

*Exceptional service in the national interest*



# Sandia National Laboratories Update

## 2016 Sandia/California Retiree Luncheon

Marianne Walck Ph.D., Vice President  
CALIFORNIA LABORATORY

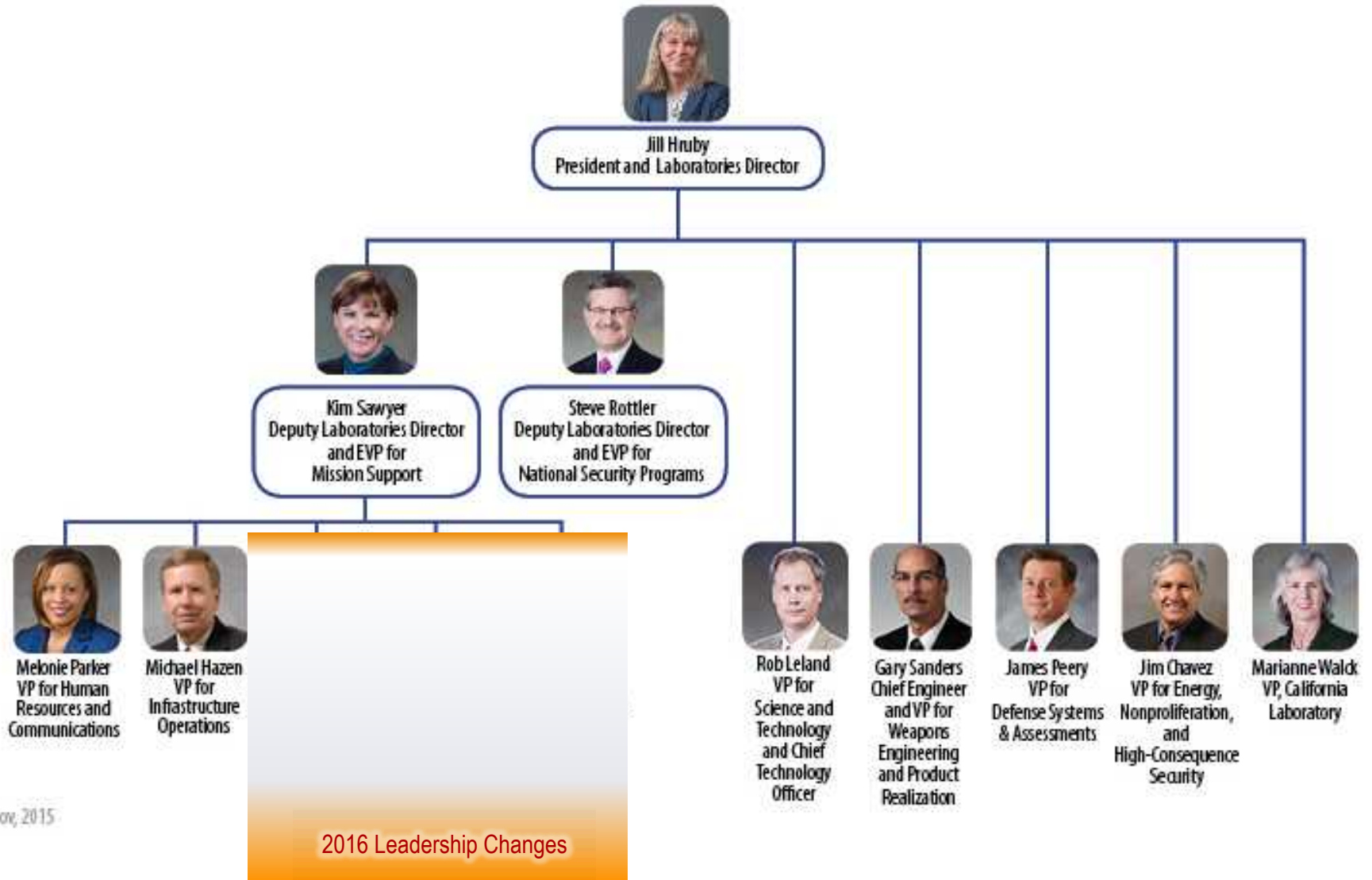


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# Laboratory Presidents' Message



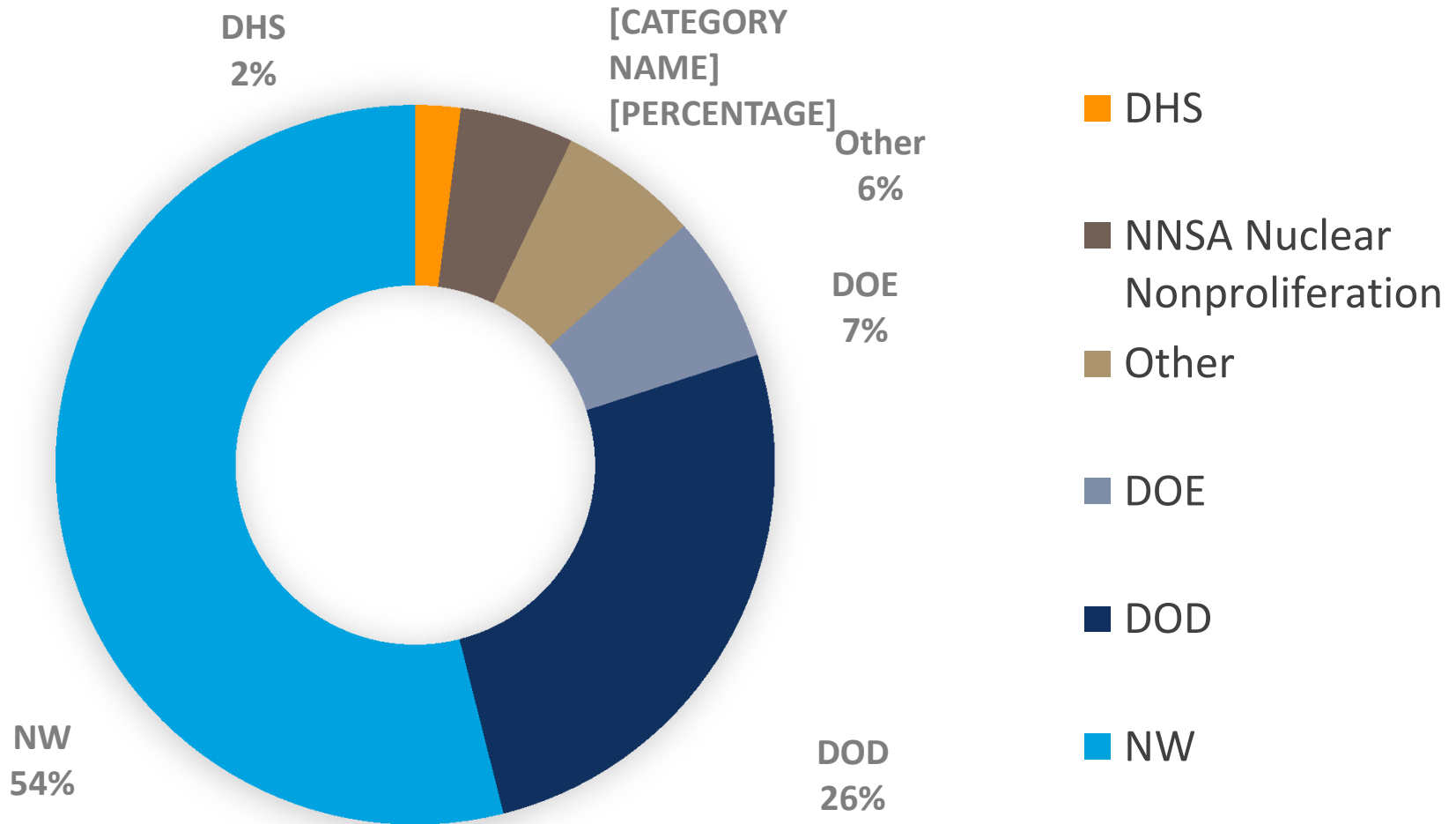
# Executive Leadership Team



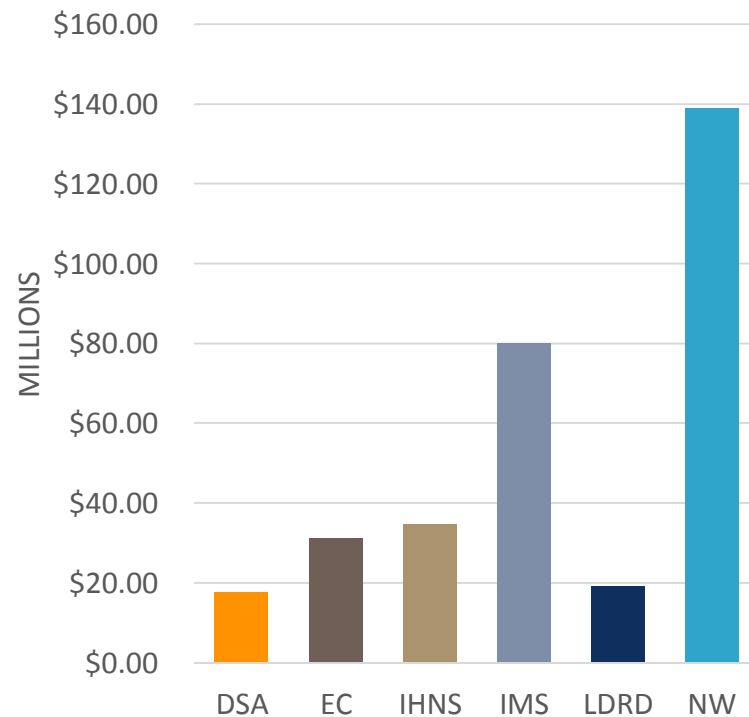
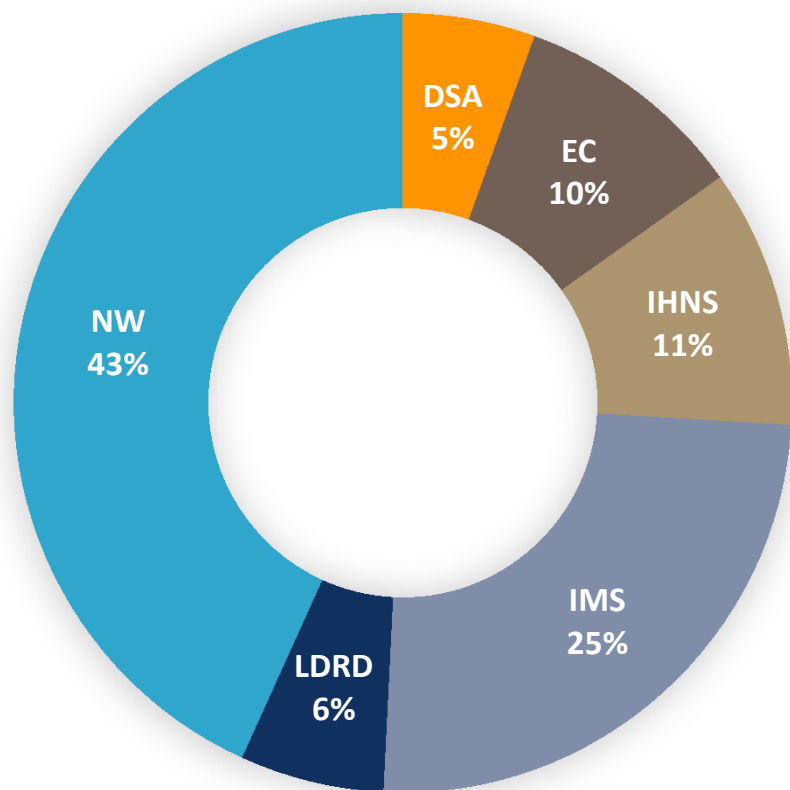
Nov, 2015

# Laboratories Funding Update

## Total Lab Funding: \$2,810M in 2015



# Division 8000 Total Funding per PMU



■ DSA ■ EC ■ IHNS ■ IMS ■ LDRD ■ NW

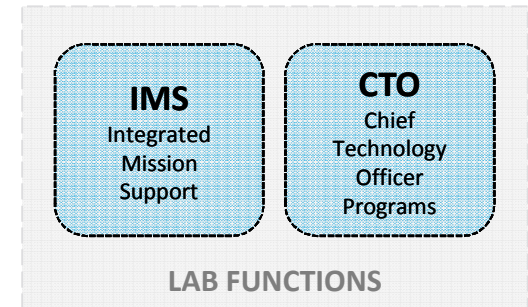
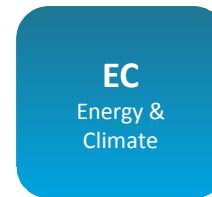
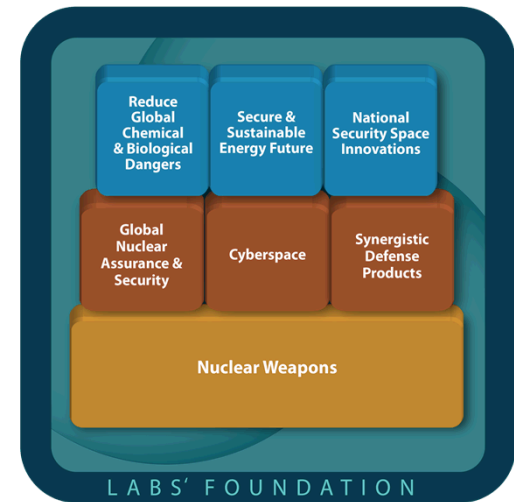
# Sandia's Organizational Structure

## ■ Mission Areas

- Set Sandia's overall strategic direction

## ■ Program Management Units

- Execute strategy and manage programs



## ■ Divisions

- Perform work and steward capabilities and policies

1000

2000

3000

4000

5000

6000

8000

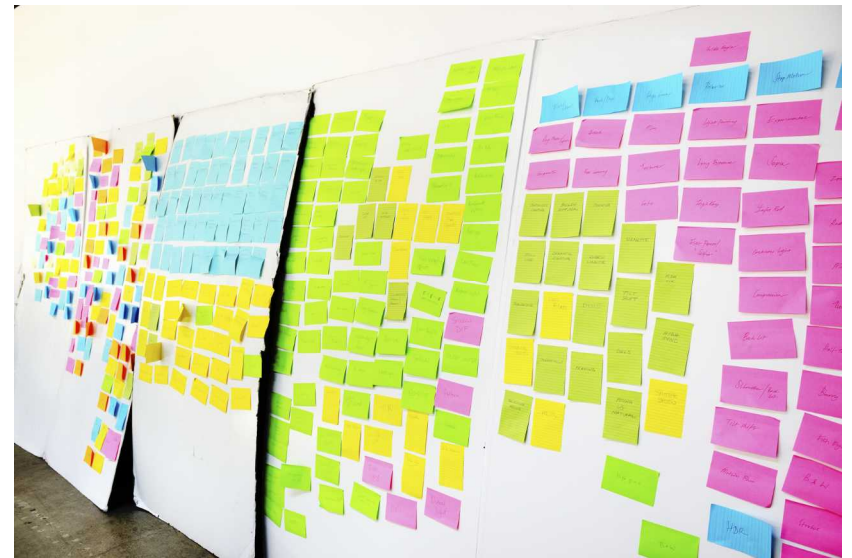
9000

10000

11000

# California Laboratory Undergoes Division 8000 Strategic Planning Process

- **Planning Process for Division 8000:**
  - Value of the California Laboratory to Sandia and the Nation
  - Focus on capability sustainment and development



# Division 8000 California Laboratory



## Value Proposition

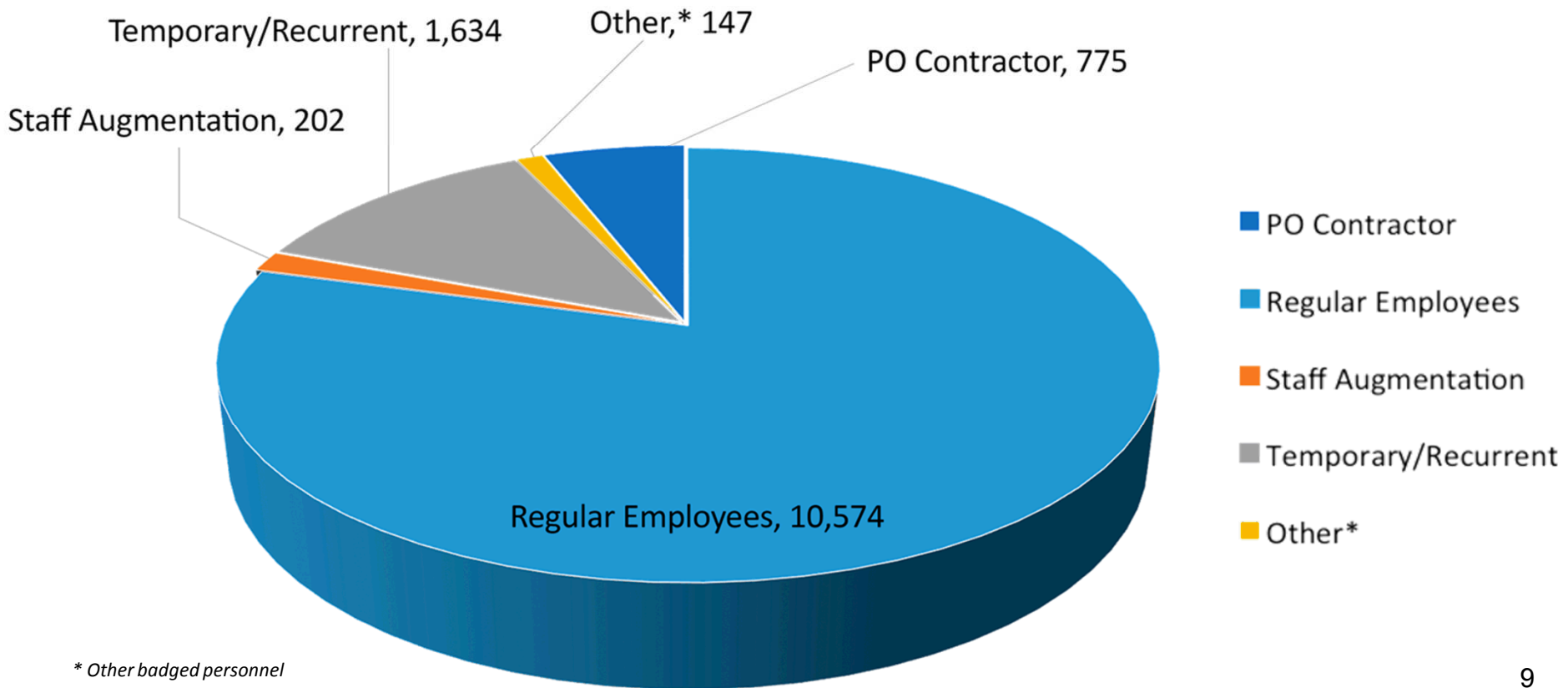
Sandia's California Laboratory is a **national asset** that **combines deep expertise** in specific national security domains with an advantageous **location** and **size** to **provide exceptional benefit** to the nation and to Sandia at large.

Sized for innovation and agility, the California Lab **specializes in developing** end-to-end **science and engineering solutions** for cyber, chemical, biological, radiological, and nuclear security; nuclear weapons system engineering; and transportation energy, drawing upon extraordinary technical depth **across all Sandia locations**.

The **Bay Area location serves as a Sandia portal** to world-class universities and high-tech industry, enabling the outward-facing interactions **essential for sustained national security technical leadership**.

# Our Workforce at the Laboratories

- **Total Sandia workforce: 13,332**
  - Regular employees: 10,574
  - Advanced degrees: 5,859 (55%)



\* Other badged personnel

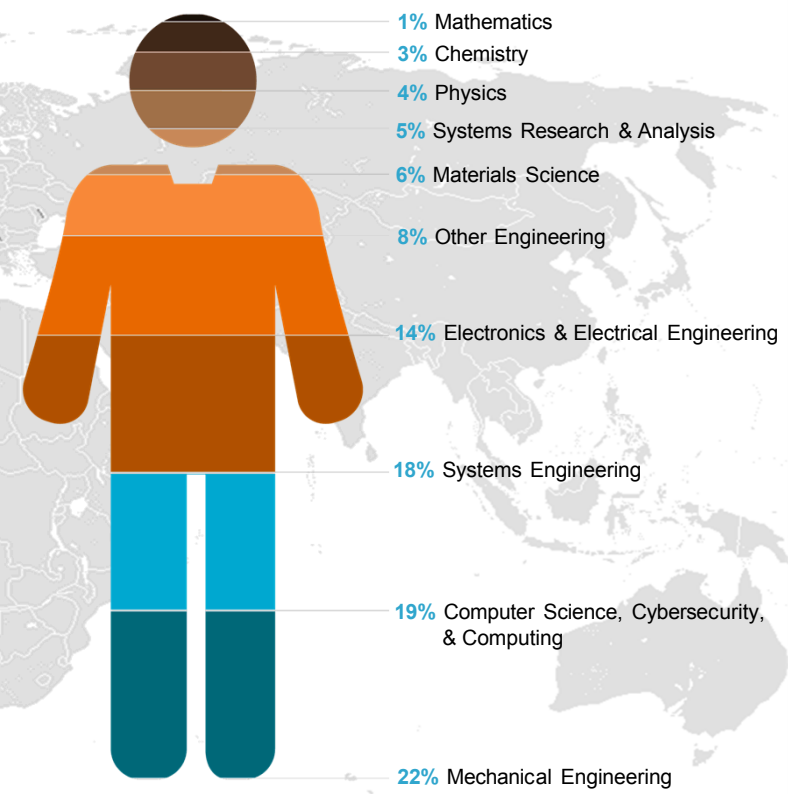
# California Laboratory Demographics Sandia National Laboratories

■ **On-site workforce: 1,191**

(Regular, PD, LTE, Staff Aug)

- R&D staff: 696
- Post Docs: 94

*Includes 65 highly talented international workers from 26 countries*



# California Laboratory Leadership

## NM Orgs that Support CA Leadership

- CI (20)
- Ombuds (30)
- Govt Relations (100)
- Legal (11000)
- Recruiting (3000)



**Marianne Walck**  
8000 | California Laboratory



**Craig Tewell**  
8005 | Deputy to the  
Vice President



**Duane Lindner**  
8100 | Homeland  
Security & Defense  
Systems



**Russ Miller**  
8200 | CA Nuclear  
Weapon Systems  
Engineering



**Bob Hwang**  
8300 | Transportation  
Energy Center



**Denise Koker**  
8500 | CA Site  
Operations



**Anup Singh**  
8600 | Biological &  
Engineering Sciences



**Heidi Ammerlahn**  
8900 | *Acting*  
Computer Science &  
Information Systems

# Sandia Capabilities Stewarded by Division 8000

## NUCLEAR WEAPONS

### *Systems Engineering & Analysis for Nuclear Weapons*

- *Ensure a safe, secure and effective nuclear stockpile*
- *Support a deterrence posture that is resilient, forward leaning, and anticipatory*

## GLOBAL NUCLEAR ASSURANCE AND SECURITY

### *CBRN Defense*

- *Assess WMD threats*
- *Develop and deploy technology and systems*
- *Support operations planning and reachback*

GLOBAL CHEMICAL AND  
BIOLOGICAL DANGERS

### *Defense Against Cyber Threats*

- *Discover, characterize, and counter new threats*
- *Provide secure info & communication systems*

### *Transportation, Fuels, & Engines and their Impacts*

- *Enable the predictive simulation of new engine and powertrain designs*
- *Pioneer the production of infrastructure-compatible biofuels*

CYBERSPACE

SECURE AND SUSTAINABLE ENERGY FUTURE

SANDIA MISSION AREAS

# The California Laboratory is a Strategic Asset for Sandia



- National Laboratory Partnerships
  - Lawrence Livermore
  - Lawrence Berkeley
- University Collaborations and Partnerships
  - Access to world-class minds and unique facilities
- International Partnerships
- Industry Collaborations
- State of California – leadership in energy policy

*LVOC enables partnerships that benefit the entire breadth of Sandia's mission space*

# Systems Engineering and Analysis for Nuclear Weapons

## ■ Accomplishments

- Phase 6.2 (Concept Development) Ongoing
- Mk21 Fuze Program currently in Phase 6.3 Full Scale Engineering Development
- Cycle 21 Annual Assessment Completed (CA Systems)



## ■ Challenges

- Managing staffing levels in a changing budget and mission environment
- Limited Area space
- Continuity of funding during a continuing resolution
- Security performance as indicated by the incident metric



# Defense Against Cyber Threats

## ■ Accomplishments

- Acquired a new 28 Haswell core Data Analytics research cluster (“Kahuna”) for cybersecurity and data sciences R&D
- Applying Formal Methods techniques to hardware and software components in the B83, W80-4 and Mk21 Fuse
- Integrated analysis of cyber network traffic data across Sandia, DoD and DHS systems led to discovery of a new network threat and supported mitigation across all stakeholders
- Created and staffed two new departments: (1) cyber systems research for defense applications and (2) open data sciences research



*Kahuna Cluster*

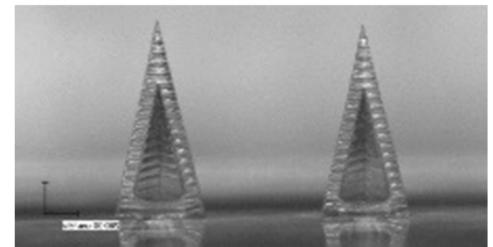
## ■ Challenges

- Attracting and retaining cyber, data sciences, and computer science professionals continue
- Aging office space, lab, and site infrastructure impacting staffs’ perceived professional quality of life



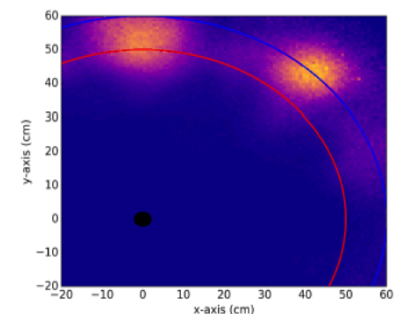
## ■ Accomplishments

- Multiple Sandians deployed in West Africa to supervise diagnostic labs for Ebola.
- SpinDx units developed for testing and evaluation by DHS; BaDx units delivered to CDC for testing.
- Developed diagnostic devices for detection of Zika and Ebola in low-resource settings.
- Single atom trapping system demonstrated for use in nuclear proliferation monitoring.
- A new technique has been developed that enables passive 3D imaging of Special Nuclear Material (SNM) from a single measurement/view.
- Initial specification of Radiation Portal Monitor Open Systems Architecture submitted to DNDO.



## ■ Challenges

- Shifting national priorities
- Delays in receiving funding from NIH



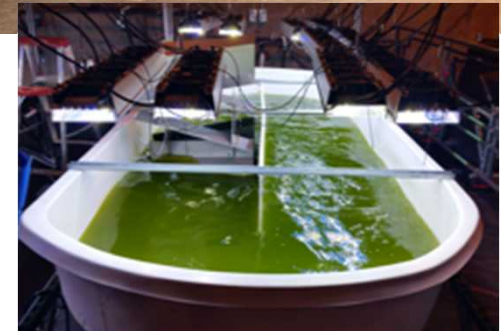
# Transportation, Fuels, and Engines and their Impacts

## ■ Accomplishments

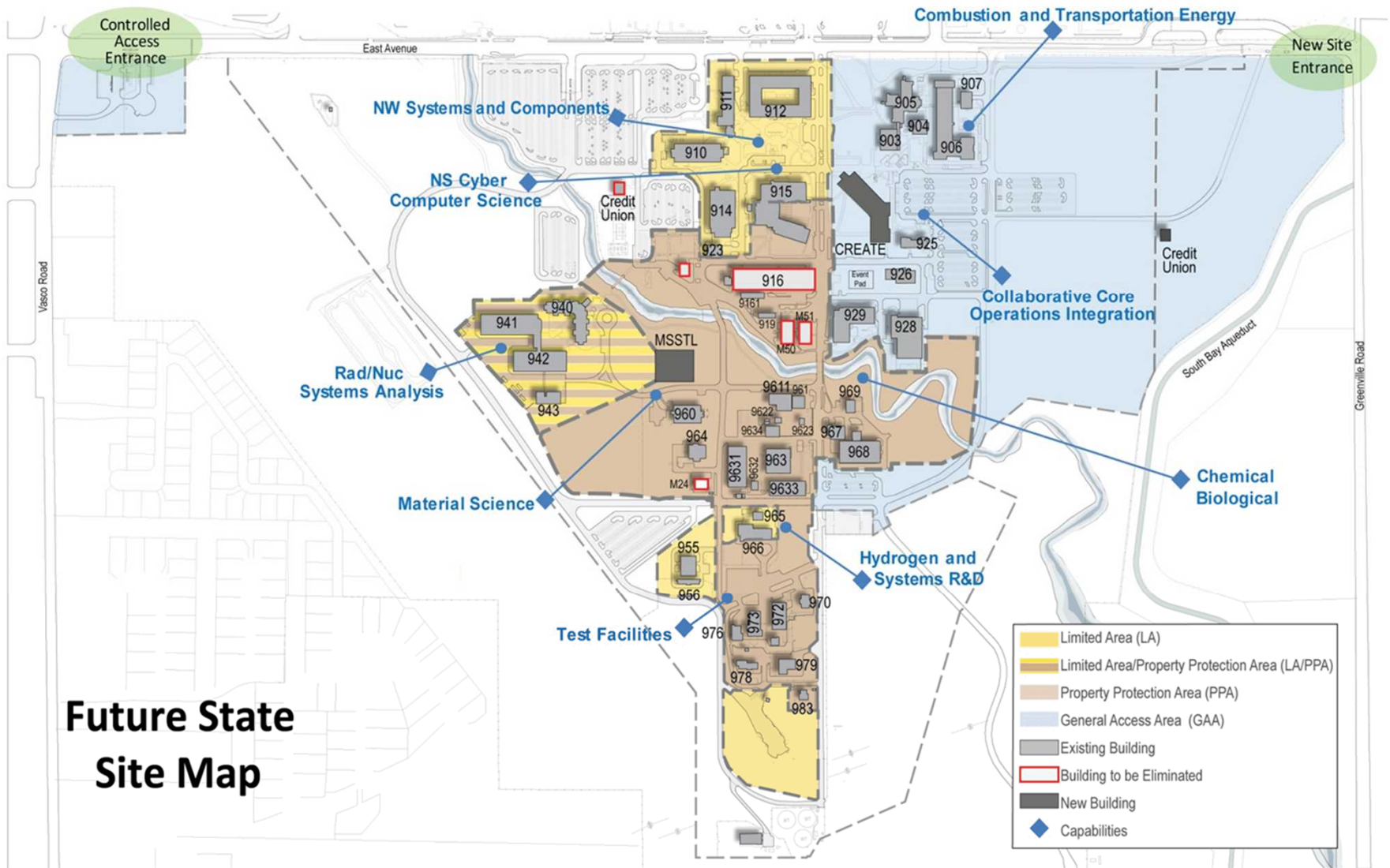
- Spray Combustion Consortium
- Establishment of Algal Testbed
- DOE Co-Optima Initiative
- Development of award-winning Hydrogen Station Equipment Performance (HyStEP) Device
- Development of BioCompoundML software
- New Pathway in Mechanism of Soot Formation
- Establishment of a multi-lab Agile BioFoundry

## ■ Challenges

- Low cost of oil may reduce motivation to fund alternative transportation fuel R&D.



# Site Development Plan



# Increasing Limited Area Space

Construction is currently underway to move Building 911 into Limited Area Space.

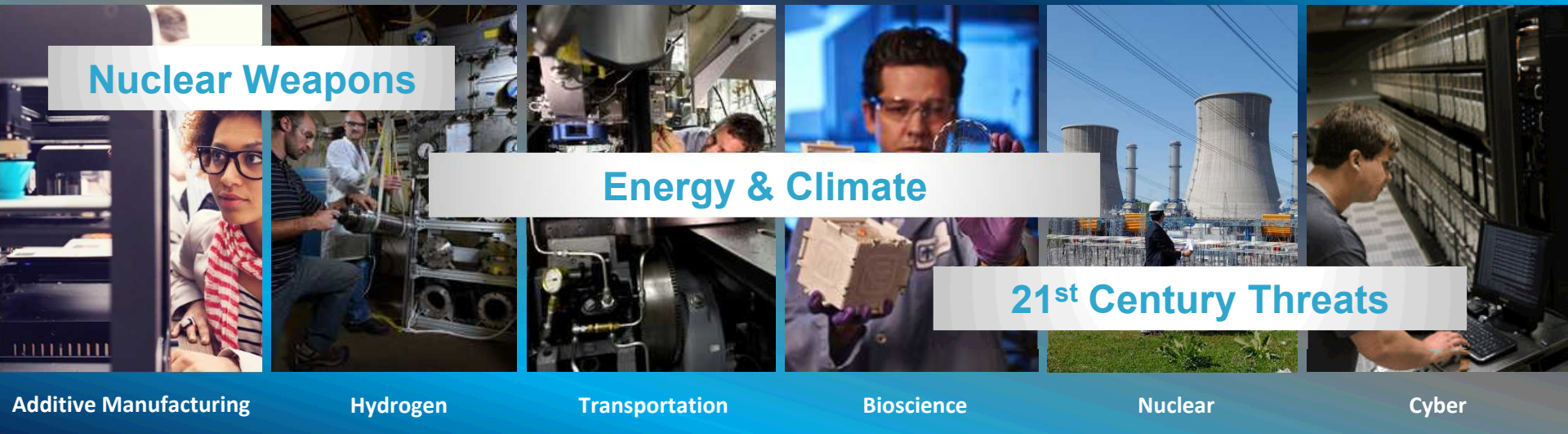
- Enables NW mission work
- HR functions move to new C926 building in the fall
- C926 becomes the new front door to the California site



# Progress on New Building, C926



# CREATE: *A collaborative facility to realize the promise of the Livermore Valley Open Campus*



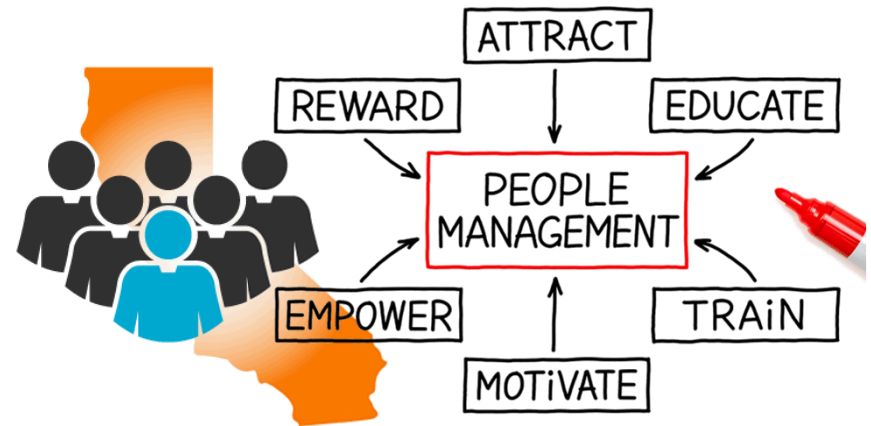
## CREATE TRANSACTION MODEL



# Division Initiatives: Attraction & Retention

## ■ Actions being implemented:

- Rental Housing Assistance
- 4/10 Pilot
- Recruiting Programs:
  - Launch - Post Baccalaureate Program Pilot
  - Soar with Sandia – Graduate Intern Pipeline Program Pilot
  - Summer Intern Program



## ■ Accomplishments:

- Have taken notable steps toward addressing employee cost of living by implementing a geographical differential and CA merit matrix.

# Division Initiatives:

## Diversity & Inclusion

As a Division we are committed to sustaining and deepening our culture of inclusion and collaboration to enable us to accomplish our mission.

***Bring your whole-self to work everyday.***

**This business imperative is focused on:**

- Different types of diversity
- Talent attraction
- Retention of talent
- Increased focus on innovation
- Building an inclusive culture and work environment
- Employee engagement:
  - Division Diversity Council (DDC)
  - 5 year Strategic Plan, Vision 2020



*Division D&I Ice Cream Social*

# Sandia/California Celebrates 60 Years Sandia National Laboratories



Held two events to commemorate Sandia/California's 60<sup>th</sup> Anniversary

- **At the Laboratory: Thurs. March 3<sup>rd</sup> @ SNL/CA**
  - Invited former Lab Directors & Division 8000 Vice Presidents
  - Site-wide Panel Discussion & Social with Marianne Walck, former Lab Directors, and Division 8000 Vice President's
- **In the Community: Sat. May 21<sup>st</sup> @ Bankhead Theatre**
  - Hands-on science activities, technology displays, and demonstrations
  - Demonstrations by local Girl Scouts and high schools
  - Presentations by elected officials
  - National Security Speakers
  - Sandia recruiting



# Sandia/California Celebrates 60 Years Sandia National Laboratories

## at the Laboratory



**Top Row:** Rick Stulen, Steve Rottler, Marianne Walck, John Crawford  
**Bottom Row:** Paul Hommert, Mim John, Tom Hunter



# Questions?



*Sandia/California Site Photo 2014*