRD projects are a significant part of the portfolio being reviewed.
- The ERB report will contain a separate subsection that provides an assessment of the LDRD portion of the R&D portfolio

- **Review Criteria for ES External Panel**

- Relevance

- What is the relevance of ES LDRD investments to the DOE & SNL national security missions?

- Quality

- Assess the leading edge character of ES LDRD projects. How creative and innovative is our LDRD portfolio as we try to solve challenging ST&E mission problems.

- Impact

- What has been the long- and short-term impact of ES LDRD?

- Management

- How can we more efficiently, effectively and strategically manage our ES LDRD portfolio?