



# **NNSA ASC Perspective**

**Thuc Hoang**

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# DEPARTMENT OF ENERGY

**Secretarial Council:**  
 Energy Council  
 National Laboratory  
 Policy Council  
 Credit Review Board  
 Cyber Security Council

**Secretary of Energy  
 Advisory Board**

**Office of the Secretary**  
 Dr. Ernest J. Moniz  
 Secretary  
 Dr. Elizabeth Sherwood-Randall  
 Deputy Secretary

**Chief of Staff**

**Federal Energy  
 Regulatory Commission**  
 Inspector General

**Office of the  
 Under Secretary for  
 Nuclear Security**  
 Frank G. Klotz  
 Under Secretary for Nuclear Security

**Office of the  
 Under Secretary for  
 Science & Energy**  
 Dr. Franklin Orr  
 Under Secretary for  
 Science and Energy

**Office of the  
 Under Secretary for  
 Management & Performance**  
 David Klaus (Acting)  
 Under Secretary for  
 Management and Performance

Advanced Research  
 Projects Agency - Energy  
 U.S. Energy Information  
 Administration  
 Bonneville Power  
 Administration  
 Southwestern Power  
 Administration  
 Southeastern Power  
 Administration  
 Western Area Power  
 Administration

Assistant Secretary for  
 International  
 Affairs  
 Assistant Secretary for  
 Congressional &  
 Intergovernmental Affairs  
 General Counsel  
 Chief Financial  
 Officer  
 Enterprise Assessments  
 Energy Policy &  
 Systems Analysis  
 Intelligence &  
 Counterintelligence  
 Loan Programs  
 Office  
 Public Affairs  
 Small and Disadvantaged  
 Business Utilization

National Nuclear  
 Security Administration

**ASC**

Deputy Administrator  
 for Defense Nuclear  
 Nonproliferation  
 Deputy Administrator  
 for Naval Reactors  
 Associate Administrator  
 for Defense Nuclear  
 Security  
 Associate Administrator  
 for External Affairs  
 Associate Administrator  
 for Management  
 & Budget  
 Associate Administrator  
 for Safety & Health

Deputy Administrator  
 for Defense Programs  
 Deputy Under Secretary  
 for Counter-terrorism &  
 Counter-proliferation  
 Associate Administrator  
 for Emergency  
 Operations  
 Associate Administrator  
 for Infrastructure &  
 Operations  
 Associate Administrator  
 for Acquisition &  
 Project Management  
 Associate Administrator  
 for Information Management  
 & Chief Information Officer

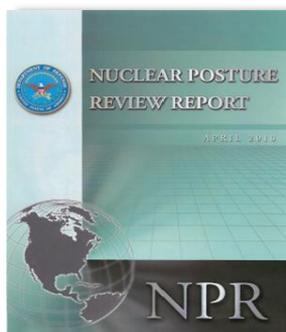
Office of  
 General Counsel

Office of Science

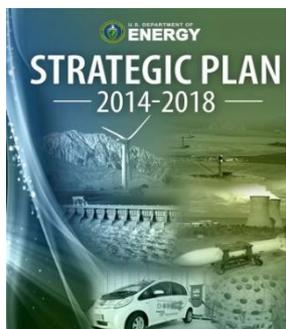
**ASCR**

Assistant Secretary  
 for  
 Fossil Energy  
 Assistant Secretary  
 For Energy Efficiency  
 And Renewable Energy  
 Assistant Secretary  
 for  
 Nuclear Energy  
 Assistant Secretary  
 for Electricity Delivery and  
 Energy Reliability  
 Indian Energy  
 Policy and Programs

National Laboratory  
 Operations Board  
 Associate Under Secretary  
 for Environment, Health,  
 Safety & Security  
 Management  
 Chief Human Capital  
 Officer  
 Chief Information  
 Officer  
 Economic Impact  
 & Diversity  
 Hearings & Appeals  
 Assistant Secretary  
 For Environmental  
 Management  
 Legacy Management



**Nuclear Posture Review, April 2010** *“In order to sustain a safe, secure, and effective U.S. nuclear stockpile as long as nuclear weapons exist, the United States must possess a modern physical infrastructure – comprised of the national security laboratories and a complex of supporting facilities – and a highly capable workforce...”*



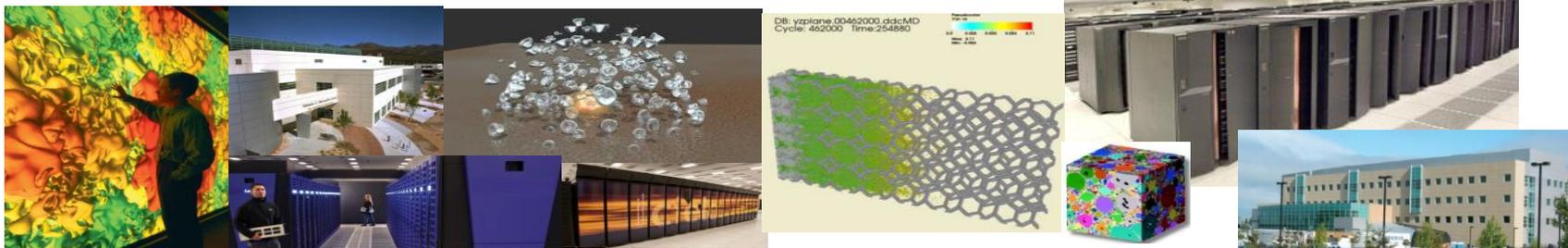
**DOE Strategic Plan 2014-2018** *“Strengthen national security by maintaining and modernizing the nuclear stockpile and nuclear security infrastructure, reducing global nuclear threats, providing for nuclear propulsion, improving physical and cybersecurity, and strengthening key science, technology, and engineering capabilities.”*

*Office of Defense Programs Mission:*

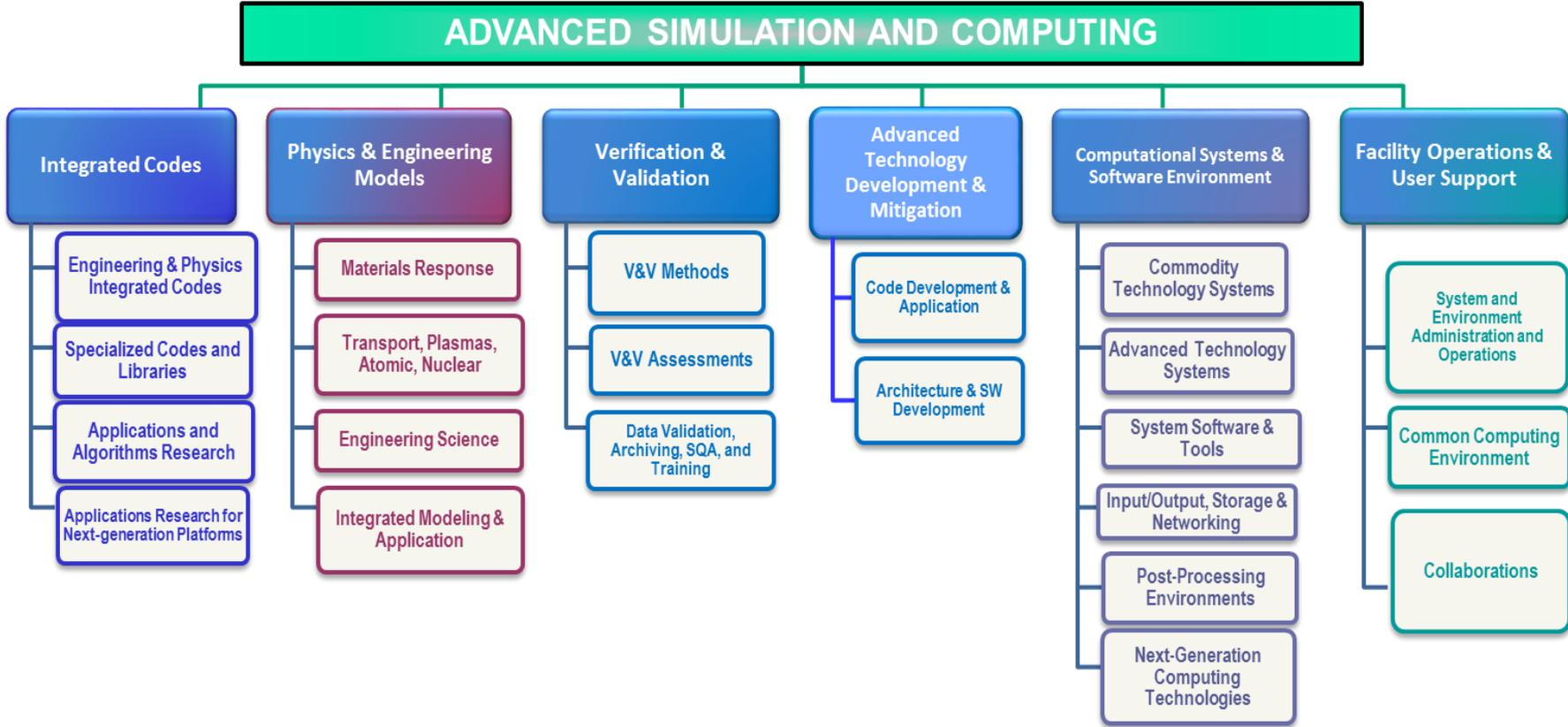
*To sustain a safe, secure, and effective nuclear deterrent through the application of science, technology, engineering, and manufacturing.*

*Mission: Provide leading edge, high-end simulation capabilities needed to meet weapons assessment and certification requirements.*

- Support the current stockpile through activities for the B61 LEP, W78 LEP study, exploring stockpile options, and support the National Ignition Campaign
- Prepare for the future stockpile through code improvements vectored toward future stockpile options and mitigating and adapting the integrated design codes (IDCs) to evolving high performance computer architectures
- Provide computing capabilities for current stockpile and prepare for increased understanding needed to support future options
- Support foreign weapons assessments

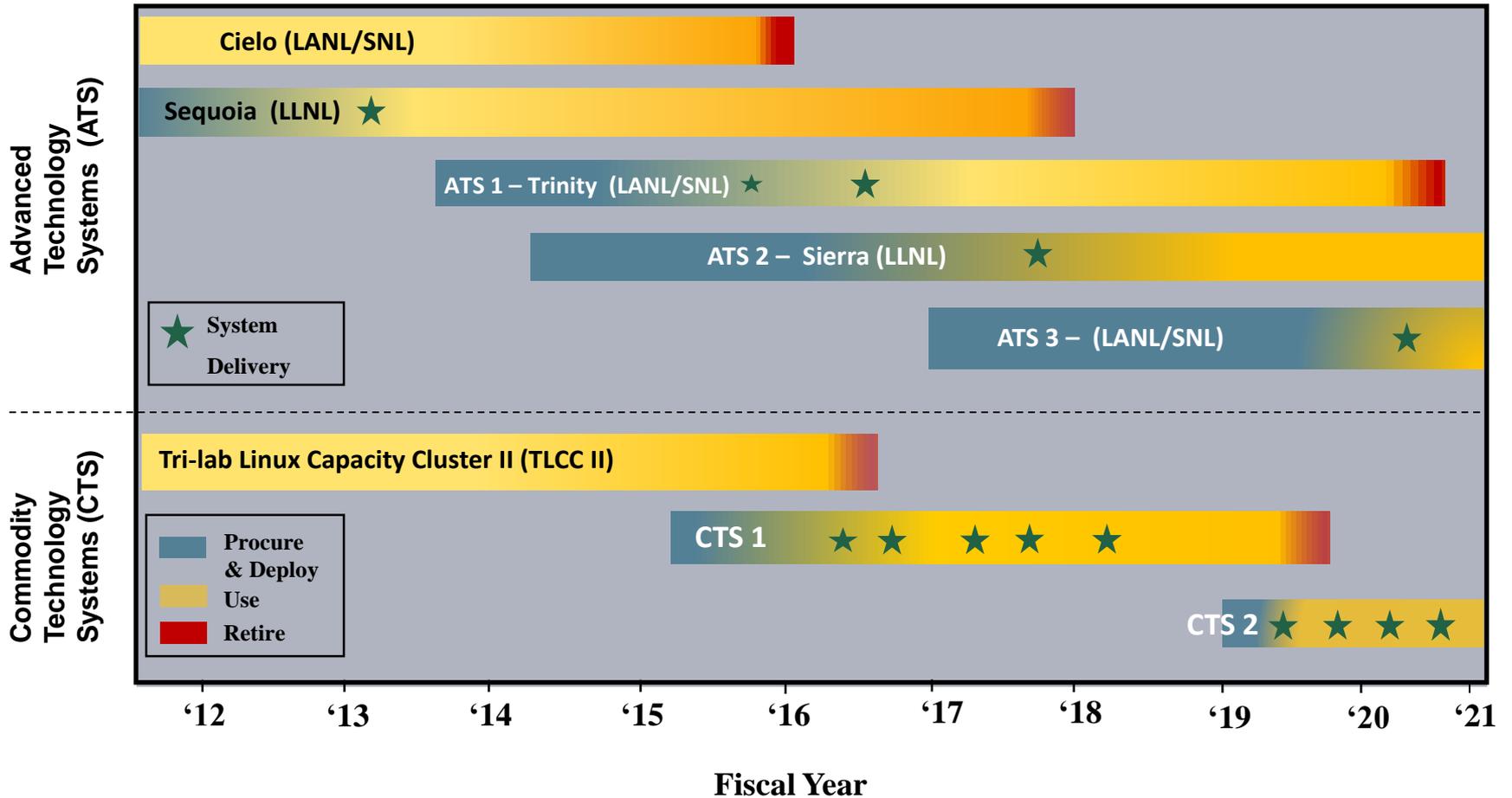


# Program Structure





# ASC Platform Timeline





# ATDM Subprogram (coordinated with IC & CSSE)



- **Next-Generation Code Development & Application**
  - Long-term research investigating how future code development must address new HPC challenges, using new programming models and data management techniques developed through co-design of applications and systems
- **Next-Generation Architecture & Software Development**
  - Long-term computing technology research of extreme, heterogeneous architectures and to mitigate its impact and advance its capabilities for ASC simulation codes

## ➤ FY15 Activities:

- ✓ Next-generation code developments
- ✓ Advanced hardware testbed deployments
- ✓ Proxy application development and analysis
- ✓ NREs for Trinity and Sierra - application readiness, burst buffer, compiler development, power management
- ✓ FastForward and DesignForward collaborations

## ❖ FY16: ECI start ????