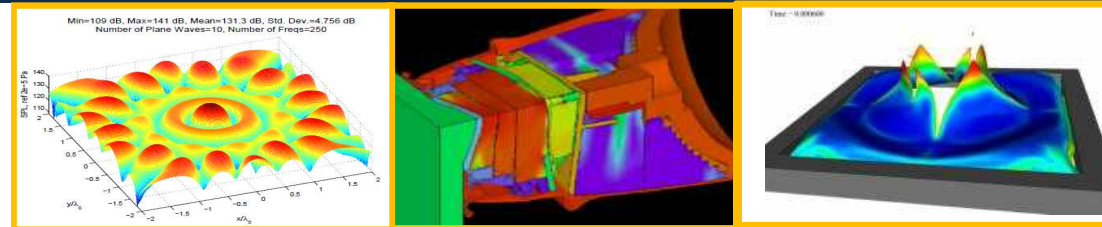


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ESRF Progress resulting from ERP Feedback

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ESRF Strategy Defines Our LDRD Portfolio

ESRF Strategy is used to define the LDRD call and all of the currently funding ESRF LDRD projects are aligned with Areas/Mission Challenges identified below

Foundational Research Areas

- *Algorithms and models for computational simulation*
- *Novel diagnostics for experimental discovery and validation*
- *Integration for validated, predictive assessments*

ESRF Mission Challenge	FY13	FY14	FY15	FY16 - TBD
Multi-Scale Structure Response			3	
Simulating Full-System Flight Dynamics				
Enabling Next Generation Engine Design	1	1		
Reliability in Extreme Thermal-Mechanical Environments		1	1	
Reliability and Margins in Energetic Systems	1			
Electrical Breakdown in Systems and Components	1	1		
Improving Material and Component Performance Margins	1	2		
Other			1	

Evaluation Criteria: *Strategy*

2014 ERB Comments

Research strategy is clear, having strategic goals, areas of research focus, competitive analysis, and measures of success.

- There is no real mechanism in place to measure forward progress on the strategy.
- The strategy does not really reach down to the level of technical staff.
- The connections between ESRF strategy and SNL corporate strategy are not obvious.
- Management superstructure may be in excess.

Evaluation Criteria: *Strategy*

ESRF Response

Research strategy is clear, having strategic goals, areas of research focus, competitive analysis, and measures of success.

- Progress measured by:
 - investing LDRD in 3 Research Foundation areas: computational simulation, novel diagnostics, and integration with V&V/UQ, and our 7 mission challenges
 - impact to Sandia's Mission Areas
 - publications & external engagement
- Staff awareness of the strategy occurs via the LDRD Call and recent engagement by our staff in developing many of Sandia's Research Challenges
- ESRF management serve as PMs of LDRDs with the goal of aligning the outcomes of the LDRDs to future capabilities and mission priorities
- ESRF LDRD call is connected with 3 Research Challenges
 - Engineering of Material Reliability
 - Power on Demand
 - Revolutionary Approaches to the Stockpile
- The "management superstructure" enables the ESRF to integrate and align with broader laboratory priorities and minimize stove piping.

Evaluation Criteria: *Relevance*

2014 ERB Comments

Research enables the Labs' national security missions and benefits Sandia, DOE / NNSA, and the nation.

- One area that may be appropriate for continuous improvement: consider mechanisms (e.g., roadmaps) to link diagnostics experiments and long-term sponsor goals.
- The Panel's ability to assess the work of the RF – especially in terms of relevance, but also for other evaluation criteria – will be improved if even greater context is provided on the impetus for the project and its expected downstream implications.

Evaluation Criteria: *Relevance*

ESRF Response

Research enables the Labs' national security missions and benefits Sandia, DOE / NNSA, and the nation.

- Roadmap development (e.g., diagnostics) is driven by multiple factors:
 - direct customer application
 - need for validation data
 - fundamental discovery of challenging physical phenomena
 - requirements range from short- to long-term
- Current roadmaps attempt to integrate across capabilities:
 - ASC Focus Areas (Delivery, Safety and Security, Components, etc.) with Engineering Campaigns
 - Multi-scale Strategy (topic of Thursday discussion)
- The presentations and posters will provide a better context to why the work is being performed and how we are integrating our computational, experimental and V&V/UQ capabilities to meet mission needs

Evaluation Criteria: *Quality*

2014 ERB Comments

Research is high quality and at the leading edge and is performed with high integrity and fidelity.

- Overall, the Panel saw extremely high-quality work throughout the session.
- There was an R&D as well as an applied component for just about everything reviewed by the Panel.
- Some of the work involved potentially game-changing innovation.
- The Panel is pleased to see that the ESRF has maintained its knack for always wrapping discoveries back into the model

Evaluation Criteria: *Quality*

ESRF Response

Research is high quality and at the leading edge and is performed with high integrity and fidelity.

- The ESRF management appreciates the ERB's comments regarding the quality of our work
- Quality and being recognized as leaders in our respective fields is extremely important to both management and staff (part of our Performance Management process), and is expected of a National Laboratory
- We are changing our philosophy and setting the expectation about publishing both externally in archival journals or internally in SAND reports (if OUO or classified)
- Tracking of journal publications and engagement with the external community (see read-ahead material and Justine's presentation) help us in assessing the quality of our work and the contributions of our people

Evaluation Criteria:

Workforce, Capabilities, and Research Environment

2014 ERB Comments

Research enables the attraction, retention and development of Sandia's technical staff, the development of differentiating capabilities, and nurturing of a vibrant research environment.

- The Panel believes the ESRF may be underestimating the impact of coming-soon retirement.
- The Panel saw indications of some difficulties with mentoring.
- The combination of the aging workforce and insufficient / informal mentoring leads the Panel to worry that ESRF could lose a generation of knowledge of the work involved potentially game-changing innovation.
- Safety continues to be on the minds of staff and managers.
- Travel restrictions are at this point well understood and accepted.

Evaluation Criteria:

Workforce, Capabilities, and Research Environment

ESRF Response

Research enables the attraction, retention and development of Sandia's technical staff, the development of differentiating capabilities, and nurturing of a vibrant research environment.

- Hiring continues to be important challenge in a fluctuating and uncertain national budget environment
- Based on the ERB, feedback ESRF management has taken steps to be intentional about improving the mentoring of our new staff
 - Better onboarding and education programs
 - Mentorship as part of Performance Management process
 - Providing opportunities for junior and senior staff to work side by side on important problems
- Sandia safety journey continues. ESRF management is committed to nurture the development of a safety culture that focuses on learning and critical thinking
- Conference travel restrictions are easing, though we still have challenges with timely approval as a result of the new processes

Evaluation Criteria: *Impact*

2014 ERB Comments

Research leads to outcomes supportive of RF strategic goals, such as S&E leadership, technology deployment and intellectual property.

- The Panel continues to believe that the salient concern for the ESRF ... is the tension between delivering on LEP work and carving out time for fundamental research.
- The Panel was not presented with a systematic review of ESRF publications, but many presenters and posters noted publications resultant from their work.

Evaluation Criteria: *Impact*

ESRF Response

Research leads to outcomes supportive of RF strategic goals, such as S&E leadership, technology deployment and intellectual property.

- ESRF management agrees with the panel and expects the tension to continue as we respond to both NW and other customer needs
- Balancing progress on R&D with applied work is a priority of ESRF management
- We seek a balance between research and applications that will enhance the effectiveness and flexibility of our staff in the future.
- The read-ahead material includes listings of:
 - journal publications
 - journal editorships
 - patents
 - Fellows in professional societies
 - external engagements with professional societies
 - participation on graduate committees
 - serving on national or academic boards.